

മഹാത്മാഗാന്ധി സർവകലാശാല

2021 മാർച്ച് മാസം 06-ാം തീയതി രാവിലെ 10.00 മണിക്ക്
വീഡിയോ കോൺഫറൻസ് മുഖേന നടന്ന അക്കാദമിക്
കൗൺസിൽ യോഗത്തിന്റെ നടപടിക്കുറിപ്പുകൾ



സ്മരലഃ:-

വൈസ് ചാൻസലറുടെ കോൺഫറൻസ് ഹാൾ, അഡ്മിനിസ്ട്രേറ്റീവ് ബ്ലോക്ക്,
മഹാത്മാഗാന്ധി സർവകലാശാല, പ്രിയദർശിനി ഹിൽ പി.ഒ., അതിരമ്പുഴ, കോട്ടയം

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മഹാത്മാഗാന്ധി സർവ്വകലാശാല

**2021 മാർച്ച് മാസം 06-ാം തീയതി രാവിലെ 10.00 മണിക്ക് വീഡിയോ
കോൺഫറൻസ് മുഖേന നടന്ന അക്കാദമിക് കൗൺസിൽ
യോഗത്തിന്റെ നടപടിക്കുറിപ്പുകൾ**

നേരിട്ട് സന്നിഹിതരായവർ :

1. പ്രൊഫ. (ഡോ.) സാബു തോമസ്, വൈസ് ചാൻസലർ, അദ്ധ്യക്ഷൻ
2. പ്രൊഫ. (ഡോ.) സി.റ്റി.അരവിന്ദകുമാർ, പ്രൊ-വൈസ് ചാൻസലർ
3. പ്രൊഫ. ഹരികൃഷ്ണൻ പി., സിൻഡിക്കേറ്റ് അംഗം
4. ഡോ. സുധാകരൻ കെ.എം., സിൻഡിക്കേറ്റ് അംഗം
5. ഡോ. ബിജു തോമസ്, സിൻഡിക്കേറ്റ് അംഗം
6. ഡോ. വർഗ്ഗീസ് കെ. ചെറിയാൻ, സിൻഡിക്കേറ്റ് അംഗം
7. ഡോ. ബിന്ദു വി.ആർ., പ്രൊഫസർ, സ്കൂൾ ഓഫ് കമ്പ്യൂട്ടർ സയൻസസ്, എം.ജി.യു.

ഓൺലൈനായി പങ്കെടുത്തവർ :

1. ഡോ. ബി.കേരളവർമ്മ, സിൻഡിക്കേറ്റ് അംഗം
2. ഡോ. എ. ജോസ്, സിൻഡിക്കേറ്റ് അംഗം
3. ഡോ. റോബിനെറ്റ് ജേക്കബ്, സിൻഡിക്കേറ്റ് അംഗം
4. ഡോ. പി.എസ്. സുകുമാരൻ, സിൻഡിക്കേറ്റ് അംഗം
5. പ്രൊഫ. (ഡോ.) എം.എച്ച്. ഇല്യാസ്, സിൻഡിക്കേറ്റ് അംഗം
6. ഡോ. പുഷ്പലത കെ.പി., അസോസിയേറ്റ് പ്രൊഫസർ, ഹെഡ് ഓഫ് ഡിപ്പാർട്ട്മെന്റ്, സ്കൂൾ ഓഫ് കമ്പ്യൂട്ടർ സയൻസസ്, മഹാത്മാഗാന്ധി യൂണിവേഴ്സിറ്റി, കോട്ടയം
7. പ്രൊഫ. സബീന ഭാസ്കർ, അസോസിയേറ്റ് പ്രൊഫസർ, സെന്റ്. തെരേസാസ് കോളേജ്, എറണാകുളം
8. പ്രൊഫ. അനിത കോശി, അസോസിയേറ്റ് പ്രൊഫസർ, കാതോലിക്കേറ്റ് കോളേജ്, പത്തനംതിട്ട
9. ഡോ. പ്രിയ സേനൻ, അസോസിയേറ്റ് പ്രൊഫസർ, എസ്എൻഡിപി കോളേജ്, പത്തനംതിട്ട
10. ഡോ. പി.എസ്. നാഗമണി, അസോസിയേറ്റ് പ്രൊഫസർ, എൻഎസ്എസ് ഹിന്ദു കോളേജ്, ചങ്ങനാശ്ശേരി
11. ഡോ. ജി. രാജാമണി, പ്രിൻസിപ്പൽ, എസ്.സി.ആർ.എൻ.എസ്.എസ് കോളേജ്, വാഴൂർ
12. ഡോ. പുഷ്പ മരിയൻ, പ്രിൻസിപ്പൽ, മൗണ്ട് കാർമൽ കോളേജ് ഓഫ് ടീച്ചർ എഡ്യൂക്കേഷൻ, കോട്ടയം
13. ഡോ. ബിനു ജോർജ് വർഗീസ്, ഡയറക്ടർ സ്കൂൾ ഓഫ് ഫിസിക്കൽ എജുക്കേഷൻ ആൻഡ് സ്പോർട്സ് സയൻസ്, മഹാത്മാഗാന്ധി യൂണിവേഴ്സിറ്റി, കോട്ടയം
14. ഡോ. സി. പത്മനാഭൻ, അസോസിയേറ്റ് പ്രൊഫസർ, ഡിപ്പാർട്ട്മെന്റ് ഓഫ് ഇംഗ്ലീഷ്, പി ആർ എൻ എസ് എസ് കോളേജ്, മട്ടന്നൂർ
15. ഡോ. ബിന്ദു ഗോപാലകൃഷ്ണൻ, ഹെഡ് ഓഫ് ഡിപ്പാർട്ട്മെന്റ്, സ്കൂൾ ഓഫ് ഇന്ത്യൻ ലിഗൽ തോട്ട്, മഹാത്മാഗാന്ധി യൂണിവേഴ്സിറ്റി, കോട്ടയം

16. ഡോ. പ്രവീൺ എൻ., അസോസിയേറ്റ് പ്രൊഫസർ എൻഎസ്എസ് കോളേജ്, രാജകുമാരി, ഇടുക്കി
17. പ്രൊഫ. കെ.ജെ. എബ്രഹാം, അസോസിയേറ്റ് പ്രൊഫസർ, സെന്റ്. സേവിയേഴ്സ് കോളേജ്, വൈക്കം, കോട്ടയം
18. ഡോ. ബിജു ലക്ഷ്മണൻ, അസോസിയേറ്റ് പ്രൊഫസർ ആൻഡ് ഹെഡ് ഓഫ് ഡിപ്പാർട്ട്മെന്റ്, സ്കൂൾ ഓഫ് ഡിസ്റ്റൻസ് എഡ്യൂക്കേഷൻ, മഹാത്മാഗാന്ധി യൂണിവേഴ്സിറ്റി, കോട്ടയം
19. ഡോ. എസ്. മോഹൻ, അസോസിയേറ്റ് പ്രൊഫസർ, എസ്.എസ്. കോളേജ്, കാലടി എറണാകുളം
20. ഡോ. വിനോദൻ സി. അസോസിയേറ്റ് പ്രൊഫസർ, ആൻഡ് ഹെഡ് ഓഫ് ഡിപ്പാർട്ട്മെന്റ്, സ്കൂൾ ഓഫ് ഇന്റർനാഷണൽ റിലേഷൻസ് ആൻഡ് പൊളിറ്റിക്സ്, മഹാത്മാഗാന്ധി യൂണിവേഴ്സിറ്റി കോട്ടയം
21. ഡോ. സാബു എം.കെ., അസോസിയേറ്റ് പ്രൊഫസർ, ഡിപ്പാർട്ട്മെന്റ് ഓഫ് കമ്പ്യൂട്ടർ ആപ്ലിക്കേഷൻ, കൊച്ചിൻ യൂണിവേഴ്സിറ്റി ഓഫ് സയൻസ് ആൻഡ് ടെക്നോളജി.
22. പ്രൊഫ. ഡോ. രാജീവ് കുമാർ എൻ., ഹെഡ് ഓഫ് ഡിപ്പാർട്ട്മെന്റ്, സ്കൂൾ ഓഫ് ബിഹേവിയറൽ സയൻസസ്
23. പ്രൊഫ. ഡോ. കൈലാസനാഥ്, ഇന്റർനാഷണൽ സ്കൂൾ ഓഫ് ഫോട്ടോണിക്സ്, കൊച്ചിൻ യൂണിവേഴ്സിറ്റി ഓഫ് സയൻസ് ആൻഡ് ടെക്നോളജി, കൊച്ചി.
24. ഡോ. സി. ഗണേഷ്, പ്രൊഫസർ, ഡിപ്പാർട്ട്മെന്റ് ഓഫ് കോമേഴ്സ്, യൂണിവേഴ്സിറ്റി ഓഫ് കേരള
25. ഡോ. ബിന്ദു കെ., അസോസിയേറ്റ് പ്രൊഫസർ, ഡിപ്പാർട്ട്മെന്റ് ഓഫ് മ്യൂസിക്, യൂണിവേഴ്സിറ്റി ഓഫ് കേരള
26. ഡോ. കെ.എസ്. ചന്ദ്രശേഖർ, പ്രൊഫസർ & ഹെഡ്, ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് മാനേജ്മെന്റ് ഇൻ കേരള, യൂണിവേഴ്സിറ്റി ഓഫ് കേരള, കാര്യവട്ടം
27. ഡോ. കെ.എസ്. ദേവകി, ഹെഡ് ഓഫ് ഡിപ്പാർട്ട്മെന്റ്, സ്കൂൾ ഓഫ് കെമിക്കൽ സയൻസസ്, എം.ജി.യു.
28. ഡോ. നന്ദകുമാർ, പ്രൊഫസർ ആൻഡ് ഹെഡ് പ്യൂർ ആൻഡ് അപ്ലൈഡ് ഫിസിക്സ്, മഹാത്മാ ഗാന്ധി യൂണിവേഴ്സിറ്റി, കോട്ടയം
29. ഡോ. ലിന മാത്യു, അസോസിയേറ്റ് പ്രൊഫസർ, സ്കൂൾ ഓഫ് ബയോ സയൻസസ്, എം.ജി.യു.
30. ഡോ. അനൂജ തോമസ്, അസോസിയേറ്റ് പ്രൊഫസർ, സിഎംഎസ് കോളേജ്, കോട്ടയം
31. പ്രൊഫ. രാജീമോൾ എ., അസോസിയേറ്റ് പ്രൊഫസർ, മരിയൻ കോളേജ്, കുട്ടിക്കാനം
32. ഡോ. ഇ.വി. രാമസ്വാമി, പ്രൊഫസർ ആൻഡ് ഹെഡ്, സ്കൂൾ ഓഫ് എൻവയോൺമെന്റൽ സയൻസസ്, മഹാത്മാഗാന്ധി യൂണിവേഴ്സിറ്റി, കോട്ടയം
33. പ്രൊഫ. സൂര്യ എൻ.എസ്., ഡിപ്പാർട്ട്മെന്റ് ഓഫ് ടൂറിസം സ്റ്റഡീസ്, എസ്എൻ കോളേജ്, കുമാരകം
34. പ്രൊഫ. (ഡോ.) മിനിക്കുട്ടി എ., ഹെഡ് ഓഫ് ഡിപ്പാർട്ട്മെന്റ്, സ്കൂൾ ഓഫ് മെഡിക്കൽ സയൻസസ്, മഹാത്മാഗാന്ധി യൂണിവേഴ്സിറ്റി, കോട്ടയം
35. പ്രൊഫ. (ഡോ.) സുലൈമാൻ ഇ., ഹെഡ് ഓഫ് ഡിപ്പാർട്ട്മെന്റ്, സ്കൂൾ ഓഫ് മാനേജ്മെന്റ് ആൻഡ് ബിസിനസ്സ് സ്റ്റഡീസ്, മഹാത്മാഗാന്ധി യൂണിവേഴ്സിറ്റി, കോട്ടയം
36. ഡോ. ലീന മാത്യു, പ്രിൻസിപ്പൽ, ബി. കെ.കോളേജ് അമലഗിരി
37. ഡോ. എൻ. ഉഷാദേവി, അസോസിയേറ്റ് പ്രൊഫസർ, ശ്രീ ശങ്കര കോളേജ്, കാലടി, എറണാകുളം
38. ഡോ. ഡി. ശോഭ, പ്രിൻസിപ്പൽ, ഗവൺമെന്റ് സംസ്കൃത കോളേജ്, തൃപ്പൂണിത്തുറ
39. ഡോ. പി. തോമസ് മാത്യു, പ്രിൻസിപ്പൽ (Rtd.), യുസി കോളേജ്, ആലുവ
40. പ്രൊഫ. ഡോ. സുരേഷ് കുമാർ കെ.എസ്., സ്കൂൾ ഓഫ് ഡിസ്റ്റൻസ് എഡ്യൂക്കേഷൻ , യൂണിവേഴ്സിറ്റി ഓഫ് കേരള.

- 41. പ്രൊഫ. ഡോ. ജോണി ജോൺസൺ, സ്കൂൾ ഓഫ് മാനേജ്മെന്റ് ആൻഡ് ബിസിനസ്സ് സ്റ്റഡീസ്, എം.ജി.യു.
- 42. ഡോ. പി.എം. മുസ്തഫ, അസ്സോസിയേറ്റ് പ്രൊഫസർ, മഹാരാജാസ് കോളേജ്, എറണാകുളം
- 43. ഡോ. വിജയ കുമാരി, പ്രിൻസിപ്പൽ, ഗവ. കോളേജ് തൃപ്പൂണിത്തറ
- 44. ഡോ. പുഷ്പ മറിയം, പ്രിൻസിപ്പൽ, മൗണ്ട് കാർമൽ കോളേജ് ഓഫ് ടീച്ചർ എഡ്യൂക്കേഷൻ
- 45. ഡോ. കെ.എം. കൃഷ്ണൻ, ഹെഡ് ഓഫ് ദി ഡിപ്പാർട്ട്മെന്റ്, സ്കൂൾ ഓഫ് ലെറ്റേഴ്സ്, എം.ജി.യു.
- 46. ഡോ. ആശ ജെ.വി., പ്രൊഫസർ, സ്കൂൾ ഓഫ് പെഡഗോഗിക്കൽ സയൻസസ്, എം.ജി.യു.
- 47. ഡോ. സുരേഷ് മാത്യു, പ്രൊഫസർ, സ്കൂൾ ഓഫ് കെമിക്കൽ സയൻസസ്

രജിസ്ട്രാർ, പ്രൊഫ. (ഡോ.) പ്രകാശ്കുമാർ ബി.-യും സന്നിഹിതനായിരുന്നു.

രാവിലെ 10.00 മണിക്ക് യോഗ നടപടികൾ ആരംഭിച്ചു.

യോഗത്തിൽ അദ്ധ്യക്ഷത വഹിച്ച വൈസ് ചാൻസലർ, സാബു തോമസ്, ക്യാമ്പസ് പരിശോധിക്കുകയും ആയത് ബോധ്യപ്പെടുകയും ചെയ്തു. തുടർന്ന് അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ പങ്കെടുക്കുന്ന എല്ലാവർക്കും സ്വാഗതം ആശംസിച്ചു. അദ്ധ്യക്ഷൻ തന്റെ ആമുഖ പ്രസംഗത്തിൽ കഴിഞ്ഞ കാലയളവിൽ സർവ്വകലാശാല കൈവരിച്ച നേട്ടങ്ങളെക്കുറിച്ച് യോഗത്തെ അറിയിച്ചു.

തുടർന്ന് പ്രൊഫ. (ഡോ.) സി.റ്റി.അരവിന്ദകുമാർ, (പ്രൊ-വൈസ് ചാൻസലർ) അനുമോദന പ്രമേയം അവതരിപ്പിച്ചു.

അനുമോദന പ്രമേയം

അമേരിക്കയിലെ സ്റ്റാൻഫോർഡ് സർവ്വകലാശാല തയ്യാറാക്കിയ ഇന്ത്യയിൽ നിന്നുള്ള മികച്ച രണ്ട് ശതമാനം ശാസ്ത്രജ്ഞരുടെ ലോകറാങ്കിംഗിൽ 114-ാം റാങ്ക് കരസ്ഥമാക്കി മഹാത്മാഗാന്ധി സർവ്വകലാശാല വൈസ് ചാൻസലറും പ്രശസ്ത പോളിമർ ശാസ്ത്രജ്ഞനുമായ പ്രൊഫ. സാബു തോമസ്, പോളിമർ മേഖലയിൽ ഇന്ത്യയിലെ മികച്ച രണ്ടാമത്തെ ശാസ്ത്രജ്ഞനായാണ് റാങ്കിംഗിൽ ഇടംപിടിച്ചത്. ലോകത്തെ ഒരു ലക്ഷം മികച്ച ശാസ്ത്രജ്ഞരിൽ നിന്നാണ് രണ്ടു ശതമാനം പേരുടെ പട്ടിക സ്റ്റാൻഫോർഡ് സർവ്വകലാശാലയിലെ ശാസ്ത്രജ്ഞർ തയ്യാറാക്കിയത്.

നാനോ സയൻസ് ടെക്നോളജിയിൽ വിശിഷ്ട സംഭാവനകൾ നൽകിയ ഇന്ത്യൻ ശാസ്ത്രജ്ഞർക്ക് കേന്ദ്ര ശാസ്ത്ര സാങ്കേതിക വകുപ്പ് നാനോ മിഷന്റെ ഭാഗമായി ഏർപ്പെടുത്തിയ നാഷണൽ റിസർച്ച് അവാർഡ് മഹാത്മാഗാന്ധി സർവ്വകലാശാല വൈസ് ചാൻസലറും പ്രമുഖ പോളിമർ നാനോ സയൻസ് ശാസ്ത്രജ്ഞനുമായ പ്രൊഫ. സാബു തോമസിന് കൈമാറി. കൊൽക്കത്ത എസ്.എൻ. ബോസ് നാഷണൽ സെന്റർ ഫോർ ബയോസയൻസിൽ നടന്ന നാനോ സയൻസ് ടെക്നോളജി രാജ്യാന്തര കോൺഫറൻസിൽ ശാസ്ത്രസാങ്കേതിക സെക്രട്ടറി പ്രൊഫ. അഷുതോഷ് ശർമയാണ് പുരസ്കാരം സമ്മാനിച്ചത്. പ്രൊഫ. എ. കെ. സൂദ്, ഡോ. സൗരഭ് ലോധ ,ഡോ. വിവേക് പോൾഷെത്തോവർ എന്നിവർ സന്നിഹിതരായി.

പ്രമുഖ ശാസ്ത്രജ്ഞനായ പ്രൊഫ. സി.എൻ.ആർ. റാവു അധ്യക്ഷനായ സെലക്ഷൻ കമ്മിറ്റിയാണ് പ്രൊഫസർ സാബു തോമസിനെ പുരസ്കാരത്തിനായി തിരഞ്ഞെടുത്തത്. ഒരു ലക്ഷം രൂപയും ബഹുമതിപത്രവും അടങ്ങുന്നതാണ് പുരസ്കാരം.

മഹാത്മാഗാന്ധി സർവകലാശാലയിലെ ഇന്റർനാഷണൽ ആൻഡ് ഇന്റർ യൂണിവേഴ്സിറ്റി സെന്റർ ഫോർ നാനോ സയൻസസ് ആൻഡ് നാനോടെക്നോളജി വിഭാഗത്തിലെ പ്രൊഫസർ സാബു തോമസ്, പ്രൊഫസർ നന്ദകുമാർ കളരിക്കൽ, ഡോ. മുഹമ്മദ് ആരിഫ് എന്നിവർ സംയുക്തമായി നടത്തിയ ഗവേഷണത്തിന്റെ ഫലമായി വികസിപ്പിച്ചെടുത്ത പോളിമർ സംയുക്തങ്ങളെ അടിസ്ഥാനമാക്കിയുള്ള തീർത്തും കനം കുറഞ്ഞതും ഭാരം കുറഞ്ഞതുമായ പദാർത്ഥത്തിന് സമർപ്പിച്ച പേറ്റന്റ് കേന്ദ്ര സർക്കാരിന്റെ അനുമതി ലഭിച്ചു.

ജീവിത ശൈലി രോഗങ്ങളെയും കാൻസറിനെയും പ്രതിരോധിക്കാൻ ശേഷിയുള്ള ക്വർസെറ്റിൻ (Quercetin) ഉൽപ്പാദിപ്പിക്കുന്ന പുതിയ ഫംഗസിനെ മഹാത്മാഗാന്ധി സർവകലാശാലയിലെ ഗവേഷകർ കണ്ടെത്തി ആയുർവേദ മരുന്നുകളിലെ പ്രധാന ചേരുവയായ അശ്വഗന്ധ ചെടിയിൽ നിന്നാണ് സ്കൂൾ ഓഫ് ബയോസയൻസസിലെ മൈക്രോബയോളജി വിഭാഗം ഗവേഷകർ 'പെനിസിലിയം സീറ്റോസം' എന്ന് പേരിട്ടിരിക്കുന്ന പുതിയ ഫംഗസിനെ കണ്ടെത്തിയത്.

സസ്യങ്ങളിൽ മാത്രം കാണുന്നതും ബാക്ടീരിയകളെ പ്രതിരോധിക്കുവാൻ ശേഷിയുള്ളതുമായ ക്വർസെറ്റിൻ ജൈവ തന്മാത്രകൾ ഉൽപ്പാദിപ്പിക്കുവാൻ ശേഷിയുള്ളവയാണ് പെനിസിലിയം സീറ്റോസം. മൈക്രോബയോളജി വിഭാഗത്തിലെ ഗവേഷക വിദ്യാർത്ഥിനി ടിജിത്ത് കെ. ജോർജ്ജ്, അധ്യാപകരായ പ്രൊഫ. എം.എസ്. ജിഷ, അസ്സോസിയേറ്റ് പ്രൊഫ. ലിന മാത്യു, എന്നിവരാണ് കണ്ടെത്തലിന് പിന്നിൽ.

കേരള സർക്കാരിന്റെ കൈരളി ഗവേഷക പുരസ്കാരം (രണ്ടരലക്ഷം രൂപ അവാർഡ് തുക) പ്രൊഫ. (ഡോ) സാബു തോമസ്- ന് ലഭിച്ചു.

സഭ ഐക്യകണ്ഠേണ അനുമോദന പ്രമേയം അംഗീകരിച്ചു.

തുടർന്ന്, കഴിഞ്ഞ അക്കാദമിക് കൗൺസിൽ യോഗത്തിനു ശേഷം മരണപ്പെട്ടവർക്ക് അനിശോചനം രേഖപ്പെടുത്തുന്നതിനുള്ള പ്രമേയം അവതരിപ്പിക്കുന്നതിനായി അധ്യക്ഷൻ രജിസ്ട്രാറെ ക്ഷണിച്ചു.

അനുശോചന പ്രമേയം

കേന്ദ്രമന്ത്രി രാംവിലാസ് പത്യാൻ, മുൻ കേന്ദ്രമന്ത്രിയും മധ്യപ്രദേശ് മുഖ്യമന്ത്രിയുമായിരുന്ന മോത്തിലാൽ വോറ, റെയിൽവേ സഹമന്ത്രി ശ്രീ സുരേഷ് അംഗഡി, മുൻ കേന്ദ്രമന്ത്രിയുമായ ശ്രീ രഘുവംശ പ്രസാദ്, ശ്രീ ജസ്വന്ത് സിംഗ്, ശ്രീ റഷീദ് മസൂദ്, ബുട്ടാസിങ്, മുൻ മന്ത്രി കെ.കെ. രാമചന്ദ്രൻ മാസ്റ്റർ, ശ്രീ സി.എഫ്. തോമസ് എം.എൽ.എ., മുൻ എം.എൽ.എ. ശ്രീ ജോർജ്ജ് മേഴ്സിയാർ, പ്രശസ്ത ഗായകൻ ശ്രീ എസ്.പി. ബാലസുബ്രഹ്മണ്യം, കേരള ഹൈക്കോടതിയിലെ ആദ്യമലയാളി വനിതാ ചീഫ് ജസ്റ്റിസ് കെ.കെ. ഉഷ, ഫുട്ബോൾ ഇതിഹാസം ഡീഗോ മറഡോണ, വി അനിൽ പനച്ചുരാൻ, ചലച്ചിത്ര നടൻ ഉണ്ണികൃഷ്ണൻ നമ്പൂതിരി, കവി അക്കിത്തം അച്യുതൻ നമ്പൂതിരി, കവി വിഷ്ണുനമ്പൂതിരി, സാഹിത്യകാരൻ യു.എ. ഖാദർ, കവയിത്രി സുഗതകുമാരി, കാർഷിക വിദഗ്ദ്ധൻ ആർ. ഹേലി, നടൻ അനിൽ നെടുമങ്ങാട്, ചലച്ചിത്ര കലാസംവിധായകൻ പി. കൃഷ്ണമൂർത്തി, മുൻ വി.എസ്.എസ്.സി. ഡയറക്ടർ എസ്. രാധാകൃഷ്ണൻ, സ്കൂൾ ഓഫ് കെമിക്കൽ സയൻസസിലെ അധ്യാപകൻ ഡോ. കെ. പയസ്, സർവ്വകലാശാല

ജീവനക്കാരനായിരുന്ന ശ്രീ. ജയചന്ദ്രൻ,കോവിഡ് 19 മഹാമാരിമൂലം ലോകത്താകമാനം ജീവൻ നഷ്ടപ്പെട്ടവർ എന്നിവരുടെ വിധേയത്തിൽ മഹാത്മാഗാന്ധി സർവ്വകലാശാല അക്കാദമിക് കൗൺസിൽ യോഗം അനുശോചനം രേഖപ്പെടുത്തുകയും പരേതരോടുള്ള ആദരസൂചകമായി സഭ ഒരു മിനിറ്റ് മൗനമാചരിക്കുകയും ചെയ്തു. തുടർന്ന് അജൻഡ ഇനങ്ങളിലേയ്ക്ക് കടക്കുന്നതായി അദ്ധ്യക്ഷൻ അറിയിച്ചു.

(I) 1985 ലെ മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് III 10(17) പ്രകാരം ബഹു.വൈസ് ചാൻസലർ കൈക്കൊണ്ട നടപടികൾ റിപ്പോർട്ട് ചെയ്യുന്നവ:

ഇനംനമ്പർ:01/AcD/01/48144/CR/2020

Indira Gandhi National Open University അവാർഡ് ചെയ്ത Master of Arts in Philosophy (Distance Education) ബിരുദത്തിനു മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ ഉപരിപഠനത്തിനും തൊഴിലിനും യോഗ്യതാ സാക്ഷ്യപത്രം നൽകുന്നതിന്, മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985 അധ്യായം 3 ഷെഡ്യൂൾ 10(17) പ്രകാരം വൈസ് ചാൻസലർ കൈക്കൊണ്ട നടപടി-റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്

Indira Gandhi National Open University അവാർഡ് ചെയ്ത Master of Arts in Philosophy (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Arts in Philosophy ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കുന്നതിനായി ശ്രീ. Sundaresan P.K നൽകിയ അപേക്ഷ പരിഗണിച്ച്, മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985 അധ്യായം 3 ഷെഡ്യൂൾ 10(17) പ്രകാരം കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 23.11.2020 ലെ നമ്പർ.5580/AC.D/2020/എം.ജി.യു., തീയതി: 23.11.2020 സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:02/50915/AC A5-1/2020 /VC SECTION

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയ്ക്ക് കീഴിലുള്ള പഠനവകുപ്പായ സ്കൂൾ ഓഫ് മാനേജ്മെന്റ് ആൻഡ് ബിസിനസ് സ്റ്റഡീസ് - ൽ നിന്നും M.Phil Business Studies ബിരുദം നേടിയ Smt. ASHA S K - കോമേഴ്സ് വിഷയത്തിൽ യോഗ്യത സാക്ഷ്യപത്രം അഭ്യർത്ഥിച്ച് അപേക്ഷ - വൈസ് ചാൻസലർ കൈക്കൊണ്ട മേൽനടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയ്ക്ക് കീഴിലുള്ള പഠനവകുപ്പായ സ്കൂൾ ഓഫ് മാനേജ്മെന്റ് ആൻഡ് ബിസിനസ് സ്റ്റഡീസ്- ൽ നിന്നും M.Phil Business Studies ബിരുദം നേടിയ Smt. ASHA S.K. - കോമേഴ്സ് വിഷയത്തിൽ യോഗ്യത സാക്ഷ്യപത്രം അഭ്യർത്ഥിച്ച് സമർപ്പിച്ച അപേക്ഷ പരിഗണിച്ച്,

മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985 അധ്യായം 3 ഷെഡ്യൂൾ 10(17) പ്രകാരം വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 04.11.2020-ലെ നമ്പർ.5168/ACA5/2020/എം.ജി.യു, സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:03/19972/AC A1-1/2020 /VC SECTION

ഓൺലൈൻ ക്ലാസ്സുകളിലെ അറ്റൻഡൻസ് ഇന്റേണൽ മാർക്കിനായി പരിഗണിക്കുന്നതിന് പകരം അധികമായി നൽകുന്ന അസൈൻമെന്റ്/ സെമിനാർ /വൈവ എന്നിവയുടെ മാർക്ക് ഇന്റേണൽ മാർക്കിനായി പരിഗണിക്കുവാനുള്ള ശുപാർശ അംഗീകരിച്ചു കൊണ്ട് വൈസ് ചാൻസലർ, മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3, വകുപ്പ് 10(17) പ്രകാരമുള്ള അധികാരം ഉപയോഗിച്ച് കൈകൊണ്ട നടപടി അക്കാദമിക് കൗൺസിലി ലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

ഓൺലൈൻ ക്ലാസ്സുകളിലെ അറ്റൻഡൻസ് ഇന്റേണൽ മാർക്കിന് പരിഗണിക്കുന്നതിന് പകരമായി കുട്ടികൾക്ക് അധികമായി ഒരു അസൈൻമെന്റ്/സെമിനാർ/വൈവ എന്നിവ നൽകി ആ മാർക്ക് ഇന്റേണൽ മാർക്കിനായി പരിഗണിക്കുവാനുള്ള ശുപാർശ അംഗീകരിച്ചു കൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 13.11.2020-ലെ നമ്പർ.നം.5382/ACA1/ 2020/എം.ജി.യു, സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:04/AcD/01/51100/CR/2020

Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore നടത്തുന്ന Bachelor of Vocation (Food Processing and Engineering) (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ കീഴിൽ Master of Science in Food Technology and Quality Assurance പ്രവേശനം നേടുന്നതിന് യോഗ്യമായി അംഗീകരിച്ചു കൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985 അധ്യായം 3 ഷെഡ്യൂൾ 10(17) പ്രകാരം വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടി-റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്:

Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore നടത്തുന്ന Bachelor of Vocation (Food Processing and Engineering) (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ കീഴിൽ Master of Science in Food Technology and Quality Assurance പ്രവേശനം നേടുന്നതിന് യോഗ്യമായി അംഗീകരിച്ചു കൊണ്ട് മഹാത്മാഗാന്ധി

സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 02.11.2020-ലെ, നമ്പർ.5107/AC.D/2020/എം.ജി.യു., സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു

ഇനംനമ്പർ:05/20650/EB 6-3/2020 /CE.SECT

COVID 19 പകർച്ചവ്യാധിയുടെ പശ്ചാത്തലത്തിൽ 2018-2020 ബാച്ച് ബി.എഡ് നാലാം സെമസ്റ്റർ തിയറി, പ്രാക്ടിക്കൽ പരീക്ഷ നടത്തിപ്പിനോടനുബന്ധിച്ച വിഷയങ്ങൾ ചർച്ച ചെയ്യുന്നതിനായി ചേർന്ന ബോർഡ് ഓഫ് സ്റ്റഡീസ് (എഡ്യൂക്കേഷൻ-യു.ജി) യോഗത്തിന്റെ ശുപാർശകൾ അംഗീകരിച്ച ഉത്തരവായത് - മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985 അദ്ധ്യായം III വകുപ്പ് 10(17) പ്രകാരം വൈസ് ചാൻസിലർ കൈകൊണ്ട നടപടി -റിപ്പോർട്ട് ചെയ്യുന്നു.

COVID 19 പകർച്ചവ്യാധിയുടെ പശ്ചാത്തലത്തിൽ 2018-2020 ബാച്ച് ബി.എഡ് നാലാം സെമസ്റ്റർ തിയറി, പ്രാക്ടിക്കൽ പരീക്ഷ നടത്തിപ്പിനോടനുബന്ധിച്ച് നടന്ന ബോർഡ് ഓഫ് സ്റ്റഡീസ് (എഡ്യൂക്കേഷൻ-യു.ജി) യോഗത്തിന്റെ ശുപാർശകൾ

അംഗീകരിച്ചു കൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 03/07/2020, -ലെ നമ്പർ.2988/ACA12/2020/എം.ജി.യു സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:06/49693/AC A5-2/2020

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ De Paul Institute of Science and Technology ,Angamaly-യിൽ M.Phil Business Studies ബിരുദധാരിയായ Smt . Shilda Thomas -ന്റെ M.Phil പ്രബന്ധം കൊമേഴ്സ് വിഷയവുമായി പ്രസക്തി പുലർത്തുന്നു എന്ന തരത്തിലുള്ള യോഗ്യത സാക്ഷ്യപത്രം ('Certificate of Eligibility for M.Phil/ PhD Degree') നൽകാനുള്ള ശുപാർശ - റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ De Paul Institute of Science and Technology ,Angamaly -യിൽ നിന്നും M.Phil Business Studies ബിരുദധാരിയായ Smt Shilda Thomas -ന്റെ M.Phil പ്രബന്ധം, കൊമേഴ്സ് വിഷയവുമായി പ്രസക്തി പുലർത്തുന്നു (relevant to the subject of Commerce) എന്ന തരത്തിലുള്ള യോഗ്യത സാക്ഷ്യപത്രം നൽകാനുള്ള ശുപാർശ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-

ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 06.11.2020-ലെ നമ്പർ. 5226/AC A5/2020/എം.ജി.യു സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:07/10351/ACD/1/2019

Madurai Kamaraj University, Madurai അവാർഡ് ചെയ്ത Master of Philosophy in History (Distance Education - Prior to UGC Regulations 2009) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ ഉപരിപഠനത്തിനും തൊഴിലാവശ്യങ്ങൾക്കുമായി അംഗീകരിക്കുവാനും അതിൻ പ്രകാരം സർവ്വകലാശാല ഉത്തരവ് നം. 2403/AcD/2019/MGU തീയതി 31.05.2019 പരിഷ്കരിക്കുവാനും തീരുമാനിച്ചു കൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985 അധ്യായം 3 ഷേദം 10(17) പ്രകാരം വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടി-റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്:

Madurai Kamaraj University, Madurai അവാർഡ് ചെയ്ത Master of Philosophy in History (Distance Education - Prior to UGC Regulations 2009) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ ഉപരിപഠനത്തിനും തൊഴിലാവശ്യങ്ങൾക്കുമായി അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 29.12.2020 -ലെ നമ്പർ . 6055/AC.D/2020/എം.ജി.യു., സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:08/33379/AC A5-3/2020

സർവ്വകലാശാലയുടെ അഫിലിയേറ്റഡ് കോളേജുകളിൽ പഠിക്കുന്ന വിദ്യാർത്ഥികളുടെ മൂന്നാം സെമസ്റ്ററിലെ (2020-21 അക്കാദമിക് വർഷം) കോളേജ് ട്രാൻസ്ഫർ (U G) മഹാത്മാ ഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3, ഷേദം 10 (17) പ്രകാരം വൈസ് ചാൻസലർ അനുവദിച്ച ഉത്തരവ് പുറപ്പെടുവിച്ചത് അക്കാദമിക് കൗൺസിലിലേക്കു റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

2020-21 അക്കാദമിക് വർഷത്തെ മൂന്നാം സെമസ്റ്ററിലേക്കുള്ള കോളേജ് ട്രാൻസ്ഫർ അപേക്ഷകളിൽ, മുൻ സെമസ്റ്റർ പരീക്ഷ നടന്നിരിക്കണം എന്നും പരീക്ഷയിൽ malpractice നടത്തിയിട്ടില്ല എന്ന സർട്ടിഫിക്കറ്റ് ഹാജരാക്കണം എന്നും നിഷ്കർഷിക്കാതെ നടപടി സ്വീകരിക്കുന്നത് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 20/10/2020 -ലെ നമ്പർ . 4821

/ACA 5/2020/എംജിയ, സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:09/2195/AC A5-1/2021

04.01.2021 നു വൈസ് ചാൻസലറുടെ അധ്യക്ഷതയിൽ വീഡിയോ കോൺഫെറൻസ് മുഖേന കൂടിയ സർവകലാശാല പഠന വകുപ്പ് / സെന്റർ മേധാവികളുടെ യോഗ ശിപാർശ - മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985 അധ്യായം 3 ഷെർ 10 (17) പ്രകാരം വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിലി ലേക്കു റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്. (Reporting)

04.01.2021-നു വൈസ് ചാൻസലറുടെ അധ്യക്ഷതയിൽ വീഡിയോ കോൺഫെറൻസ് മുഖേന കൂടിയ സർവകലാശാല പഠന വകുപ്പ് / സെന്റർ മേധാവികളുടെ യോഗം ശിപാർശകൾ അംഗീകരിച്ചു കൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 28.01.2021 -ലെ നമ്പർ. 631/ACA5/2021/എം.ജി.യു, സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:10/62564/AC A5-3/2020 /VC SECTION

B.Ed Special Education (Learning Disability) പ്രോഗ്രാമിന്റെ പ്രവേശന യോഗ്യതയായി പാർട്ട് III വിഷയങ്ങൾക്ക് വിദ്യാർത്ഥി നേടിയിട്ടുള്ള 50% മാർക്ക് പരിഗണിക്കുവാൻ മഹാത്മാ ഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3, ഷെർ 10 (17) പ്രകാരം വൈസ് ചാൻസലർ അനുമതി നൽകി ഉത്തരവ് പുറപ്പെടുവിച്ചത് -അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് - സംബന്ധിച്ച്.

B.Ed Special Education (Learning Disability) പ്രോഗ്രാമിന്റെ പ്രവേശന യോഗ്യതയായി പാർട്ട് III വിഷയങ്ങൾക്ക് നേടിയിട്ടുള്ള 50% മാർക്ക് പരിഗണിക്കുന്നത് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 07/12/2020 -ലെ നമ്പർ. 5783/AC A5/2020/എംജിയ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:11/36952/AC A12-3/2020

മഹാത്മാഗാന്ധി സർവ്വകലാശാല-എം.എഡ് പ്രോഗ്രാം പ്രവേശന യോഗ്യത-എൻ.സി.റ്റി.ഇ. റെഗുലേഷൻ-2014 പ്രകാരം പരിഷ്കരിച്ച ഉത്തരവായത്- മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം III വകുപ്പ് 10(17) പ്രകാരം ബഹു.വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടി -റിപ്പോർട്ട് ചെയ്യുന്നു.

മഹാത്മാഗാന്ധി സർവ്വകലാശാല-എം.എഡ് പ്രോഗ്രാം പ്രവേശന യോഗ്യത-എൻ.സി.റ്റി.ഇ. റെഗുലേഷൻ 2014 പ്രകാരമുള്ള പരിഷ്കരണം അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 28/10/2020-ലെ നമ്പർ.5017/ACA12/2020/എം.ജി.യു സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

**ഇനംനമ്പർ:12/Ac.AXII/1/30381
/B.Voc/CA/2021/Academic**

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ B.Voc Software Development & System Administration പ്രോഗ്രാമിന്റെ സിലബസ് -2020 അഡ്മിഷൻ ബാച്ച് -ബോർഡ് ഓഫ് സ്റ്റഡീസ് ചെയർമാൻമാരുടെ ശുപാർശകൾ അംഗീകരിച്ച ഉത്തരവ് പുറപ്പെടുവിച്ചത് - അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് -സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ B.Voc Software Development & System Administration പ്രോഗ്രാമിന്റെ സിലബസ് -2020 അഡ്മിഷൻ ബാച്ച് -ബോർഡ് ഓഫ് സ്റ്റഡീസ് ചെയർമാൻമാരുടെ ശുപാർശകൾ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 28/10/2020 -ലെ നമ്പർ. 4997/AC.A12/2020/എം.ജി.യു, സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

**ഇനംനമ്പർ:13/No.Ac.AXII/1/31553/B.Voc
/Home-Science/2021/Academic**

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ B.Voc Sports Nutrition & Physiotherapy പ്രോഗ്രാം, ചില ബിരുദാനന്തര ബിരുദ പ്രോഗ്രാമുകളുടെ പ്രവേശന യോഗ്യതയായി അംഗീകരിച്ചത് - മഹാത്മാഗാന്ധി സർവ്വകലാശാല നിയമം 1985,അദ്ധ്യായം 3,ചേരദം 10(17) പ്രകാരം ബഹു. വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിലി ലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് -സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ B.Voc Sports Nutrition & Physiotherapy പ്രോഗ്രാം, ചില ബിരുദാനന്തര ബിരുദ പ്രോഗ്രാമുകളുടെ പ്രവേശന യോഗ്യതയായി അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 13.11.2020-ലെ നമ്പർ. 5386/AC.A12/2020/എം.ജി.യു, സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:14/11022/AC A9-1/2021

സംസ്ഥാന സർക്കാർ 2020-21 അക്കാദമിക് വർഷത്തേക്ക് അനുവദിച്ച നവീന പ്രോഗ്രാമുകളിലേക്കുള്ള പ്രവേശന മാനദണ്ഡങ്ങൾ (Eligibility Criteria) സംബന്ധിച്ച് വിവിധ ബോർഡ് ഓഫ് സ്റ്റഡീസ് ചെയർമാന്മാരുടെ ശുപാർശകൾ - സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം III സെക്ഷൻ 10(17) നൽകുന്ന സവിശേഷ അധികാരം ഉപയോഗിച്ച് ബഹു: വൈസ് ചാൻസലർ അംഗീകരിച്ച് ഉത്തരവായത് - അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

സംസ്ഥാന സർക്കാർ 2020-21 അക്കാദമിക് വർഷത്തേക്ക് അനുവദിച്ച നവീന പ്രോഗ്രാമുകളിലേക്കുള്ള പ്രവേശന മാനദണ്ഡങ്ങളു് (Eligibility Criteria) സംബന്ധിച്ച് വിവിധ ബോർഡ് ഓഫ് സ്റ്റഡീസ് ചെയർമാന്മാരുടെ ശുപാർശകൾ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 23.01.2021-ലെ നമ്പർ.549/Ac A9/2021/എം.ജി.യു., സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

**ഇനംനമ്പർ:15/Ac AX/GEN./SFCT
/Exemption/ET/2020**

മഹാത്മാ ഗാന്ധി സർവ്വകലാശാലയോട് അഫിലിയേറ്റ് ചെയ്തിട്ടുള്ള സ്വാശ്രയ കോളേജുകളിലെ പരിചയസമ്പന്നരായ അധ്യാപകരെ പിഎച്ച്.ഡി. പ്രവേശനപരീക്ഷയിൽ നിന്നും ഒഴിവാക്കുന്നതു സംബന്ധിച്ച്. (Reporting)

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയോട് അഫിലിയേറ്റ് ചെയ്തിട്ടുള്ള സെല്ല് ഫിനാൻസിങ് കോളേജുകളിൽ മൂന്നുവർഷത്തെ തുടർച്ചയായ പ്രവർത്തിപരിചയമുള്ള അധ്യാപകരെക്കൂടി പിഎച്ച്.ഡി. രജിസ്ട്രേഷനുവേണ്ടിയുള്ള പ്രവേശന പരീക്ഷയിൽനിന്നും ഒഴിവാക്കുന്നത് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 13.11.2020-ലെ നമ്പർ . 5392/AC A10/2020/MGU., സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:16/AcD/01/58866/CR/2020

Mangalore Universityയുടെ കീഴിലുള്ള Autonomous College ആയ St. Aloysius college, Mangaloreൽ നിന്ന് നേടിയ Bachelor of Vocation Food Processing and Engineering (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ B.Voc. Food Processing Technology ബിരുദത്തിന് തുല്യമായി അംഗീകരിച്ചു കൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985 അധ്യായം 3 ചേരദം 10(17) പ്രകാരം വൈസ് ചാൻസിലർ കൈക്കൊണ്ട നടപടി-റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്:

Mangalore Universityയുടെ കീഴിലുള്ള Autonomous College ആയ St. Aloysius College, Mangaloreൽ നിന്ന് നേടിയ Bachelor of Vocation Food Processing and Engineering (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ B.Voc. Food Processing Technology ബിരുദത്തിന് തുല്യമായി അംഗീകരിച്ചു കൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 03.02.2021 -ലെ നമ്പർ.746/AC.D/2021/എം.ജി.യു., സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:17/4128/AC A9-1/2021/ACAD

PGCSS 2019 - MSW പ്രോഗ്രാമിന്റെ സിലബസ് സ്കീം എന്നിവയിൽ മാറ്റം വരുത്തുന്നതിനുള്ള ശുപാർശകൾ ബഹു: വൈസ് ചാൻസിലർ സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം III, സെക്ഷൻ 10(17) നൽകുന്ന അധികാരം ഉപയോഗിച്ച് അംഗീകരിച്ചു നടപടി അക്കാദമിക് കൗൺസിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

MSW (MGU PGCSS 2019) പ്രോഗ്രാമിന്റെ സിലബസ്, സ്കീം ഓഫ് വാല്യുവേഷൻ എന്നിവയിൽ മാറ്റങ്ങൾ വരുത്തുന്നതിനുള്ള ശുപാർശകൾ അംഗീകരിച്ചു കൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ടു നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 01.02.2021-ലെ നമ്പർ.701/Ac A9/2021/എം.ജി.യു. സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:18/68289/AC A9-1/2020

പ്രൈവറ്റ് രജിസ്ട്രേഷൻ ബിരുദാനന്തര ബിരുദ വിദ്യാർത്ഥികൾ പഠിക്കാനുള്ള ഇലക്ടീവ് കോഴ്സ്/പ്രോജക്ട്/ഡെസേർട്ടേഷൻ സംബന്ധിച്ച് ബോർഡ് ഓഫ് സ്റ്റഡീസ് ചെയർമാന്മാരുടെ ശുപാർശകൾ - മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985 ,അദ്ധ്യായം III സെക്ഷൻ 10 (17) നൽകുന്ന സവിശേഷ അധികാരം ഉപയോഗിച്ച് ബഹു വൈസ് ചാൻസലർ അംഗീകരിച്ച് ഉത്തരവായത് - അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

പ്രൈവറ്റ് രജിസ്ട്രേഷൻ ബിരുദാനന്തര ബിരുദ വിദ്യാർത്ഥികൾ പഠിക്കാനുള്ള ഇലക്ടീവ് കോഴ്സ്/പ്രോജക്ട്/ഡെസേർട്ടേഷൻ സംബന്ധിച്ച് ബോർഡ് ഓഫ് സ്റ്റഡീസ് ചെയർമാന്മാരുടെ ശുപാർശകൾ അംഗീകരിച്ചു കൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ടു നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 01.02.2021-ലെ നമ്പർ. 699/Ac A9/2021/എം.ജി.യു. സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:19/33271/AC A5-3/2021

B.Sc MLT - 2016 അഡ്മിഷൻ വിദ്യാർത്ഥികൾക്ക് നാലാം വർഷ പരീക്ഷ എഴുതുന്നതിനുള്ള പ്രത്യേക അനുമതി നൽകി മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 ,ചേരും 10 (17) പ്രകാരം വൈസ് ചാൻസലർ ഉത്തരവ് പുറപ്പെടുവിച്ചത്- അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് -സംബന്ധിച്ച്.

I, II , III വർഷങ്ങളിലെ പരീക്ഷകൾ പാസാകാതെ തന്നെ നാലാം വർഷ പരീക്ഷ എഴുതുന്നതിനുള്ള പ്രത്യേക അനുമതി 2016 അഡ്മിഷൻ B.Sc MLT വിദ്യാർത്ഥികൾക്ക് അനുവദിച്ചു കൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ടു നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 28/01/2021 -ലെ നമ്പർ. 633/ACA5/2021/എം ജി യു , സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

**ഇനംനമ്പർ:20/39075/AC A5-1/2020
/VC SECTION**

മഹാത്മാഗാന്ധി സർവകലാശാലക്ക് കീഴിൽ ആരംഭിക്കുന്ന ഇൻസ്റ്റിറ്റ്യൂട്ട് ഐ.എ പ്രോഗ്രാം ഓൺ സോഷ്യൽ സയൻസസ് പ്രോഗ്രാമിന്റെ ഇൻസ്റ്റിറ്റ്യൂഷൻ നാമകരണം - വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച ഉത്തരവും അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവകലാശാലക്ക് കീഴിൽ ആരംഭിക്കുന്ന ഇൻസ്റ്റിറ്റ്യൂട്ട് ഐ.എ പ്രോഗ്രാം ഓൺ സോഷ്യൽ സയൻസസ് പ്രോഗ്രാമിന്റെ ഇൻസ്റ്റിറ്റ്യൂഷൻ നാമകരണം [INSTITUTE FOR MULTIDISCIPLINARY PROGRAMMES IN SOCIAL SCIENCES (IMPSS)] അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 16.09.2020 -ലെ നമ്പർ 4100/ACA5/2020/MGU സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:21/73544/AC A5-2/2020

സ്കൂൾ ഓഫ് സോഷ്യൽ സയൻസസ് -ലെ ,2018 & 2019 ബാച്ച് M.A Anthropology, M.A History എന്നീ പ്രോഗ്രാമുകളുടെ സ്കീമുകൾ സി .എസ് .എസ് റെഗുലേഷൻസ് 2016-ന് അനുസൃതമായി പുതുക്കിയത് - അംഗീകരിച്ച് ഉത്തരവ് പുറപ്പെടുവിച്ചത് - അക്കാദമിക് കൗൺസിലിലേക്കുള്ള റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച് .

സ്കൂൾ ഓഫ് സോഷ്യൽ സയൻസസ് -ലെ , 2018 &2019 ബാച്ച് M.A Anthropology, M.A History എന്നീ പ്രോഗ്രാമുകളുടെ സ്കീമുകൾ സി.എസ്. എസ്. റെഗുലേഷൻസ് 2016-ന് അനുസൃതമായി പുതുക്കിയത് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 17.12.2020-ലെ നമ്പർ.5905/AC A5/2020/എം.ജി.യു സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:22/4373/AC A5-2/2021

സർവകലാശാലയുടെ അഫിലിയേറ്റഡ് കോളേജുകളിൽ പഠിക്കുന്ന ബിരുദ വിദ്യാർത്ഥികളുടെ- കോളേജ് ട്രാൻഫർ - നാലാം സെമസ്റ്റർ -2020-21 അക്കാദമിക് വർഷം - ഉത്തരവ് പുറപ്പെടുവിച്ചത് - അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

മുൻ സെമസ്റ്റർ പരീക്ഷ നടന്നിരിക്കണം എന്ന വ്യവസ്ഥയിൽ ഇളവുവരുത്തി പരീക്ഷയിൽ malpractice നടത്തിയിട്ടില്ല എന്ന സർട്ടിഫിക്കറ്റ് ഹാജരാക്കണം എന്നും നിഷ്കർഷിക്കാതെ 2020-21 അക്കാദമിക് വർഷം സർവ്വകലാശാലയുടെ അഫിലിയേറ്റഡ് കോളേജുകളിൽ പഠിക്കുന്ന നാലാം സെമസ്റ്റർ ബിരുദ (യു.ജി) വിദ്യാർത്ഥികൾക്കുണ്ടെങ്കിൽ കോളേജ് ട്രാൻസ്ഫറിനുള്ള അപേക്ഷകളിലും നടപടികൾ സ്വീകരിക്കുന്നതിന് റെഗുലേഷൻസിൽ നൽകിയ താൽക്കാലിക ഇളവ്, അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ടു നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 15.01.2021-ലെ നമ്പർ. 345 /AC A5/2021/എം.ജി.യു സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:23/40195/SDE 3-1/2020

2001 മുതൽ 2014 വരെ ഓഫ് ക്യാമ്പസ് സ്കീമിൽ പ്രവേശനം നേടിയ വിദ്യാർത്ഥികളിൽ നിന്നും മൈഗ്രേഷൻ സർട്ടിഫിക്കറ്റ് വാങ്ങേണ്ടതില്ല എന്ന വിഷയത്തിൽ സിൻഡിക്കേറ്റിന്റെ അംഗീകാരം അക്കാഡമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

2001 മുതൽ 2014 വരെ ഓഫ് ക്യാമ്പസ് സ്കീമിൽ പ്രവേശനം നേടിയ വിദ്യാർത്ഥികളിൽ നിന്നും മൈഗ്രേഷൻ സർട്ടിഫിക്കറ്റ് വാങ്ങേണ്ടതില്ല എന്ന് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ടു നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 27.01.2021-ലെ നമ്പർ. 569/SDE3/ 2021/MGU സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:24/59890/AC A9-1/2020
/VC SECTION

എം.എ. മലയാളം സിലബസ് 2019ൽ തിരുത്തലുകളുടേ വരുത്താനുള്ള ശുപാർശ - അംഗീകരിച്ച - മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985 ,അദ്ധ്യായം III 10 (17) പ്രകാരം വൈസ് ചാൻസിലർ സ്വീകരിച്ച നടപടി അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്

എം.എ. മലയാളം സിലബസ് 2019-ലെ തിരുത്തലുകൾക്കായുള്ള ശുപാർശകൾ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ടു നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 29.12.2020 -ലെ നമ്പർ. 6048/Ac A9/2020/എം.ജി.യു. സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:25/11781/ACA9-1/2021/ACAD കോവിഡ് രോഗവ്യാപനത്തിന്റെ പശ്ചാത്തലത്തിൽ വിദ്യാർത്ഥികൾക്ക് ഉപയുക്തമാകുന്ന വിധത്തിൽ ചോദ്യപേപ്പറുകളിൽ പരിഷ്കാരം വരുത്തുന്നത് സംബന്ധിച്ച് - വൈസ് ചാൻസലർ മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985 അധ്യായം III വകുപ്പ് 10(17) പ്രകാരം കൈക്കൊണ്ട നടപടികൾ അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്

കോവിഡ് രോഗവ്യാപനത്തിന്റെ പശ്ചാത്തലത്തിൽ നിലവിലുള്ള ചോദ്യബാങ്ക് സംവിധാനത്തെ ബാധിക്കാതെ, വിദ്യാർത്ഥികൾക്ക് പ്രയോജനകരമായ വിധത്തിൽ, ചോദ്യപേപ്പറുകളിൽ പരിഷ്കാരങ്ങൾ വരുത്തുന്നതിനുള്ള യു.ജി & പി.ജി. ബോർഡ് ഓഫ് സ്റ്റഡീസ് ചെയർമാന്മാരുടെയും, വിദഗ്ദസമിതി കൺവീനർമാരുടെയും യോഗ ശുപാർശകൾ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 27.01.2021 -ലെ നമ്പർ 615/Ac A9/2021/എം.ജി.യുസർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:26/43215/ACA5-3/2020
/REGSECT

സർവകലാശാലയുടെ പഠനവകുപ്പായ School of Artificial Intelligence and Robotics - ൽ ആരംഭിക്കുന്ന M Sc Artificial Intelligence and Machine Learning പ്രോഗ്രാമിന്റെ റെഗുലേഷൻസ്, സ്കീം മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985 , അധ്യായം III, ചേദം 10 (17) പ്രകാരം അംഗീകരിച്ച ഉത്തരവ് പുറപ്പെടുവിച്ചതു - അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

സർവകലാശാലയുടെ പഠനവകുപ്പായ School of Artificial Intelligence and Robotics -ൽ ആരംഭിക്കുന്ന M Sc Artificial Intelligence and Machine Learning പ്രോഗ്രാമിന്റെ റെഗുലേഷൻസ്, സ്കീം, എന്നിവ സി .എസ് .എസ് റെഗുലേഷൻസ് 2020 - ന് അനുസൃതമായി തയ്യാറാക്കിയത് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 04/01/2021 -ലെ നമ്പർ . 45/ACA5/2021/എം ജി യു , സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:27/2512/AC A9-1/2021

സർക്കാർ അംഗീകരിച്ച നവീന പ്രോഗ്രാമുകളുടെ സിലബസ് - ബഹു: വൈസ് ചാൻസലർ സർവകലാശാല ആക്ട് 1985, അധ്യായം III, സെക്ഷൻ 10(17) നൽകുന്ന അധികാരം ഉപയോഗിച്ച് അംഗീകരിച്ച നടപടി - അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

ചുവടെ കാണിച്ചിട്ടുള്ള 18 പ്രോഗ്രാമുകളുടെ സിലബസ് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 12.01.2021 -ലെ നമ്പർ.218/Ac A9/2021/എം.ജി.യു. സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

- a) MSc Data Analytics
- b) Integrated MSc in Basic Sciences - Statistics
- c) MSc Industrial Chemistry
- d) Bachelor of Sports Management (BSM)
- e) Bachelor of Financial Markets (BFM)
- f) MSc Space Science
- g) MSc Statistics with specialization in Applied Algorithms, Statistical Techniques in data Mining, Analysis of Multi-type Data, Statistical Modelling and Non-Parametric Statistics
- h) MSc Computer Science with Data Analytics
- i) Integrated MSc Computer Science (Artificial Intelligence and Machine Learning) - 1st and 2nd Semester only
- j) Integrated MSc in Computer Science - Data Science
- k) Integrated MSc in Basic Sciences - Chemistry
- l) Integrated MSc in Basic Sciences - Biology
- m) Integrated MSc in Physics (Quantum Nanostructures/Flexible Electronics)
- n) Integrated MA Program in Language - English (Syllabus for 1st and 2nd Semesters only)
- o) Master of Commerce and Management
- p) Master of Arts in Development Economics
- q) Master of Arts in Business Economics

r) Master of Arts in Econometrics

**ഇനംനമ്പർ:28/3939/AC A5-2/2021
/VC SECTION**

സ്കൂൾ ഓഫ് സോഷ്യൽ സയൻസസ് -ലെ ,M.Phil (General Social Sciences) പ്രോഗ്രാമിന്റെ സ്കീം സി .എസ് .എസ് റെഗുലേഷൻസ് 2016-ന് അനുസൃതമായി പുതുക്കിയത് - അംഗീകരിച്ച് ഉത്തരവ് പുറപ്പെടുവിച്ചത് - അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് -സംബന്ധിച്ച് .

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ പഠനവകുപ്പായ സ്കൂൾ ഓഫ് സോഷ്യൽ സയൻസസ് -ലെ , M .Phil (General Social Sciences) പ്രോഗ്രാമിന്റെ സ്കീം, സി .എസ് .എസ് റെഗുലേഷൻസ് 2016 -ന് അനുസൃതമായി പുതുക്കിയത് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 12.01.2021 -ലെ നമ്പർ.224/AC A5/2021 /എം.ജി.യു സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ::29/77226/AC A5-2/2020

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ School of Nanoscience and Nanotechnology എന്ന പഠനവകുപ്പിൽ ആരംഭിക്കുന്ന M.Tech in Nanoscience and Nanotechnology പ്രോഗ്രാമിന്റെയും Master of Science (M.Sc) in Nanoscience and Nanotechnology (Physics/Chemistry) പ്രോഗ്രാമിന്റെയും ,Regulations Scheme and Syllabus -കൾ - അംഗീകരിച്ച് ഉത്തരവ് പുറപ്പെടുവിച്ചത് - അക്കാദമിക് കൗൺസിലിലേക്കുള്ള റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ School of Nanoscience and Nanotechnology എന്ന പഠനവകുപ്പിൽ ആരംഭിക്കുന്ന M.Tech in Nanoscience and Nanotechnology പ്രോഗ്രാമിന്റെയും Master of Science (M.Sc) in Nanoscience and Nanotechnology (Physics/Chemistry) പ്രോഗ്രാമിന്റെയും ,Regulations Scheme and Syllabus -കൾ (Revised CSS Regulations With Effect from 2020 Admissions-ന് അനുസൃതമായി തയ്യാറാക്കിയത്) അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 04.01.2021 -ലെ നമ്പർ.39 /AC A5/2021/എം.ജി.യു സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:30/31833/EH15 SO/2020

മാസ്റ്റർ ഓഫ് സിറിയക് പ്രോഗ്രാമിന്റെ സിലബസ്, റഗുലേഷൻ - ഡയറക്ടർ, റീജിയണൽ സെന്റർ ഫോർ എം.എ. സിറിയക് കോട്ടയം സമർപ്പിച്ച ശിപാർശ - ബഹു: വൈസ് ചാൻസലർ സർവകലാശാല ആക്ട് 1985, അധ്യായം III, സെക്ഷൻ 10(17) നൽകുന്ന അധികാരം ഉപയോഗിച്ച് അംഗീകരിച്ച നടപടി അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

2019-2020 അധ്യയന വർഷം മുതലുള്ള രണ്ട് വർഷത്തെ നാല് സെമസ്റ്ററുകളുള്ള മാസ്റ്റർ ഓഫ് ആർട്സ് സിറിയക് (MA Syriac) പ്രോഗ്രാമിന്റെ സിലബസ്, PGCSS 2019 സിലബസ് റിവിഷൻ മാനദണ്ഡങ്ങൾക്ക് അനുസൃതമായി, ആകെ 80 ക്രെഡിറ്റ് ആയി നിജപ്പെടുത്തിയത് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 06.11.2020 -ലെ നമ്പർ.5215/Ac A9/2020/എം.ജി.യു. സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:31/70275/AC A5-2/2020

മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ School of Mathematics and Statistics എന്ന പഠനവകുപ്പിൽ ആരംഭിക്കുന്ന M.Sc Mathematics ,M.Sc Statistics പ്രോഗ്രാമുകളുടേയും , School of Data Analytics എന്ന പഠനവകുപ്പിൽ ആരംഭിക്കുന്ന M.Sc Data Science & Analytics പ്രോഗ്രാമിന്റേയും Programme Structure and Syllabus-കൾ -അംഗീകരിച്ച് ഉത്തരവ് പുറപ്പെടുവിച്ചത് - അക്കാദമിക് കൗൺസിലിൽ റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ School of Mathematics and Statistics എന്ന പഠന വകുപ്പിൽ ആരംഭിക്കുന്ന M.Sc Mathematics ,M.Sc Statistics പ്രോഗ്രാമുകളുടേയും , School of Data Analytics എന്ന പഠനവകുപ്പിൽ ആരംഭിക്കുന്ന M.Sc Data Science & Analytics പ്രോഗ്രാമിന്റേയും Programme Structure and Syllabus - കൾ (Revised CSS Regulations With Effect from 2020 Admissions - ന് അനുസൃതമായി തയ്യാറാക്കിയത്)അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 04.01.2021 -ലെ നമ്പർ.40/Ac A5/2021/എം.ജി.യു. സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:32/30760/AC A5-2/2021

മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ School of Nanoscience and Nanotechnology എന്ന പഠനവകുപ്പിലെ M.Tech in Nanoscience and Nanotechnology പ്രോഗ്രാമിന്റെയും Master of Science (M.Sc) in Nanoscience and Nanotechnology (Physics/Chemistry) പ്രോഗ്രാമുകളുടെയും - പരിഷ്കരിച്ച അടിസ്ഥാന പ്രവേശന യോഗ്യത - അംഗീകരിച്ച് - ഉത്തരവ് പുറപ്പെടുവിച്ചത് - അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ School of Nanoscience and Nanotechnology എന്ന പഠനവകുപ്പിലെ M.Tech in Nanoscience and Nanotechnology പ്രോഗ്രാമിന്റെയും Master of Science (M.Sc) in Nanoscience and Nanotechnology (Physics/Chemistry) പ്രോഗ്രാമുകളുടെയും റെഗുലേഷൻസിലെ അടിസ്ഥാന പ്രവേശന യോഗ്യത പരിഷ്കരിക്കുന്നത് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 30.01.2021-ലെ നമ്പർ 674/AC A5/20201 എം.ജി.യു, 01.02.2021-ലെ നമ്പർ. 694/AC A5/2021/എം.ജി.യു എന്നീ സർവകലാശാല ഉത്തരവുകളും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:33/4000/2/2020/S.R /ELECTION (DPT BOS)

ആറ് വിഷയങ്ങൾക്ക് സംയുക്ത യു.ജി - പി.ജി ബോർഡ് ഓഫ് സ്റ്റഡീസ് രൂപീകരണം ഉത്തരവ് പുറപ്പെടുവിച്ചത് അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

സിറിയക്, ജിയോളജി, ജേർണലിസം ആൻഡ് മാസ്റ്റ് കമ്മ്യൂണിക്കേഷൻ, അക്വാകൾച്ചർ, ടൂറിസം, നിയമം എന്നീ ആറ് വിഷയങ്ങൾക്ക് സംയുക്ത യു.ജി - പി.ജി ബോർഡ് ഓഫ് സ്റ്റഡീസ് രൂപീകരിക്കുന്നത് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 04.02.2021 -ലെ നമ്പർ 766/election/2021/എം.ജി.യു. സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:34/26743/EB32/2020

കോവിഡ് 19 പശ്ചാത്തലത്തിൽ വിവിധ ജില്ലകളിൽ പെട്ടുപോയിട്ടുള്ള വിദ്യാർത്ഥികൾക്ക് വേണ്ടി, സർവകലാശാലയുടെ പ്രവർത്തന പരിധിക്ക് പുറത്തുള്ള ജില്ലകളിൽ പരീക്ഷ നടത്തുന്നതിന് ഏർപ്പെടുത്തിയ ക്രമീകരണങ്ങൾ അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

കോവിഡ് 19 പശ്ചാത്തലത്തിൽ നാലാം സെമസ്റ്റർ പി.ജി. ഡിഗ്രി പരീക്ഷ, ജൂൺ 2020- ന്റെ പ്രാക്ടിക്കൽ/ പ്രോജക്ട്/വൈവ എന്നിവയുടെ നടത്തിപ്പ് സംബന്ധിച്ച് 02.07.2020-ന് കൂടിയ ഓൺലൈൻ മീറ്റിങ്ങിന്റെ നടപടിക്കുറിപ്പ്, അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം

പുറപ്പെടുവിച്ച 06.07.2020 -ലെ നമ്പർ 3037/EA2 /2020/ എം.ജി.യു, സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

**ഇനംനമ്പർ:35/15491/AC A9-2/2020
/VC SECTION**

**ബിസിനസ് മാനേജ്മെന്റിന്റെ വിദഗ്ദ്ധസമിതിയുടെ
03.03.2020 തീയതിയിലെ ശിപാർശയിന്മേൽ
സർവ്വകലാശാല ആക്ട് 1985, ചാപ്റ്റർ 3.10(17) പ്രകാരം
വൈസ് ചാൻസലർ കൈക്കൊണ്ട നടപടി അക്കാദമിക്
കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.**

03.03.2020-ലെ ബിസിനസ് മാനേജ്മെന്റിന്റെ വിദഗ്ദ്ധസമിതിയുടെ ശിപാർശ പ്രകാരം എം.ബി.എ. സ്കീം/സിലബസ്/റഗുലേഷൻ 2019-ൽ വരുന്നതിന് തുല്യമായ തിരുത്തലുകൾ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 14.10.2020 -ലെ 4707/Ac A9/2020/എം.ജി.യു. നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

**ഇനംനമ്പർ:36/7318/AcAIV/3/Syllabus
Revision-Clarification/2020**

**BHM Course-2020-21 അധ്യയനവർഷം മുതൽ
പുതുക്കിയ സ്കീം,സിലബസിൽ 8 ഡിജിറ്റ് കോഴ്സ് കോഡ്
നൽകുന്നതിനും, ടി കോഴ്സ് ഫാക്കൽറ്റി ഓഫ് ടൂറിസം
ആൻഡ് ഹോസ്പിറ്റാലിറ്റി സ്റ്റഡീസ് എന്ന
ഫാക്കൽറ്റിയിലേക്കു മാറ്റുന്നതിനുള്ള ശുപാർശകൾ
അംഗീകരിച്ച ഉത്തരവായത് സംബന്ധിച്ച്. (Reporting)**

BHM Course-2020-21 അധ്യയനവർഷം മുതൽ പുതുക്കിയ സ്കീം,സിലബസിൽ 8 ഡിജിറ്റ് കോഴ്സ് കോഡ് നൽകുന്നതിനും, ടി കോഴ്സ് ഫാക്കൽറ്റി ഓഫ് ടൂറിസം ആൻഡ് ഹോസ്പിറ്റാലിറ്റി സ്റ്റഡീസ് എന്ന ഫാക്കൽറ്റിയിലേക്കു മാറ്റുന്നതിനുള്ള അക്കാദമിക് കൗൺസിൽ സ്റ്റാന്റിംഗ് കമ്മിറ്റി ശുപാർശകൾ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 14.01.2021 -ലെ 285/ACA4/2021/എം.ജി.യു നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:37/17930/AC A12-2/2020

**മഹാത്മാഗാന്ധി സർവ്വകലാശാല - M.Sc. Artificial
Intelligence പ്രോഗ്രാമിന്റെ സിലബസ്, സ്കീം &
റെഗുലേഷൻസ് എന്നിവ മഹാത്മാഗാന്ധി സർവ്വകലാ
ശാല നിയമം 1985,അദ്ധ്യായം 3,ചേദം 10 (17)
പ്രകാരം അംഗീകരിച്ചത്- ഉത്തരവ് പുറപ്പെടുവിച്ചത് -
അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് -
സംബന്ധിച്ച്.**

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിലെ MSc Artificial Intelligence പ്രോഗ്രാമിന്റെ സിലബസ്, സ്കീം റെഗുലേഷൻസ് എന്നിവ അംഗീകരിക്കുന്നതുമായി ബന്ധപ്പെട്ട് 11/11/2020, 29/01/2021 എന്നീ

തീയതികളിൽ ചേർന്ന MSc Artificial Intelligence (PG) പ്രോഗ്രാം Expert Committee-യുടെ ശുപാർശകൾ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 11/02/2021-ലെ 938/AC.A12/2021/എം.ജി.യു, നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:38/18951/AC A5-1/2020 /REG SECT

സർവകലാശാല പഠനവകുപ്പ് / സെന്ററുകൾക്ക് കീഴിലെ എൻഡ് സെമസ്റ്റർ പോസ്റ്റ് ഗ്രാജുവേഷൻ (4th semester) 2020 പരീക്ഷകളുടെ സുതാര്യമായ നടത്തിപ്പുമായി ബന്ധപ്പെട്ട മാർഗ്ഗനിർദ്ദേശങ്ങൾ - വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച ഉത്തരവും അക്കാദമിക് കൗൺസിലിലേക്കു റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

സർവകലാശാല പഠനവകുപ്പ് / സെന്ററുകൾക്ക് കീഴിലെ എൻഡ് സെമസ്റ്റർ പോസ്റ്റ് ഗ്രാജുവേഷൻ (4th semester) 2020 പരീക്ഷകളുടെ സുതാര്യമായ നടത്തിപ്പിനായി പുറപ്പെടുവിച്ചിരിക്കുന്ന ഫാക്കൽറ്റി കൗൺസിലുകളുടെ മാർഗ്ഗനിർദ്ദേശങ്ങൾ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 06.11.2020 -ലെ 5213/ACA5/2020/എം.ജി.യു, നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:39/296/AC A12-3/2021

07/01/2021 ൽ നടന്ന Expert Committee in Education(U.G) യോഗ ശുപാർശകൾ അംഗീകരിച്ച ഉത്തരവായത്- മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം III വകുപ്പ് 10(17) പ്രകാരം വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടി-റിപ്പോർട്ട് ചെയ്യുന്നു.

ബി.എഡ് 2019-2021 ബാച്ച് നാലാം സെമസ്റ്റർ പഠന പ്രവർത്തനങ്ങൾ സംബന്ധിച്ച വിഷയം, വിവിധ കോഴ്സുകൾക്ക് പ്രോഗ്രാം വൈസ് എലിജിബിലിറ്റി സർട്ടിഫിക്കറ്റ് നൽകുന്ന വിഷയം, 2015, 2018 സിലബസിലെ Language across the curriculum എന്ന വിഷയത്തിലെ വ്യത്യാസങ്ങൾ എന്നിവ ചർച്ച ചെയ്യുന്നതിനായി 07/01/2021 തീയതിയിൽ ചേർന്ന Expert Committee in Education (UG) യോഗത്തിന്റെ ശുപാർശകൾ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 20/01/2021-ലെ 473/ACA12/2021/എം.ജി.യു, നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:40/6392/AC A5-1/2020

മഹാത്മാഗാന്ധി സർവകലാശാലക്ക് കീഴിൽ ആരംഭിക്കുന്ന ഇന്റഗ്രേറ്റഡ് എം.എസ്സ്. സി പ്രോഗ്രാം ഇൻ സയൻസസ്, ഇന്റഗ്രേറ്റഡ് എം. എ പ്രോഗ്രാം ഇൻ സോഷ്യൽ സയൻസസ് എന്നീ പ്രോഗ്രാമുകളുടെ റെഗുലേഷൻ, സ്കീം, സിലബസ്, കരിക്കുലം എന്നിവ അംഗീകരിച്ചു - ബഹു. വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവകലാശാലക്ക് കീഴിൽ ആരംഭിക്കുന്ന ഇന്റഗ്രേറ്റഡ് എം.എസ്സ്. സി പ്രോഗ്രാം ഇൻ സയൻസസ്, ഇന്റഗ്രേറ്റഡ് എം. എ പ്രോഗ്രാം ഇൻ സോഷ്യൽ സയൻസസ് എന്നീ പ്രോഗ്രാമുകളുടെ റെഗുലേഷൻ, സ്കീം, സിലബസ്, കരിക്കുലം എന്നിവ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 05.10.2020 -ലെ 4467/AcA5/2020/എം.ജി.യു നമ്പർ സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:41/ 38091/EB1 SO/2021

മൂന്നാം വർഷ ബി എസ് സി നഴ്സിംഗ് പരീക്ഷ നവംബർ 2020 ന്റെ പ്രാക്ടിക്കൽ പരീക്ഷകളുടെ നടത്തിപ്പുമായി ബന്ധപ്പെട്ട് അംഗീകരിച്ച മാർഗനിർദ്ദേശങ്ങൾ അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

പരീക്ഷാബോർഡ് ചെയർപേഴ്സന്റെ അഭ്യർത്ഥനയും അക്കാദമിക് വിഭാഗത്തിന്റെ ശുപാർശയും പരിഗണിച്ചു മൂന്നാം വർഷ ബി.എസ്.സി നഴ്സിംഗ് പരീക്ഷ നവംബർ 2020 ന്റെ പ്രാക്ടിക്കൽ പരീക്ഷകൾ **OSCE (observed Structured Clinical Examination)** രീതിയിൽ നടത്തുവാൻ അനുവദിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10(17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 06.02.2021 -ലെ 803/ EB 1/2021/ എം.ജി.യു. നമ്പർ സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:42/13265/EB 7/2/2020

ഒന്നാം സെമസ്റ്റർ ബി ഫാം ഡിഗ്രി പരീക്ഷ ഫെബ്രുവരി 2020 ന്റെ പ്രാക്ടിക്കൽ പരീക്ഷ Internal Examiners നെ മാത്രം ഉപയോഗിച്ച് നടത്തുന്നതിന് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അദ്ധ്യായം III , സെക്ഷൻ 10(17) പ്രകാരം അനുവദിച്ചു കൊണ്ട് ബഹുമാനപ്പെട്ട വൈസ് ചാൻസലർ അംഗീകാരം നൽകിയ നടപടി അക്കാദമിക് കൗൺസിലിലേയ്ക്ക് റിപ്പോർട്ട് ചെയ്യുന്നതു സംബന്ധിച്ച്.

ഒന്നാം സെമസ്റ്റർ ബി ഫാം ഡിഗ്രി പരീക്ഷ ഫെബ്രുവരി 2020 ന്റെ പ്രാക്ടിക്കൽ പരീക്ഷ Internal Examiners നെ മാത്രം ഉപയോഗിച്ച് നടത്തുവാൻ അനുവദിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും

തദനുസരണം പുറപ്പെടുവിച്ച 20.08.2020-ലെ 3740/EB 7/2020/എം.ജി.യു നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:43/38436/AC A5-1/2020

Covid 19 രോഗ വ്യാപനത്തിന്റെ പശ്ചാത്തലത്തിൽ സർവകലാശാല പഠനവകുപ്പുകളിലെ രണ്ടാം സെമസ്റ്റർ എം. ഫിൽ പ്രൊജക്ട് വാല്യുവേഷൻ - വാച പരീക്ഷകൾ - ഓൺലൈൻ രീതിയിൽ നടത്തുന്നത് സംബന്ധിച്ച് മഹാത്മാ ഗാന്ധി സർവകലാശാലാ ആക്ട് 1985 അധ്യായം III .10 (17) പ്രകാരം വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച ഉത്തരവും അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്:

സർവകലാശാല പഠനവകുപ്പുകൾക്ക് കീഴിലെ രണ്ടാം സെമസ്റ്റർ (Current Final Semester) എം. ഫിൽ പ്രൊജക്ട് വാല്യുവേഷൻ - വാച പരീക്ഷകൾ - വിദ്യാർത്ഥികൾക്ക് വീടുകളിൽ ഇരുന്ന് പങ്കെടുക്കുവാൻ സൗകര്യപ്പെടും വിധം ഓൺലൈൻ രീതിയിൽ നടത്തുവാൻ അനുവദിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 09.10.2020 -ലെ 4629/എ.സി.എ5/2020/എം.ജി.യു നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:44/65530/AC A5-1/2020

മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ കീഴിലെ പഠനവകുപ്പായ സ്കൂൾ ഓഫ് എനർജി മെറ്റീരിയൽസ് -ൽ ആരംഭിക്കുന്ന എം. ടെക് എനർജി സയൻസ് പ്രോഗ്രാമിന്റെ റെഗുലേഷൻസ്, സ്കീം, സിലബസ് എന്നിവ അംഗീകരിച്ചതു സംബന്ധിച്ച് - മഹാത്മാ ഗാന്ധി സർവകലാശാലാ ആക്ട് 1985 അധ്യായം III .10 (17) പ്രകാരം വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച ഉത്തരവും അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ കീഴിലെ പഠനവകുപ്പായ സ്കൂൾ ഓഫ് എനർജി മെറ്റീരിയൽസ്-ൽ ആരംഭിക്കുന്ന എം.ടെക് എനർജി സയൻസ് പ്രോഗ്രാമിന്റെ റെഗുലേഷൻസ്, സ്കീം, സിലബസ് എന്നിവ പുതുക്കിയ CSS Regulations 2020-ന് അനുസൃതമായി തയ്യാറാക്കിയത് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 04.01.2021 -ലെ 51/എ.സി.എ5/2021/എം.ജി.യു നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:45/58272/AC A12-3/2020

മഹാത്മാഗാന്ധി സർവ്വകലാശാല -Centre for Yoga and Naturopathy-യിൽ Post Graduate Diploma in Yoga കോഴ്സ് തുടങ്ങുന്നതിനുള്ള പ്രൊപോസൽ, കോഴ്സിന്റെ റെഗുലേഷൻ, സ്കീം, സിലബസ് എന്നിവ അംഗീകരിച്ചു ഉത്തരവായത്-മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം III വകുപ്പ് 10(17) പ്രകാരം ബഹു.വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടി - റിപ്പോർട്ട് ചെയ്യുന്നു.

മഹാത്മാഗാന്ധി സർവ്വകലാശാല സെന്റർ ഫോർ യോഗ ആന്റ് നാച്ചുറോപ്പതിയിൽ Post Graduate Diploma in Yoga കോഴ്സ് തുടങ്ങുന്നതിനുള്ള റെഗുലേഷൻ, സ്കീം, സിലബസ് എന്നിവ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 18.02.2021 -ലെ 1040/ACA12/2021/എം.ജി.യു നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:46/215001

പിഎച്ച്.ഡി. പ്രോഗ്രാം- സ്കൂൾ ഓഫ് സോഷ്യൽ സയൻസസ് - ശ്രീ. വർഗീസ് കെ. സി. - 2014 അഡ്മിഷൻ - ഡിസിപ്ലിനിൽ മാറ്റം വരുത്തി നൽകിയത് സംബന്ധിച്ച്.

ശ്രീ. വർഗീസ് കെ. സി. -യുടെ ഗവേഷണ വിഷയം സോഷ്യോളജി എന്ന് മാറ്റി നൽകിക്കൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 30.12.2020-ലെ 1293/2019/AX/2/Academic നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

**(II) ക്രമ ഇനങ്ങൾ
നടപ്പ് ഇനങ്ങൾ:**

**ഇനംനമ്പർ:47/38302/CBCSS7/1/2019
/CE.SECT**

2009 - 2012 അഡ്മിഷൻ വിദ്യാർത്ഥികൾ സെമസ്റ്റർ ഇന്ത്യവ്മെന്റ് പരീക്ഷ എഴുതി CGPA / GRADE 1.5 / C നേടുന്നത് സംബന്ധിച്ച്.

2009 മുതൽ 2012 വരെ ചോയ്സ് ബേസ്ഡ് ക്രെഡിറ്റ് ആൻഡ് സെമസ്റ്റർ സിസ്റ്റം രീതിയിൽ അഡ്മിഷൻ നേടിയ വിദ്യാർത്ഥികൾ മിനിമം CGPA 1.5 ലഭിക്കാത്തതിനാൽ, കോഴ്സ് പീരീഡിനു ശേഷം എഴുതിയ സെമസ്റ്റർ ഇന്ത്യവ്മെന്റ് പരീക്ഷകളിൽ കോഴ്സ് പീരീഡിനുള്ളിൽ എഴുതിയ

വിഷയങ്ങളേക്കാൾ മെച്ചപ്പെട്ട GPA ഏതെങ്കിലും വിഷയങ്ങൾക്ക് നേടുകയും, അവ കണക്കിലെടുത്താൽ CGPA 1.5 ആയി ഉയരുമെങ്കിൽ ടി സെമസ്റ്റർ ഇന്ത്യവ്മെന്റ് പരീക്ഷ 03.09.2019 തീയതിയിലെ 4224 /CBCSS 3 / 2019/എം.ജി.യു. എന്ന സർവകലാശാലാ ഉത്തരവിൽ പരാമർശിച്ചിട്ടുള്ള ഏതെങ്കിലും 10 വിഷയങ്ങൾ വരെ എഴുതി CGPA 1.5 ആയി മെച്ചപ്പെടുത്താൻ വിദ്യാർത്ഥികൾക്ക് അവസരം നൽകുന്ന തീരുമാനപ്രകാരം ടി വിദ്യാർത്ഥികൾ വിജയിച്ചതായി കണക്കാക്കുവാനും ഇപ്രകാരം ഒരു പൊതു ഉത്തരവ് പുറപ്പെടുവിക്കുവാനും പ്രസ്തുത ഉത്തരവിന്റെ കാലാവധി ഉത്തരവ് തീയതിമുതൽ രണ്ട് വർഷമായി നിജപ്പെടുത്തുവാനും തീരുമാനിച്ചു.

ഇനംനമ്പർ:48/AcD/01/35062/CR/2020

University of Hyderabad അവാർഡ് ചെയ്ത Master of Philosophy in Comparative Literature (Regular) ബിരുദത്തിന് മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ English വിഷയത്തിൽ 'Certificate of Eligibility for M.Phil Degree' ലഭിക്കുന്നതിനുള്ള അപേക്ഷ സംബന്ധിച്ച്.

University of Hyderabad-ൽ നിന്ന് Sri. Viju Kurian നേടിയ Master of Philosophy in Comparative Literature (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ English വിഷയത്തിൽ Relevant ആയി അംഗീകരിച്ചു കൊണ്ട് 'Certificate of Eligibility for M.Phil Degree' നൽകുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:49/40324/AC A1-1/2020/ACAD

ഓൺലൈൻ പരീക്ഷയും ക്ലാസ്സുകളും സംബന്ധിച്ച് ഉന്നതവിദ്യാഭ്യാസ വകുപ്പ് മുഖേനെ ലഭിച്ച കേരള അൺഎയ്ഡഡ് കോളേജ് പ്രിൻസിപ്പൽസ് അസോസിയേഷൻ സെക്രട്ടറി സമർപ്പിച്ച അപേക്ഷ ബഹു.വൈസ് ചാൻസലറുടെ ഉത്തരവിൻ പ്രകാരം അക്കാദമിക് കൗൺസിലിന്റെ പരിഗണനയ്ക്ക് സമർപ്പിക്കുന്നത് സംബന്ധിച്ച് :-

അപേക്ഷയിലെ നിർദ്ദേശങ്ങളിൽ തീരുമാനം ശുപാർശ ചെയ്യുന്നതിന് സിൻഡിക്കേറ്റിന്റെ സബ് കമ്മിറ്റിയായ അക്കാദമിക് അഫയേഴ്സിന് സമർപ്പിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:50/Ac AIV /1/10331/2019

/IMCA

IMCA കോഴ്സ് -റഗുലേഷൻ ഭേദഗതി - അക്കാദമിക് കൗൺസിൽ തീരുമാനം രേഖപ്പെടുത്തുന്നതിൽ വന്ന പിഴവ് തിരുത്തുന്നതു -സംബന്ധിച്ച്.

16.02.19 -ലെ അക്കാദമിക് കൗൺസിൽ യോഗ തീരുമാനം മിനിറ്റ്സ് ഇനം നമ്പർ.56/Ac.19/ 185320 പ്രകാരം ഇന്റഗ്രേറ്റഡ് MCA (IMCA) കോഴ്സിന് ബാധകമാക്കിയ റെഗുലേഷനിൽ 'not less than 5 CGPA' എന്ന് രേഖപ്പെടുത്തിയിരിക്കുന്നത് 'If he /she secures not less than'5 SGPA' എന്നാക്കി തിരുത്തുന്നതിന് തീരുമാനിച്ചു

ഇനംനമ്പർ:51/26831/AC D/2/ACAD

Council of Boards of School Education in India (COBSE) യിൽ അംഗങ്ങളായിട്ടുള്ള ഹയർ സെക്കന്ററി/സീനിയർ സെക്കന്ററി ബോർഡുകൾ നടത്തുന്ന 10+2 മോഡലുള്ള ദ്വിവത്സര Open School/ Private Registration പരീക്ഷകൾക്ക് അംഗീകാരം നൽകുന്നത് സംബന്ധിച്ച്-

Council of Boards of School Education in India (COBSE) യിൽ അംഗങ്ങളായിട്ടുള്ള ഹയർ സെക്കന്ററി/ സീനിയർ സെക്കന്ററി ബോർഡുകൾ നടത്തുന്ന 10+2 മോഡലുള്ള ദ്വിവത്സര Open School/ Private Registration പരീക്ഷ വിജയിച്ചവർക്ക് ഉപരിപഠനത്തിനായി യോഗ്യത സാക്ഷ്യപത്രം നൽകുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:52/5546/ACA1-2/2020 /REG SECT

SEBC വിദ്യാർത്ഥികൾക്ക് എം.ഫിൽ പ്രവേശനത്തിന് യു.ജി.സി.അനുശാസിക്കുന്ന 5% "Mark relaxation" സർവ്വകലാശാലയിലും അനുവദിക്കണമെന്നാവശ്യപ്പെട്ടു കൊണ്ട് ലഭിച്ച അപേക്ഷ സംബന്ധിച്ച്.

SEBC വിദ്യാർത്ഥികൾക്ക് സർവ്വകലാശാലയിലെ എം.ഫിൽ പ്രവേശനത്തിന് യു.ജി.സി. അനുശാസിക്കുന്ന 5% "Mark relaxation" അനുവദിക്കുന്നതിന് തീരുമാനിച്ചു.

ഇനംനമ്പർ:53/29259/EB10/1/2019

ഫിസിക്കൽ എഡ്യൂക്കേഷൻ വിഷയത്തിൽ ഗവേഷകനായിരുന്ന ശ്രീ. മാത്യൂസ് ജെ. -യ്ക്ക് മരണാനന്തരം ഗവേഷണ ബിരുദം നൽകുന്നത് സംബന്ധിച്ച്.

18.08.2019-ൽ നിര്യാതനായ, ഫിസിക്കൽ എഡ്യൂക്കേഷൻ വിഷയത്തിൽ ഗവേഷകനായിരുന്ന മാത്യൂസ് ജെ -യ്ക്ക് 06.03.2021 പ്രാബല്യത്തിൽ മരണാനന്തരം ഗവേഷണ ബിരുദം നൽകുന്നതിന് സിണ്ടിക്കേറ്റിനോട് ശുപാർശചെയ്യാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:54/37949/AC B5-1/2020

സർവ്വകലാശാലയുടെ കീഴിലുള്ള എയ്ഡഡ് കോളേജുകളിലെ ഫിസിക്കൽ എഡ്യൂക്കേഷൻ വിഭാഗം അദ്ധ്യാപകരെ പുനർ നാമകരണം ചെയ്യുന്നത് സംബന്ധിച്ച്.

സർവ്വകലാശാലയുടെ കീഴിലുള്ള എയ്ഡഡ് കോളേജുകളിലെ ഫിസിക്കൽ എഡ്യൂക്കേഷൻ വിഭാഗം അദ്ധ്യാപകരെ അസിസ്റ്റന്റ് പ്രൊഫസ്സർ ഓഫ് ഫിസിക്കൽ എഡ്യൂക്കേഷൻ, അസോസിയേറ്റ് പ്രൊഫസ്സർ ഓഫ് ഫിസിക്കൽ എഡ്യൂക്കേഷൻ എന്നിങ്ങനെ പുനർനാമകരണം ചെയ്യുന്നതിന് തീരുമാനിച്ചു.

ഇനംനമ്പർ:55/15457/AcAIV/3/IMCA-SyllabusRevision-2020(Part-1)

2020-21-അധ്യയനവർഷം മുതൽ IMCA-കോഴ്സിന്റെ റെഗുലേഷൻ, സ്കീം, സിലബസ് പരിഷ്കരിക്കുന്നത് - സംബന്ധിച്ച്.

2020-21 അധ്യയനവർഷം മുതൽ പ്രാബല്യത്തിൽ വരുത്തേണ്ട IMCA-കോഴ്സിന്റെ പരിഷ്കരിച്ച റെഗുലേഷൻ, സ്കീം, സിലബസ് എന്നിവ അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു .

(പരിഷ്കരിച്ച റെഗുലേഷൻ, സ്കീം, സിലബസ് എന്നിവ Appendix I ആയി ചേർത്തിരിക്കുന്നു)

ഇനംനമ്പർ:56/45704/AC A5-2/2020

M. Sc Operations Research and Computer Applications ബിരുദം - Higher secondary school teacher in computer science - തസ്തികയിലേക്ക് വേണ്ട യോഗ്യതയായി പരിഗണിക്കുന്നത് -Sri Kuriakose T.C. യുടെ അപേക്ഷ - സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ M.Sc Operations Research and Computer Applications (M.Sc OR & CA) പ്രോഗ്രാം - Higher secondary school teacher in computer science - തസ്തികയിലേക്ക് വേണ്ട യോഗ്യതയായി പരിഗണിക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:57/AcD/01/41820/CR/2020

Bharathiar University , Coimbatore അവാർഡ് ചെയ്ത Bachelor of Library & Information Science (Distance Education)) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Bachelor of Library & Information Science ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

Bharathiar University , Coimbatore അവാർഡ് ചെയ്ത Bachelor of Library & Information Science (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Bachelor of Library & Information Science ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കേണ്ടതില്ലെന്നും. എന്നാൽ ഉദ്യോഗത്തിനും മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ Bachelor of Library & Information Science അടിസ്ഥാന യോഗ്യതയായി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനും ഉള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:58/8736/AcA4/3/MHRM/2020

MHRM കോഴ്സിനെ യു.ജി.സി.സ്പെസിഫൈഡ് കോഴ്സുകളുടെ ലിസ്റ്റിൽ ഉൾപ്പെടുത്തുന്നത് സംബന്ധിച്ച്:-

2021 പ്രവേശനം മുതൽ MHRM കോഴ്സിനെ MA (Human Resource Management) എന്ന പേരിലേക്ക് മാറ്റുന്നതിനും ടി കോഴ്സിനെ യു.ജി.സി.യുടെ അംഗീകൃതകോഴ്സുകളുടെ ലിസ്റ്റിൽ ഉൾപ്പെടുത്തുന്നതിനുള്ള നടപടികൾ സ്വീകരിക്കുന്നതിനും തീരുമാനിച്ചു.

ഇനംനമ്പർ:59/AcD/01/49335/CR/2020

BHARATHIAR UNIVERSITY അവാർഡ് ചെയ്ത **Bachelor of Science in Computer Technology (Regular)** ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ **Bachelor of Science in Information Technology** ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

BHARATHIAR UNIVERSITY അവാർഡ് ചെയ്ത Bachelor of Science in Computer Technology (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Bachelor of Science in Information Technology ബിരുദം യോഗ്യതയായി നിഷ്കർഷിച്ചിട്ടുള്ള തൊഴിൽ അവസരങ്ങൾക്ക് വേണ്ടി യോഗ്യത സാക്ഷ്യപത്രം നൽകുവാൻ തീരുമാനിച്ചു

ഇനംനമ്പർ:60/AcD/01/48516/CR/2020

Bharathiar University,Coimbatore അവാർഡ് ചെയ്ത **Master of Science in Zoology (Distance Education)** ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ **Master of Science in Zoology** ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

Bharathiar University,Coimbatore അവാർഡ് ചെയ്ത Master of Science in Zoology (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Science in Zoology ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നതിനുള്ള അപേക്ഷ നിരസിക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:61/AcD/01/46961/CR/2019

Sree Chitra Tirunal Institute for Medical Sciences & Technology, Thiruvananthapuram, "Design of New Bio-ceramic Materials for Hard Tissue Engineering" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത **Doctor of Philosophy** ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ **Assistant Professor** തസ്തികയ്ക്ക് അപേക്ഷിക്കുന്നതിന് വേണ്ടി **Chemistry** വിഷയത്തിൽ **Certificate of Eligibility for Ph.D Degree** ലഭിക്കുന്നതിനായി അംഗീകരിക്കുന്നതിനുള്ള അപേക്ഷ സംബന്ധിച്ച്.

Sree Chitra Tirunal Institute for Medical Sciences & Technology, Thiruvananthapuram, "Design of New Bio-ceramic Materials for Hard Tissue Engineering" എന്ന പ്രബന്ധത്തിന് അവാർഡ്

ചെയ്ത Doctor of Philosophy ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയിൽ Assistant Professor തസ്തികയ്ക്ക് അപേക്ഷിക്കുന്നതിനു വേണ്ടി Chemistry വിഷയത്തിൽ Certificate of Eligibility for Ph.D Degree നൽകുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:62/AcD/01/48750/CR/2020 University of Kerala അവാർഡ് ചെയ്ത Master of Science in Biotechnology (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ Master of Science in Botany ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്

University of Kerala അവാർഡ് ചെയ്ത Master of Science in Biotechnology (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ Master of Science in Botany ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:63/AcD/01/36115/CR/2020 ANNAMALAI UNIVERSITY അവാർഡ് ചെയ്ത Master of Science in Computer Science (Lateral Entry) (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ Master of Science in Computer Science ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

ANNAMALAI UNIVERSITY അവാർഡ് ചെയ്ത Master of Science in Computer Science (Lateral Entry) (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ Master of Science in Computer Science ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കുന്നതിനുള്ള അപേക്ഷ നിരസിക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:64/AcD/01/46702/CR/2020 The University of South Bohemia, Ceske Budejovice, Czech Republic, "Degradation of organic pollutants in water by non-thermal plasma based advanced oxidation processes" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctoral Degree (PhD) in 4103V003 Fishery (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയിൽ അസിസ്റ്റന്റ് പ്രൊഫസ്സർഷിപ്പിന് അപേക്ഷിക്കുന്നതിനായി Chemistry വിഷയത്തിൽ relevant ആണെന്നുള്ള Certificate of Eligibility for Ph.D Degree നൽകുന്നത് സംബന്ധിച്ച്.

The University of South Bohemia, Ceske Budejovice, Czech Republic, "Degradation of organic pollutants in water by non-thermal plasma based advanced oxidation processes" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctoral Degree (PhD) in 4103V003 Fishery (Regular) ബിരുദം മഹാത്മാഗാന്ധി

സർവ്വകലാശാലയിൽ അസിസ്റ്റന്റ് പ്രൊഫസ്സർഷിപ്പിന് അപേക്ഷിക്കുന്നതിനായി Chemistry വിഷയത്തിൽ relevant ആയി അംഗീകരിച്ചുകൊണ്ട് Certificate of Eligibility for Ph.D Degree നൽകാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:65/AcD/01/44701/CR/2020

MADURAI KAMARAJ UNIVERSITY അവാർഡ് ചെയ്ത MASTER OF BUSINESS ADMINISTRATION TOURISM AND HOTEL MANAGEMENT (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Hotel Management ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്:

MADURAI KAMARAJ UNIVERSITY അവാർഡ് ചെയ്ത MASTER OF BUSINESS ADMINISTRATION TOURISM AND HOTEL MANAGEMENT (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Hotel Management ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നതിനുള്ള അപേക്ഷ നിരസിക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:66/AcD/01/40803/CR/2020

University of Petroleum and Energy Studies, Dehradun അവാർഡ് ചെയ്ത Bachelor of Business Administration (Aviation Operations) (വിദൂരവിദ്യാഭ്യാസം) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Bachelor of Business Administration ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്:

University of Petroleum and Energy Studies, Dehradun അവാർഡ് ചെയ്ത Bachelor of Business Administration (Aviation Operations) (വിദൂരവിദ്യാഭ്യാസം) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Bachelor of Business Administration ബിരുദത്തിന് അംഗീകരിക്കുന്നതിനുള്ള അപേക്ഷ നിരസിക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:67/Ac.D/01/51745/CR/2020

BHARATHIAR UNIVERSITY അവാർഡ് ചെയ്ത BACHELOR OF BUSINESS ADMINISTRATION (AIRLINE AND AIRPORT MANAGEMENT) (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ അംഗീകരിക്കുന്നതിനുള്ള അപേക്ഷ സംബന്ധിച്ച്:

BHARATHIAR UNIVERSITY അവാർഡ് ചെയ്ത BACHELOR OF BUSINESS ADMINISTRATION (AIRLINE AND AIRPORT MANAGEMENT) (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ അംഗീകരിക്കുന്നതിനുള്ള Sri. Shibin Mathew Shibu ന്റെ അപേക്ഷ നിരസിക്കുന്നതിന് തീരുമാനിച്ചു.

ഇനംനമ്പർ:68/AcD/01/48556/CR/2020

ഭാരതിയാർ യൂണിവേഴ്സിറ്റി, കോയമ്പത്തൂർ അവാർഡ് ചെയ്ത ബാച്ലർ ഓഫ് ബിസിനസ്സ് അഡ്മിനിസ്ട്രേഷൻ (വിദൂര വിദ്യാഭ്യാസം) ബിരുദത്തിന്റെ അംഗീകാരം സംബന്ധിച്ച്.

ഭാരതിയാർ യൂണിവേഴ്സിറ്റി, കോയമ്പത്തൂർ അവാർഡ് ചെയ്ത ബാച്ലർ ഓഫ് ബിസിനസ്സ് അഡ്മിനിസ്ട്രേഷൻ (വിദൂര വിദ്യാഭ്യാസം) മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ ബാച്ലർ ഓഫ് ബിസിനസ്സ് അഡ്മിനിസ്ട്രേഷൻ അടിസ്ഥാന യോഗ്യത ആയി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനുള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:69/AcD/01/42789/CR/2019

MADURAI KAMARAJ UNIVERSITY, TAMIL NADU അവാർഡ് ചെയ്ത BACHELOR OF BUSINESS ADMINISTRATION (RETAIL) (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

MADURAI KAMARAJ UNIVERSITY, TAMIL NADU അവാർഡ് ചെയ്ത BACHELOR OF BUSINESS ADMINISTRATION (RETAIL) (Distance Education) മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനുള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:70/AcD/01/51968/CR/2020

BHARATHIAR UNIVERSITY അവാർഡ് ചെയ്ത Master of Science in Applied Psychology (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Science in Psychology ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

BHARATHIAR UNIVERSITY അവാർഡ് ചെയ്ത Master of Science in Applied Psychology (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Science in Psychology ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കേണ്ടതില്ലെന്നും എന്നാൽ മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ Master of Science in Psychology അടിസ്ഥാന യോഗ്യതയായി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനുള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:71/62250/AC A12-3/2020

B.Sc Recreation,Leisure and Sports Studies കോഴ്സിനും, B.P.Ed/B.P.E/B.P.E.S കോഴ്സിനും തുല്യത നൽകുന്നത് സംബന്ധിച്ച്.

തുല്യത നൽകേണ്ടതില്ലെന്നും ഉപരി പഠനത്തിന് യോഗ്യത സാക്ഷ്യപത്രം സംബന്ധിച്ച് വിശദമായി പഠനം നടത്തി ശുപാർശ ചെയ്യുന്നതിന് ഒരു വിദഗ്ദ്ധ സമിതിയെ ചുമതലപ്പെടുത്തുവാൻ തീരുമാനിച്ചു.

ടി വിദഗ്ദ്ധ സമിതിയിലേക്ക് അംഗങ്ങളെ തിരഞ്ഞെടുക്കുന്നതിന് വൈസ് ചാൻസലറെ ചുമതലപ്പെടുത്തുന്നതിനും തീരുമാനിച്ചു.

ഇനംനമ്പർ:72/AcD/01/31727/CR/2019

University of Calicut, "Cytogenetical and Phytochemical Assays on in vitro and in vivo Plants of Indian Strawberry-Fragaria indica L. (Duchesnia indica Focke)" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctor of Philosophy in Botany (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ റിസർച്ച് ഗൈഡ് ഷിപ്പിന് അപേക്ഷിക്കുന്നതിനായി Biotechnology വിഷയത്തിൽ അംഗീകരിക്കുന്നതിനുള്ള അപേക്ഷ സംബന്ധിച്ച്:

ശ്രീ.ഉമേഷ് ബി ടി ക്ക് University of Calicut, "Cytogenetical and Phytochemical Assays on in vitro and in vivo Plants of Indian Strawberry-Fragaria indica L. (Duchesnia indica Focke)" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctor of Philosophy in Botany (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ Biotechnology വിഷയത്തിൽ റിസർച്ച് ഗൈഡ് ഷിപ്പിന് അപേക്ഷിക്കുന്നതിനുള്ള യോഗ്യതയായി അംഗീകരിക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:73/AcD/01/49179/CR/2020

NATIONAL INSTITUTE OF TECHNOLOGY, CALICUT, "BIOCOMPOSITES BASED ON CHEMICALLY MODIFIED LOW DENSITY POLYETHYLENE AND STARCH NANOPARTICLES" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctor of Philosophy (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ Chemistry വിഷയത്തിൽ Asst Professorship ന് അപേക്ഷിക്കുന്നതിനായി 'Certificate of Eligibility for Ph.D Degree' ലഭിക്കുന്നതിന് വേണ്ടി അംഗീകരിക്കുന്നതിനായുള്ള അപേക്ഷ സംബന്ധിച്ച്:

NATIONAL INSTITUTE OF TECHNOLOGY, CALICUT, "BIOCOMPOSITES BASED ON CHEMICALLY MODIFIED LOW DENSITY POLYETHYLENE AND STARCH NANOPARTICLES" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctor of Philosophy (Regular) ബിരുദത്തിന് മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ Chemistry വിഷയത്തിൽ Asst Professorship ന് അപേക്ഷിക്കുന്നതിനായി 'Certificate of Eligibility for Ph.D Degree' നൽകുന്നതിന് തീരുമാനിച്ചു

ഇനംനമ്പർ:74/AcD/01/33868/CR/2020

University of Hyderabad, "Ecophysiology of cadmium exposed Oryza sativa L.: Insights into molecular interactions with iron" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctor of Philosophy in Plant Sciences (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ Botany വിഷയത്തിൽ അംഗീകരിക്കുന്നതിനുള്ള അപേക്ഷ സംബന്ധിച്ച്.

ശ്രീ. Abin Sebastian ന് University of Hyderabad, "Ecophysiology of cadmium exposed Oryza sativa L.: Insights into molecular interactions with iron" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctor of Philosophy in Plant Sciences (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ Botany വിഷയത്തിൽ അംഗീകരിച്ചുകൊണ്ട് 'Certificate of Eligibility for Ph.D Degree' നൽകുന്നതിന് തീരുമാനിച്ചു.

ഇനംനമ്പർ:75/AcD/01/56544/CR/2020

BHARATHIAR UNIVERSITY, COIMBATORE, "A STYLISTIC STUDY OF JESSICA POWERS' SELECTED POEMS" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctor of Philosophy in Linguistics (Regular-Full Time) ബിരുദം English വിഷയത്തിൽ 'Certificate of Eligibility for Ph.D Degree' നൽകുന്നത് സംബന്ധിച്ച്.

ശ്രീമതി Armila Antony C ക് BHARATHIAR UNIVERSITY, COIMBATORE, "A STYLISTIC STUDY OF JESSICA POWERS' SELECTED POEMS" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctor of Philosophy in Linguistics (Regular-Full Time) ബിരുദത്തിന് English വിഷയത്തിൽ 'Certificate of Eligibility for Ph.D Degree' നൽകുന്നതിന് തീരുമാനിച്ചു.

ഇനംനമ്പർ:76/44764/ ACA9/3/2021

ബി.എ. തമിഴ് പഠിക്കുന്നതിന് പ്ലസ് ടു വിന് തമിഴ് പഠിച്ചിരിക്കണം എന്ന നിബന്ധന ഒഴിവാക്കുന്നത് -തമിഴ് വിദഗ്ധ സമിതി യോഗത്തിന്റെ ശുപാർശകൾ അക്കാദമിക് കൗൺസിലിലേക്ക് സമർപ്പിക്കുന്നു- സംബന്ധിച്ച്:

തമിഴ് ബിരുദ കോഴ്സിന് ചേരുന്നതിനുള്ള എലിജിബിലിറ്റി സംബന്ധിച്ചുള്ള തമിഴ് വിദഗ്ധ സമിതി യോഗത്തിന്റെ താഴെ പറയുന്ന ശുപാർശകൾ അംഗീകരിക്കുന്നതിന് തീരുമാനിച്ചു.

- 1) അപേക്ഷകർ 10-ാം സ്റ്റാൻഡേർഡിൽ നിർബന്ധമായും തമിഴ് രണ്ടാം ഭാഷയായി പഠിച്ചിരിക്കണം.
- 2) പ്ലസ് ടു തലത്തിൽ തമിഴ് പഠിച്ചിരിക്കണം എന്ന നിബന്ധന നിർബന്ധമില്ല.

ഇനംനമ്പർ:77/AcD/01/44334/CR/2020

ANNAMALAI UNIVERSITY, TAMILNADU അവാർഡ് ചെയ്ത **Master of Commerce in ACCOUNTING & FINANCE (Distance Education)** ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ **Master of Commerce** ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

ANNAMALAI UNIVERSITY, TAMILNADU അവാർഡ് ചെയ്ത **Master of Commerce in ACCOUNTING & FINANCE (Distance Education)** ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ **Master of Commerce** ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കേണ്ടതില്ലെന്നും മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ **Master of Commerce** അടിസ്ഥാന യോഗ്യത ആയി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനുള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:78/11689/AC B7/2/2019

സ്വയംഭരണ കോളേജായ കോട്ടയം സി.എം.എസ് കോളേജിലെ **ബി.വോക് പ്രോഗ്രാമുകൾക്ക്** സർവ്വകലാശാലയുടെ സമാന പ്രോഗ്രാമുകളുമായി തുല്യത നൽകുന്നത് സംബന്ധിച്ച്.

B.Voc-Travel, Tourism & Logistics Management, B.Voc-Information Technology എന്നീ യോഗ്യതയുള്ള വിദ്യാർത്ഥികൾക്ക് പി.ജി. പ്രോഗ്രാമുകളുടെ പ്രവേശനത്തിന് index മാർക്ക് കണക്കാക്കുന്നതിനായി മാർക്ക് standardize ചെയ്യുന്നതിനുള്ള ഫോർമുല രൂപീകരിക്കുവാൻ ബന്ധപ്പെട്ട ഡീൻമാരെ ചുമതലപ്പെടുത്താൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:79/11446/AC A9-3/2020/ACAD ഉന്നത വിദ്യാഭ്യാസ വകുപ്പ്- സിലബസിൽ ഭരണഘടനാ വിദ്യാഭ്യാസം ഉൾപ്പെടുത്തുന്നത് സംബന്ധിച്ച്.

പ്രസ്തുത വിഷയം അടുത്ത സിലബസ് പരിഷ്കരണ സമയത്ത് പരിഗണിക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:80/AcD/01/25121/CR/2020

INDIRA GANDHI NATIONAL OPEN UNIVERSITY, NEW DELHI അവാർഡ് ചെയ്ത **Master of Arts in Psychology (വിദൂരവിദ്യാഭ്യാസം)** ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ **Master of Science in Psychology** ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

INDIRA GANDHI NATIONAL OPEN UNIVERSITY, NEW DELHI അവാർഡ് ചെയ്ത **Master of Arts in Psychology (വിദൂരവിദ്യാഭ്യാസം)** ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ **Master of Science in Psychology** ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കേണ്ടതില്ലെന്നും എന്നാൽ മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ **Master of Science in Psychology** അടിസ്ഥാന

യോഗ്യതയായി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനുള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:81/AcD/01/37358/CR/2019

Indira Gandhi National Open University അവാർഡ് ചെയ്ത Master of Social Work (Counselling) (വിദൂരവിദ്യാഭ്യാസം) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Social Work ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

Indira Gandhi National Open University അവാർഡ് ചെയ്ത Master of Social Work (Counselling) (വിദൂരവിദ്യാഭ്യാസം) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Social Work ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കേണ്ടതില്ലെന്നും എന്നാൽ മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ Master of Social Work അടിസ്ഥാന യോഗ്യതയായി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനുള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:82/36242/AC A5/2

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ School of Gandhian Thought and Development Studies-ൽ നിന്നും MA Development Studies ബിരുദം കരസ്ഥമാക്കിയ Sri .Bineesh C B, Sri. Nabendhu Raj എന്നിവർ MA Economics ബിരുദവുമായി തുല്യതംഗീകരണത്തിനായി സമർപ്പിച്ച അപേക്ഷ സംബന്ധിച്ച്.

1. മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ School of Gandhian Thought and Development Studies-ൽ നിന്നും MA Development Studies ബിരുദം കരസ്ഥമാക്കിയ Sri .Bineesh C B, Sri. Nabendhu Raj എന്നിവർ MA Economics ബിരുദവുമായി തുല്യതംഗീകരണത്തിനായി സമർപ്പിച്ച അപേക്ഷ അംഗീകരിക്കേണ്ടതില്ലെന്നും എന്നാൽ മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ MA Economics അടിസ്ഥാന യോഗ്യതയായി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനുള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.
2. മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ School of Gandhian Thought and Development Studies-ൽ നിന്നും MA Development Studies ബിരുദം കരസ്ഥമാക്കിയ 2018-2020 ൽ പ്രവേശനം നേടിയ വിദ്യാർത്ഥികൾക്ക് MA Economics ബിരുദവുമായി തുല്യത നൽകുന്നതിനും തീരുമാനിച്ചു.

ഇനംനമ്പർ:83/AcD/01/48744/CR/2020

Indian Institute of Science Education and Research, Bhopal അവാർഡ് ചെയ്ത Dual Degree of Bachelor of Science and Master of Science in Biological Sciences (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Science in Botany ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്:

Indian Institute of Science Education and Research, Bhopal അവാർഡ് ചെയ്ത Dual Degree of Bachelor of Science and Master of Science in Biological Sciences (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Science in Botany ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:84/205002

അണ്ണാമലൈ സർവ്വകലാശാല, ഇന്ദിരാഗാന്ധി നാഷണൽ ഓപ്പൺ യൂണിവേഴ്സിറ്റി (IGNOU) എന്നിവയുടെ എം.ബി.എ. (വിദൂരവിദ്യാഭ്യാസം) ബിരുദ പ്രോഗ്രാമുകൾക്ക് ഇകലൻസി/എലിജിബിലിറ്റി സർട്ടിഫിക്കറ്റുകൾ നൽകുന്നത് സംബന്ധിച്ച്:

അണ്ണാമലൈ സർവ്വകലാശാല, ഇന്ദിരാഗാന്ധി നാഷണൽ ഓപ്പൺ യൂണിവേഴ്സിറ്റി (IGNOU) എന്നിവയുടെ എല്ലാ എം.ബി.എ. (വിദൂരവിദ്യാഭ്യാസം) ബിരുദ പ്രോഗ്രാമുകൾക്കും നിലവിൽ നൽകിവരുന്ന തുല്യതാഗികരം നിർത്തലാക്കുവാനും എലിജിബിലിറ്റി സർട്ടിഫിക്കറ്റുകൾ മാത്രം നൽകുന്നതിനും തീരുമാനിച്ചു.

ഇതനുസരിച്ച് പ്രസ്തുത വിഷയം സംബന്ധിച്ചുള്ള 28.06.2008-ലെ സർവ്വകലാശാല ഉത്തരവ് നം.2774/ Acad/2008, 06.08.1998 ലെ സർവ്വകലാശാല ഉത്തരവ് നം.എസി.ഡി/3/284/97, 16.02.2019ലെ അക്കാദമിക് കൗൺസിൽ യോഗത്തിലെ ഇനം നം. 90 AC.19/195041 പ്രകാരമുള്ള തീരുമാനം എന്നിവ ഉത്തരവ് തീയതിമുതൽ പ്രാബല്യത്തിൽ പരിഷ്കരിക്കുന്നതിനും തീരുമാനിച്ചു.

ഇനംനമ്പർ :85/205009

ഭാരതിയാർ സർവ്വകലാശാല, കോയമ്പത്തൂർ അവാർഡ് ചെയ്ത മാസ്റ്റർ ഓഫ് സയൻസ് ഇൻ അപ്ലൈഡ് ഇലക്ട്രോണിക്സ് (റെഗുലർ) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ മാസ്റ്റർ ഓഫ് സയൻസ് ഇൻ ഇലക്ട്രോണിക്സ് ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്:

ഭാരതിയാർ സർവ്വകലാശാല, കോയമ്പത്തൂർ അവാർഡ് ചെയ്ത മാസ്റ്റർ ഓഫ് സയൻസ് ഇൻ അപ്ലൈഡ് ഇലക്ട്രോണിക്സ് (റെഗുലർ) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ മാസ്റ്റർ ഓഫ് സയൻസ് ഇൻ ഇലക്ട്രോണിക്സ് ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:86/205007

Bharathiar University, Coimbatore അവാർഡ് ചെയ്ത Master of Arts in History (വിദൂരവിദ്യാഭ്യാസം) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Arts in History ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്:

Bharathiar University, Coimbatore അവാർഡ് ചെയ്ത Master of Arts in History (വിദൂരവിദ്യാഭ്യാസം) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Arts in History ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കേണ്ടതില്ലെന്നും എന്നാൽ മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ Master of Arts in History അടിസ്ഥാന യോഗ്യതയായി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനുള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:87/205008

ഇന്ദിരാഗാന്ധി നാഷണൽ ഓപ്പൺ യൂണിവേഴ്സിറ്റി അവാർഡ് ചെയ്ത മാസ്റ്റർ ഇൻ സോഷ്യൽ വർക്ക് (വിദൂരവിദ്യാഭ്യാസം) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്:

ഇന്ദിരാഗാന്ധി നാഷണൽ ഓപ്പൺ യൂണിവേഴ്സിറ്റി അവാർഡ് ചെയ്ത മാസ്റ്റർ ഇൻ സോഷ്യൽ വർക്ക് (വിദൂരവിദ്യാഭ്യാസം) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ മാസ്റ്റർ ഓഫ് സോഷ്യൽ വർക്ക് അടിസ്ഥാന യോഗ്യതയായി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനുള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:88/205029

കാരുണ്യ യൂണിവേഴ്സിറ്റി, തമിഴ്നാട് 'Human resource practices and its impact on perceived performance of teachers at self financing management Institutions in Kerala' എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത ഡോക്ടർ ഓഫ് ഫിലോസഫി ഇൻ മാനേജ്മെന്റ് സയൻസസ് (പാർട്ട് ടൈം റെഗുലർ) ഗവേഷണ ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ മാനേജ്മെന്റ് സ്റ്റഡീസ് വിഷയത്തിൽ റിസർച്ച് ഗൈഡ്ഷിപ്പിന് അപേക്ഷിക്കുന്നതിനു യോഗ്യമായി അംഗീകരിച്ചു കൊണ്ട് CERTIFICATE OF ELIGIBILITY FOR DOCTORAL DEGREES നൽകുന്നത് സംബന്ധിച്ച്

കാരുണ്യ യൂണിവേഴ്സിറ്റി, തമിഴ്നാട് ‘Human resource practices and its impact on perceived performance of teachers at self financing management Institutions in Kerala’ എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത ഡോക്ടർ ഓഫ് ഫിലോസഫി ഇൻ മാനേജ്മെന്റ് സയൻസസ് (പാർട്ട് ടൈം റെഗുലർ) ഗവേഷണ ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ മാനേജ്മെന്റ് സ്റ്റഡീസ് വിഷയത്തിൽ റിസർച്ച് ഗൈഡ്ഷിപ്പിന് അപേക്ഷിക്കുന്നതിനു യോഗ്യമായി അംഗീകരിച്ചു കൊണ്ട് CERTIFICATE OF ELIGIBILITY FOR DOCTORAL DEGREES നൽകുന്നതിന് തീരുമാനിച്ചു.

ഇനംനമ്പർ:89/205030

കേരള സർവ്വകലാശാലയുടെ ഫാക്കൽറ്റി ഓഫ് സയൻസിനു കീഴിൽ നിന്നും ‘Proximal Sensing of Biotic and Abiotic Stresses in Tuber Crops using Sunlight – induced fluorescence and Reflectance Imaging’ എന്ന പ്രബന്ധത്തിനു നേടിയ ഡോക്ടർ ഓഫ് ഫിലോസഫി ഇൻ ഫിസിക്സ് (റെഗുലർ – ഫുൾ ടൈം) ഗവേഷണ ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ ഇലക്ട്രോണിക്സ് വിഷയത്തിൽ relevant/allied ആയി അംഗീകരിച്ചു കൊണ്ട് CERTIFICATE OF ELIGIBILITY FOR DOCTORAL DEGREES നൽകുന്നത് സംബന്ധിച്ച്

കേരള സർവ്വകലാശാലയുടെ ഫാക്കൽറ്റി ഓഫ് സയൻസിനു കീഴിൽ നിന്നും ‘Proximal Sensing of Biotic and Abiotic Stresses in Tuber Crops using Sunlight – induced fluorescence and Reflectance Imaging’ എന്ന പ്രബന്ധത്തിനു നേടിയ ഡോക്ടർ ഓഫ് ഫിലോസഫി ഇൻ ഫിസിക്സ് (റെഗുലർ – ഫുൾ ടൈം) ഗവേഷണ ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ ഇലക്ട്രോണിക്സ് വിഷയത്തിൽ relevant/allied ആയി അംഗീകരിച്ചു കൊണ്ട് CERTIFICATE OF ELIGIBILITY FOR DOCTORAL DEGREES നൽകുന്നതിനുള്ള അപേക്ഷ നിരസിക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:90/205031

എം.ആർക്ക് (അർബൻ ഡിസൈൻ) കോഴ്സ് സിലബസ് (2 വർഷ റഗുലർ പ്രോഗ്രാം) അംഗീകാരത്തിനായി സമർപ്പിക്കുന്നത് സംബന്ധിച്ച്.

എം.ആർക്ക് (അർബൻ ഡിസൈൻ) കോഴ്സ് സിലബസ് (2 വർഷ റഗുലർ പ്രോഗ്രാം) അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

(സ്കീം, സിലബസ് എന്നിവ Appendix II ആയി ചേർത്തിരിക്കുന്നു)

ഇനംനമ്പർ:91/AcD/01/55613/CR/2020

Mangalore University, Mangalore, "Tunneling and Propping up by way of Related Party Transactions: An Examination of Financial Performance and Corporate Governance Practices of Selected Companies in India" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctor of Philosophy (Regular) ബിരുദം Commerce വിഷയത്തിൽ Asst Professorship ന് അപേക്ഷിക്കുന്നതിനായി 'Certificate of Eligibility for Ph.D Degree' ലഭിക്കുന്നതിനുള്ള അപേക്ഷ സംബന്ധിച്ച്.

ശ്രീ. ABDUL RASHEED P C ക്ക് Mangalore University, Mangalore, "Tunneling and Propping up by way of Related Party Transactions: An Examination of Financial Performance and Corporate Governance Practices of Selected Companies in India" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctor of Philosophy (Regular) ബിരുദം Commerce വിഷയത്തിൽ Asst Professorship ന് അപേക്ഷിക്കുന്നതിനായി 'Certificate of Eligibility for Ph.D Degree' നൽകുന്നതിന് തീരുമാനിച്ചു.

ഇനംനമ്പർ:92/AcD/01/50990/CR/2020

BHARATHIDASAN UNIVERSITY അവാർഡ് ചെയ്ത BACHELOR OF FINE ARTS IN BHARATHANATTIYAM (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Bachelor of Arts in Bharathanatyam ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നതിനുള്ള അപേക്ഷ സംബന്ധിച്ച്.

BHARATHIDASAN UNIVERSITY അവാർഡ് ചെയ്ത BACHELOR OF FINE ARTS IN BHARATHANATTIYAM (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Bachelor of Arts in Bharathanatyam ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:93/2787/AC A5-2/2020 /VC SECTION

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ School of Gandhian Thought and Development Studies പഠനവകുപ്പിലെ M A Gandhian Studies ബിരുദം അതേ പഠനവകുപ്പിൽ നടത്തിയിരുന്ന MA Social Welfare and Rural Management മായി തുല്യതാംഗീകാരം - സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ School of Gandhian Thought and Development Studies പഠനവകുപ്പിലെ M A Gandhian Studies ബിരുദം അതെ പഠനവകുപ്പിൽ നടത്തിയിരുന്ന MA Social Welfare and Rural Management മായി തുല്യമായി അംഗീകരിക്കേണ്ടതില്ലെന്നും എന്നാൽ ഉദ്യോഗത്തിനും മഹാത്മാഗാന്ധി സർവകലാശാലയിൽ MA Social Welfare and Rural Management അടിസ്ഥാന യോഗ്യതയായി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനും ഉള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:94/38642/ACA5-2/2021

/REG SECT

Faculty of Environmental and Atmospheric Sciences
എന്നത് Faculty of Earth and Environmental
Sciences എന്നാക്കി മാറ്റുന്നതിനുള്ള സ്കൂൾ ഓഫ് എൻവയോൺമെന്റൽ സയൻസസ് ഫാക്കൽറ്റി കൗൺസിൽ യോഗത്തിന്റെ ശുപാർശയും - **M.Sc in Applied Geology and Geoinformatics** പ്രോഗ്രാം സ്കൂൾ ഓഫ് എൻവയോൺമെന്റൽ സയൻസസിലെ ഡിപ്പാർട്ടുമെന്റ് ഓഫ് ജിയോളജിക്ക് കീഴിൽ ആരംഭിക്കുന്നതിനുമുള്ള പ്രൊപ്പോസൽ എന്നിവ സംബന്ധിച്ച്.

Faculty of Environmental and Atmospheric Sciences എന്നത് "Faculty of Earth and Environmental Sciences" എന്നാക്കി മാറ്റുന്നതിനുള്ള സ്കൂൾ ഓഫ് എൻവയോൺമെന്റൽ സയൻസസ് ഫാക്കൽറ്റി കൗസിൽ യോഗത്തിന്റെ ശുപാർശയും, M.Sc in Applied Geology and Geoinformatics പ്രോഗ്രാം സ്കൂൾ ഓഫ് എൻവയോൺമെന്റൽ സയൻസസിലെ ഡിപ്പാർട്ടുമെന്റ് ഓഫ് ജിയോളജിക്ക് കീഴിൽ ആരംഭിക്കുന്നതിനുമുള്ള വിശദമായ പ്രൊപ്പോസലും അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:95/81101/AC A9-1/2020

M.Sc. Statistics (Applied) [2014 വരെ M.Sc. Applied Statistics with Computer Applications] എന്ന പ്രോഗ്രാം, **MSc Statistics** എന്ന പ്രോഗ്രാമിന് തുല്യമാണ് എന്ന് 2014 അഡ്മിഷൻ മുതൽ ബാധകമാക്കിയിട്ടുള്ള ഉത്തരവ്, 2012 അഡ്മിഷൻ മുതൽ ബാധകം ആക്കാവുന്നതാണോ എന്ന് തീരുമാനിക്കുന്നതിന് ബഹു.വി,സി യുടെ ഉത്തരവ് പ്രകാരം അക്കാദമിക് കൗൺസിലിന് മുമ്പാകെ സമർപ്പിക്കുന്നത് സംബന്ധിച്ച്:-

24.11.2016 തീയതിയിലെ അക്കാദമിക് കൗൺസിൽ യോഗം മിനിറ്റ്സ് ഇനം നമ്പർ : 50/AC.50/16276 പ്രകാരം ഉള്ള തീരുമാനം [*To give equivalency of MSc (Applied) Statistics with Computer Applications to M.Sc. Statistics (Applied) with retrospective effect from 2012 (CSS) admission, provided they have followed the same syllabus of M.Sc. Statistics (Applied).*] റദ്ദുചെയ്യുവാനും പകരം തീരുമാനം "To give equivalency of MSc Applied Statistics with Computer Applications [which was renamed MSc Statistics (Applied) with effect from 2014 Admission

onwards] to M.Sc. Statistics with retrospective effect from 2012 (CSS) admission" -
എന്നാക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:96/68289/AC A9-1/2020

MA English പ്രൈവറ്റ് രജിസ്ട്രേഷൻ വിദ്യാർത്ഥികൾക്ക് പ്രോജക്ട് / സെമിനാർ അവതരണം എന്നിവയ്ക്ക് പകരമായി dissertation സമർപ്പിക്കുന്നതിനുള്ള വിഷയങ്ങൾ - ബോർഡ് ഓഫ് സ്റ്റഡീസ് ചെയർമാന്റെ ശുപാർശ - വൈസ് ചാൻസലറുടെ ഉത്തരവ് പ്രകാരം അക്കാദമിക് കൗൺസിലിന്റെ പരിഗണനയ്ക്ക് സമർപ്പിക്കുന്നത് സംബന്ധിച്ച്.

MA English പ്രൈവറ്റ് രജിസ്ട്രേഷൻ വിദ്യാർത്ഥി ക്ക് പ്രോജക്ട് / സെമിനാർ അവതരണം എന്നിവയ്ക്ക് പകരമായി ചുവടെ കാണിച്ചിട്ടുള്ള വിഷയങ്ങളിൽ എതെങ്കിലും ഒന്നിൽ, 1500 വാക്കിന്റെ ഒരു dissertation സമർപ്പിച്ചാൽ മതി എന്ന് തീരുമാനിച്ചു.

1. English Renaissance Literature
2. Neoclassical British Literature
3. English Romantic Literature
4. The Victorian Literature in Britain
5. Modern, Post Modern and Post Colonial English Literature

ഇനംനമ്പർ:97/AcD/01/40504/CR/2020

AMRITA VISHWA VIDYAPEETHAM അവാർഡ് ചെയ്ത Master of Arts in ENGLISH LITERATURE AND LITERARY THEORY (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ Master of Arts in English ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്:

AMRITA VISHWA VIDYAPEETHAM അവാർഡ് ചെയ്ത Master of Arts in ENGLISH LITERATURE AND LITERARY THEORY (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ Master of Arts in English ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:98/AcD/01/40313/CR/2020

INDIRA GANDHI NATIONAL OPEN UNIVERSITY അവാർഡ് ചെയ്ത Master of Arts in GANDHI AND PEACE STUDIES (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Arts in Gandhian Studies ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

INDIRA GANDHI NATIONAL OPEN UNIVERSITY അവാർഡ് ചെയ്ത Master of Arts in GANDHI AND PEACE STUDIES മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Arts in Gandhian Studies ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കേണ്ടതില്ലെന്നും എന്നാൽ ഉദ്യോഗത്തിനും മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ Master of Arts in Gandhian Studies അടിസ്ഥാന യോഗ്യതയായി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനും ഉള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:99/AcD/01/48677/CR/2020

University of Amsterdam, "Evolution of races within Fusarium oxysporum f.sp. lycopersici" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctor of Philosophy ബിരുദത്തിന് മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ Botany വിഷയത്തിൽ Assistant Professorship ന് അപേക്ഷിക്കുന്നതിനായി 'Certificate of Eligibility for Ph.D Degree' അനുവദിക്കുന്നതിനുള്ള അപേക്ഷ സംബന്ധിച്ച്.

ശ്രീ. Biju Vadakkemukadiyil Chellappan ന് University of Amsterdam, "Evolution of races within Fusarium oxysporum f.sp. lycopersici" എന്ന പ്രബന്ധത്തിന് അവാർഡ് ചെയ്ത Doctor of Philosophy ബിരുദത്തിന് മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ Botany വിഷയത്തിൽ Asst Professorship ന് അപേക്ഷിക്കുന്നതിനായി 'Certificate of Eligibility for Ph.D Degree' നൽകുന്നതിന് തീരുമാനിച്ചു.

ഇനംനമ്പർ:100/AcD/01/55647/CR/2020

University of Kerala അവാർഡ് ചെയ്ത Master of Health Science in Clinical Child Development (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Science in Home Science Branch X(A) - Child Development and Behaviour Science ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

University of Kerala അവാർഡ് ചെയ്ത Master of Health Science in Clinical Child Development (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Science in Home

Science Branch X(A) - Child Development and Behaviour Science ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നതിനുള്ള അപേക്ഷ നിരസിക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:101/AcD/01/35112/CR/2018 University of Calicut അവാർഡ് ചെയ്ത BA-Afsal-UI-Ulama (Regular, Private) ബിരുദങ്ങൾ മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ B.A. Arabic language & Literature ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

University of Calicut അവാർഡ് ചെയ്ത BA-Afsal-UI-Ulama (Regular, Private) ബിരുദങ്ങൾ മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ B.A. Arabic language & Literature ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:102/AcD/01/48263/CR/2020 VIT University, Vellore അവാർഡ് ചെയ്ത Master of Science in Pharmaceutical Chemistry(Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Science in Applied Chemistry (Pharmaceutical Chemistry) ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

VIT University, Vellore അവാർഡ് ചെയ്ത Master of Science in Pharmaceutical Chemistry(Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Science in Applied Chemistry (Pharmaceutical Chemistry) ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നതിനുള്ള അപേക്ഷ നിരസിക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:103/AcD/01/40474/CR/2019 PONDICHERY UNIVERSITY അവാർഡ് ചെയ്ത Master of Business Administration (Tourism) (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Tourism and Travel Management (MTTM) ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നതിനുള്ള അപേക്ഷ സംബന്ധിച്ച്:

PONDICHERY UNIVERSITY അവാർഡ് ചെയ്ത Master of Business Administration (Tourism) (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Tourism and Travel Management (MTTM) ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:104/66655/AC A12-3/2020/ACAD ടി.ടി .സി /ഡി.എഡും, ബിരുദവും 50% മാർക്കോടെ പാസ്സായവർക്ക് എം.എഡ് പ്രോഗ്രാം പ്രവേശനം നേടുന്നതിനുള്ള യോഗ്യത സംബന്ധിച്ച്.

D.El.Ed ഉം ബിരുദവും 50% മാർക്കോടെ പാസ്സായവർക്ക് മാത്രമേ എം.എഡ് പ്രവേശനത്തിനുള്ള യോഗ്യതയുള്ളൂവെന്നും, സ്‌പെഷലൈസേഷനുകൾകളുടെ അനുബന്ധ വിഷയങ്ങളിലുള്ള ബിരുദമുള്ളവർക്ക് അതാത് സ്‌പെഷ്യലൈസേഷൻ വിഷയങ്ങളിൽ മാത്രം അഡ്മിഷൻ നൽകിയാൽ മതിയെന്നും തീരുമാനിച്ചു.

ഇനംനമ്പർ:105/6181/AC A5-1/2020

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ പി.എച്ച്.ഡി ഇന്റർനാഷണൽ റിലേഷൻസ് ബിരുദത്തിനു , ഡെവലപ്മെന്റ് സ്റ്റഡീസ് ആൻഡ് ഇക്കണോമിക്സ് വിഷയവുമായി ബന്ധമുണ്ടെന്ന യോഗ്യത സാക്ഷ്യപത്രം (Eligibility Certificate) നൽകണമെന്നു കാണിച്ച ശ്രീ .RAJESH M സമർപ്പിച്ച അപേക്ഷ സംബന്ധിച്ച്.

ശ്രീ .RAJESH M ന് മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ പി.എച്ച്.ഡി ഇന്റർനാഷണൽ റിലേഷൻസ് ബിരുദത്തിനു, ഡെവലപ്മെന്റ് സ്റ്റഡീസ് ആൻഡ് ഇക്കണോമിക്സ് വിഷയവുമായി ബന്ധമുണ്ടെന്ന യോഗ്യത സാക്ഷ്യപത്രം (Eligibility Certificate) നൽകുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:106/215002

സർവ്വകലാശാലയുടെ വിവിധ യു.ജി.-പി.ജി. /പുതുതലമുറ കോഴ്സുകൾക്ക് പി.എസ്.സി.യുടെ അംഗീകാരം - നേടുന്നത് - കോഴ്സ് റെഗുലേഷനു കളിൽ അവശ്യ വിവരങ്ങൾ ഉൾക്കൊള്ളിക്കുന്നത് - സംബന്ധിച്ച്.

വിശദമായ പഠനത്തിനായി സിൻഡിക്കേറ്റിന്റെ ഉപസമതിയായ അക്കാദമിക് അഫയേഴ്സ് കമ്മിറ്റിക്ക് വിടുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:107/82183/AC A9-1/2020

Directorate for Applied Short-Term Programmes (DASP) ന്റെ ഡയറക്ടർ ഇൻ ചാർജ് സമർപ്പിച്ചിരിക്കുന്ന നാല് (4) ഷോർട്ട് ടേം പ്രോഗ്രാമുകളുടെ സിലബസ് അംഗീകരിക്കുന്നതിനുള്ള ശുപാർശ - വൈസ് ചാൻസലറുടെ ഉത്തരവ് പ്രകാരം അക്കാദമിക് കൗൺസിലിന്റെ അംഗീകാരത്തിന് സമർപ്പിക്കുന്നത് സംബന്ധിച്ച്.

Directorate for Applied Short-Term Programmes (DASP) ന്റെ ഡയറക്ടർ ഇൻ ചാർജ് സമർപ്പിച്ച, ചുവടെ പരാമർശിക്കുന്ന, നാല് (4) ഷോർട്ട് ടേം പ്രോഗ്രാമുകളുടെ സിലബസ് അംഗീകരിക്കുന്നതിന് തീരുമാനിച്ചു

(സ്റ്റീം, സിലബസ് എന്നിവ Appendix III ആയി ചേർത്തിരിക്കുന്നു)

1. Certificate in Digital Marketing
2. Diploma in Bakery and Confectionary
3. Post Graduate Diploma in Data and Business Analytics (PGDDBA)
4. Post Graduate Diploma in Food Processing and Quality Assurance
- 5.

ഇനംനമ്പർ:108/5145/AC L-1/2021

മഹാത്മാഗാന്ധി സർവകലാശാല 10/01/2020 ൽ പുറപ്പെടുവിച്ചിട്ടുള്ള 150/ACL/2020/MGU നമ്പർ ഉത്തരവിൽ അസിസ്റ്റന്റ് പ്രൊഫസർ തസ്തികയിലേക്കുള്ള ഉദ്യോഗാർത്ഥികളെ ഷോർട്ട് ലിസ്റ്റ് ചെയ്യുന്നതിനുള്ള മാനദണ്ഡങ്ങളിൽ തിരുത്തൽ വരുത്തുന്നത് സംബന്ധിച്ച്:-

മഹാത്മാഗാന്ധി സർവകലാശാല 10/01/2020 ൽ പുറപ്പെടുവിച്ചിട്ടുള്ള 150/ACL/2020/MGU നമ്പർ ഉത്തരവിലെ അസിസ്റ്റന്റ് പ്രൊഫസർ തസ്തികയിലേക്കുള്ള ഉദ്യോഗാർത്ഥികളെ ഷോർട്ട് ലിസ്റ്റ് ചെയ്യുന്നതിനുള്ള മാനദണ്ഡങ്ങളിൽ തിരുത്തൽ വരുത്തുന്നതിന് വൈസ് ചാൻസലറെ ചുമതലപ്പെടുത്തുവാൻ തീരുമാനിച്ചു.

1985 ലെ മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് III 10(17) പ്രകാരം ബഹു.വൈസ് ചാൻസലർ കൈക്കൊണ്ട നടപടികൾ റിപ്പോർട്ട് ചെയ്യുന്നവ:

ഇനംനമ്പർ:109/15457/AcAIV/3/MCA-Syllabus Revision/2020-21

MCA കോഴ്സ്, 2020 -21 അധ്യായന വർഷം മുതൽ ദ്വിവത്സര കോഴ്സായി മാറ്റിയതിനനുസൃതമായി പുനഃസംഘടിപ്പിച്ച സ്കീം&സിലബസ് റെഗുലേഷൻ എന്നിവ മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അധ്യായം 3, 10 (17) പ്രകാരം അംഗീകരിച്ച് ഉത്തരവ് പുറപ്പെടുവിച്ചത് അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് -സംബന്ധിച്ച്.

MCA കോഴ്സ്, 2020 -21 അധ്യായന വർഷം മുതൽ ദ്വിവത്സര കോഴ്സായി മാറ്റിയതിനനുസൃതമായി പുനഃസംഘടിപ്പിച്ച സ്കീം&സിലബസ് റെഗുലേഷൻ എന്നിവ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 28.01.2021-ലെ 634/ACA4/2021/MGU നമ്പർ സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:110/23417/EB 7-3/2020/EB 7

അഞ്ചാം സെമസ്റ്റർ BCA / BA MEDIA COURSES (CBCS, 2017 Admission Reappearance) പരീക്ഷ ഫെബ്രുവരി 2020 - പ്രാക്ടിക്കൽ പരീക്ഷകളുടെ നടത്തിപ്പ് സംബന്ധിച്ച് മഹാത്മാ ഗാന്ധി സർവകലാശാല ആക്ട് 1985, അധ്യായം 3, സെക്ഷൻ 10(17) പ്രകാരം വൈസ് ചാൻസിലർ അംഗീകരിച്ച് പുറപ്പെടുവിച്ച ഉത്തരവും ആയത് സിൻഡിക്കേറ്റ് യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്ത നടപടിയും - അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്.

അഞ്ചാം സെമസ്റ്റർ BCA / BA MEDIA COURSES (BA Animation & Graphic Design, BA Multimedia, BA Visual Arts, BA Visual Communication , BA Animation & Visual Effects & BA Audiography & Digital Editing) - CBCS, 2017 Admission Reappearance - പരീക്ഷ ഫെബ്രുവരി 2020 -ന്റെ പ്രാക്ടിക്കൽ പരീക്ഷകൾ അതതു കോളേജുകളിൽ Internal Examiners നെ ഉപയോഗിച്ച് നടത്തുന്നത് അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ടു നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 27.07.2020 -ലെ 3391/EB 7/ 2020/ എം .ജി .യു നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:111/66419/EI 38-2/2020

സ്വയംഭരണ കോളേജായ എറണാകുളം സെന്റ്. ആൽബർട്ട്സ് കോളേജിലെ എം.എ. ഇംഗ്ലീഷ് പ്രോഗ്രാമിന്റെ 2018-'20 ബാച്ചിലേയ്ക്ക് പ്രവേശനം നൽകിയിട്ടുള്ള ക്രിസ്റ്റി ജോസഫ് എന്ന വിദ്യാർത്ഥിനിക്ക് സർവ്വകലാശാല പി.ജി. പ്രോസ്പെക്ട്സ് പ്രകാരമുള്ള നിശ്ചിത പ്രവേശന യോഗ്യത ഇല്ലാത്തതിനാൽ ടി വിദ്യാർത്ഥിയുടെ പി.ജി. പ്രവേശനം അംഗീകരിക്കാൻ കഴിയില്ല എന്നും, പ്രവേശന മാനദണ്ഡങ്ങൾ കോളേജ് കർശനമായി പാലിക്കണം എന്ന അക്കാദമിക് കൗൺസിൽ സ്റ്റാന്റിംഗ് കമ്മിറ്റി ശുപാർശ അംഗീകരിച്ചുകൊണ്ടും ഉത്തരവ് പുറപ്പെടുവിച്ചത് അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് - സംബന്ധിച്ച്.

സ്വയംഭരണ കോളേജായ എറണാകുളം സെന്റ്. ആൽബർട്ട്സ് കോളേജിലെ എം.എ. ഇംഗ്ലീഷ് പ്രോഗ്രാമിന്റെ 2018-'20 ബാച്ചിലേയ്ക്ക് പ്രവേശനം നൽകിയിട്ടുള്ള ക്രിസ്റ്റി ജോസഫ് എന്ന വിദ്യാർത്ഥിനിക്ക് സർവ്വകലാശാല പി.ജി. പ്രോസ്പെക്ട്സ് പ്രകാരമുള്ള നിശ്ചിത പ്രവേശന യോഗ്യത ഇല്ലാത്തതിനാൽ ടി വിദ്യാർത്ഥിയുടെ പി.ജി. പ്രവേശനം അംഗീകരിക്കാൻ കഴിയില്ല എന്നും, പ്രവേശന മാനദണ്ഡങ്ങൾ കോളേജ് കർശനമായി പാലിക്കണം എന്നുമുള്ള അക്കാദമിക് കൗൺസിൽ സ്റ്റാന്റിംഗ് കമ്മിറ്റി ശുപാർശ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസിലർ കൈകൊണ്ടു നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 19/02/2021-ലെ 1079/ACB7/2021/എം.ജി.യു. നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:112/Ac.AXII/1/100615/IUCDS
/RCI/2021/Academic

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Inter University Centre for Disability Studies (IUCDS)-ൽ Rehabilitation Council of India-യുടെ അംഗീകാരത്തോട് കൂടി വിവിധ ട്രെയിനിങ് കോഴ്സുകൾ തുടങ്ങുന്നതിനായി, സെന്റർ ഡയറക്ടർ സമർപ്പിച്ച പ്രൊപ്പോസൽ അംഗീകരിക്കാനുള്ള അക്കാദമിക് കൗൺസിൽ സ്റ്റാന്റിംഗ് കമ്മിറ്റിയുടെ ശുപാർശ മഹാത്മാഗാന്ധി സർവ്വകലാശാല നിയമം 1985, അദ്ധ്യായം 3, ഛേദം 10 (17) പ്രകാരം വൈസ് ചാൻസലർ കൈക്കൊണ്ട നടപടി -റിപ്പോർട്ട് ചെയ്യുന്നത് -സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Inter University Centre for Disability Studies (IUCDS)-ൽ Rehabilitation Council of India-യുടെ അംഗീകാരത്തോട് കൂടി താഴെ പറയുന്ന വിവിധ ട്രെയിനിങ് കോഴ്സുകൾ തുടങ്ങുന്നതിനായി സമർപ്പിച്ച പ്രൊപ്പോസൽ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 19/02/2021-ലെ 1090 /Ac A12/ 2021 / എം ജി യു നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

Degree Courses (starting from 2021-22 academic session)

1. B.Ed/M.Ed in Special Education (Specific Learning Disability)(3 years Integrated Programme)
2. B.Ed/M.Ed in Special Education (Intellectual Disability)(3 Years Integrated Programme)
3. B.Ed in Special Education Autism Spectrum Disorders
4. B.Ed in Special Education Hearing Impairment
5. B.Ed in Special Education Visual Impairment
6. B.Ed in Special Education Multiple Disabilities

Masters and above Courses (starting from 2026-27 academic session)

1. M.Ed in Special Education Hearing Impairment
2. M.Ed in Special Education Visual Impairment

Diploma Courses (2021-22 academic session)

1. Diploma in Prosthetics & Orthotics (DPO)

**ഇനംനമ്പർ:113/40653/ACA12-1/2021
/REGSECT**

B.Voc Animation & Graphic Design പ്രോഗ്രാമിന്റെ 2019 അഡ്മിഷൻ മാത്രമായി ഒന്നാം സെമസ്റ്റർ സിലബസ് പരിഷ്കരണം - മഹാത്മാഗാന്ധി സർവ്വകലാശാല നിയമം 1985,അദ്ധ്യായം 3,ചേദം 10(17) പ്രകാരം ബഹു. വൈസ് ചാൻസലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച സർവ്വകലാശാല ഉത്തരവും-അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത്-സംബന്ധിച്ച്.

B.Voc. Animation & Graphic Design പ്രോഗ്രാമിന്റെ 2019 Admission ബാച്ചിന് മാത്രം ഒന്നാം സെമസ്റ്ററിൽ History of Art & Design എന്ന പേപ്പറിന് പകരം IT for Business എന്ന വിഷയം ഉൾപ്പെടുത്തിക്കൊണ്ടുള്ള സിലബസ്, അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 24/02/2021 -ലെ 1161/ACA12/2021/എം.ജി.യു. നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:114/37328/EI 8-4/2021

മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3, ചേദം 10(17) പ്രകാരം വൈസ് ചാൻസലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച ഉത്തരവും അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നതു സംബന്ധിച്ച്.

2016 അഡ്മിഷൻ B.Sc Medical Microbiology, SME, Gandhinagar, CPAS- ലെ വിദ്യാർത്ഥികൾ മുൻ വർഷങ്ങളിലെ പരീക്ഷകൾ പാസാകാതെ തന്നെ ഫൈനൽ ഇയർ പരീക്ഷ എഴുതുന്നതിനുള്ള അനുമതി നൽകണമെന്നാവശ്യപ്പെട്ടു സമർപ്പിച്ച അപേക്ഷ പരിഗണിച്ചുകൊണ്ട്, മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അദ്ധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 24/02/2021-ലെ 1153/ACA5/2021/എം.ജി.യു നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ക്രമ ഇനങ്ങൾ
നടപ്പ് ഇനങ്ങൾ:

ഇനംനമ്പർ:115 /11131/AC D-4/2020
/ACAD

ശ്രീമതി. മിറാൻഡ മേരി സപ്പ പീറ്ററിന്റെ "A Comparative Study of Variables that Affect Second Language Acquisition (English) at the Undergraduate Level in the open Distance Mode and the Face to Face Mode "എന്ന പ്രബന്ധത്തിന് ഇന്ദിരാഗാന്ധി നാഷണൽ ഓപ്പൺ യൂണിവേഴ്സിറ്റി നൽകിയ പിഎച്ച് ഡി ബിരുദത്തിന് ഇംഗ്ലീഷ് വിഷയത്തിൽ Certificate of Eligibility നൽകുന്നത് - സംബന്ധിച്ച്:-

ശ്രീമതി. മിറാൻഡ മേരി സപ്പ പീറ്ററിന്റെ "A Comparative Study of Variables that Affect Second Language Acquisition (English) at the Undergraduate Level in the open Distance Mode and the Face to Face Mode "എന്ന പ്രബന്ധത്തിന് ഇന്ദിരാഗാന്ധി നാഷണൽ ഓപ്പൺ യൂണിവേഴ്സിറ്റി നൽകിയ പിഎച്ച് ഡി ബിരുദത്തിന് ഇംഗ്ലീഷ് വിഷയത്തിൽ Certificate of Eligibility നൽകുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ: 116/215003

രണ്ടാം സെമസ്റ്റർ സി ബി സി എസ് എസ് ബികോം മെയ് 2019 ഫ്രണ്ട് പരീക്ഷയിൽ ശ്രീ. ഗ്ലേൻ എഡ്വേർഡ് (PRN:150021016656) ചോദ്യപേപ്പർ മാറി പരീക്ഷ എഴുതിയ വിഷയത്തിൻ മേൽ തീരുമാനം എടുക്കുന്നത് സംബന്ധിച്ച്.

ബികോം മോഡൽ I, മോഡൽ II പ്രോഗ്രാമുകളിൽ കോമൺ കോഴ്സ് II ഫ്രണ്ട് വിഷയത്തിന് സിലബസ് പ്രകാരം പാഠപുസ്തകങ്ങൾ വ്യത്യസ്തമാണെങ്കിലും ഇവ രണ്ടും സമാനമായി അടിസ്ഥാന വ്യാകരണമാണ് കൈകാര്യം ചെയ്യുന്നതിനാലും ഗ്ലേൻ എഡ്വേർഡ് പ്രസ്തുത ഫ്രണ്ട് പരീക്ഷയിൽ ഉയർന്ന മാർക്ക് നേടിയിട്ടുള്ളതിനാലും ടി വിദ്യാർത്ഥി തെറ്റായി എഴുതിയ മോഡൽ I ഫ്രണ്ട് വിഷയത്തിന്റെ മാർക്ക് യഥാർത്ഥത്തിൽ എഴുതേണ്ട മോഡൽ II ഫ്രണ്ട് വിഷയത്തിന്റെ മാർക്കായി പരിഗണിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ: 117/8296/AC A5-1/2020

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ പി.എച്ച് ഡി ഫിസിയോളജി ബിരുദം നേടിയ Dr. Devi N P - യുടെ Ph.D ഫിസിയോളജി ബിരുദത്തിന് സുവോളജി വിഷയവുമായി ബന്ധമുണ്ടെന്ന യോഗ്യത സാക്ഷ്യപത്രം (Eligibility Certificate) നൽകണമെന്ന അപേക്ഷ - സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ പി.എച്ച് ഡി ഫിസിയോളജി ബിരുദം നേടിയ Dr. Devi N P - യുടെ Ph.D ഫിസിയോളജി ബിരുദത്തിന് സുവോളജി വിഷയവുമായി ബന്ധമുണ്ടെന്ന യോഗ്യത സാക്ഷ്യപത്രം (Eligibility Certificate) നൽകാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ: 118/Ac.AV/1/3028/Certificate/2018

/Academic

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ കീഴിലുള്ള പഠനവകുപ്പായ സ്കൂൾ ഓഫ് പെഡഗോഗിക്കൽ സയൻസിൽ നിന്നും Ph.D in Education ബിരുദം നേടിയ Dr. Janeepa P A, ഇംഗ്ലീഷ് വിഷയത്തിൽ യോഗ്യത സാക്ഷ്യപത്രം അഭ്യർത്ഥിച്ച് സമർപ്പിച്ച അപേക്ഷ സംബന്ധിച്ച്.

വിശദമായ പഠനത്തിനായി Standing Committee of Academic Council – ന് വിട്ടുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ: 119/Ac.D/01/53526/CR/2020

Christ University, Bangalore, Karnataka അവാർഡ് ചെയ്ത Master of Commerce (Specialization in Banking and Insurance) (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Commerce ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

Christ University, Bangalore, Karnataka അവാർഡ് ചെയ്ത Master of Commerce (Specialization in Banking and Insurance) (Regular) ബിരുദം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ Master of Commerce ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ: 120/AcD/01/56635/CR/2020

I.K. Gujral Punjab Technical University, (Formerly Punjab Technical University) അവാർഡ് ചെയ്ത BSc. Airlines ,Tourism and Hospitality Management (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ Bachelor of Tourism and Travel Management ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

I.K. Gujral Punjab Technical University, (Formerly Punjab Technical University) അവാർഡ് ചെയ്ത BSc. Airlines, Tourism and Hospitality Management (Distance Education) ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ Bachelor of Tourism and Travel Management ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ: 121/AcD/01/40366/CR/2019

University of Madras അവാർഡ് ചെയ്ത Master of Science in Nano Science and NanoTechnology (റെഗുലർ) ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ Master of Science in Chemistry ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

University of Madras അവാർഡ് ചെയ്ത Master of Science in Nano Science and NanoTechnology (റെഗുലർ) ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ Master of Science in Chemistry ബിരുദത്തിനു തുല്യമായി അംഗീകരിക്കേണ്ടതില്ലെന്നും എന്നാൽ മഹാത്മാഗാന്ധി സർവകലാശാലയിൽ Master of Science in Chemistry ബിരുദം അടിസ്ഥാന യോഗ്യതയായി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനുള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ: 122/37702/EI 6/2/2019

എം. എഡ് പ്രോഗ്രാമിന് റാങ്ക് / പൊസിഷൻ സർട്ടിഫിക്കറ്റ് നൽകുന്നത് സംബന്ധിച്ച്.

സർവകലാശാല ഉത്തരവ് നമ്പർ.2411/ACAIX/1/Position Certificate/PGCSS/2015, തീയതി: 29/04/2015, 2012 പ്രവേശനവർഷം മുതൽ എം.എഡ് പ്രോഗ്രാമിനും ബാധകമാക്കാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ: 123/20323 /ADA7-1/2020/AcA12

മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ ഇന്റർ സ്കൂൾ സെന്ററായ IIRBS-ന്റെ 27.05.2020-നും കൂടിയ എക്സിക്യൂട്ടീവ് സമിതിയുടെ ശുപാർശകളിൽ Dean ,Faculty of Science-ൽ നിന്ന് ലഭിച്ച അഭിപ്രായം-ബഹു: വൈസ് ചാൻസിലറുടെ ഉത്തരവ് പ്രകാരം അക്കാദമിക്ക് കൗൺസിലിന്റെ പരിഗണനയ്ക്ക് സമർപ്പിക്കുന്നത് സംബന്ധിച്ച്.

മഹാത്മാഗാന്ധി സർവ്വകലാശാലയുടെ ഇന്റർ സ്കൂൾ സെന്ററായ IIRBS-ന്റെ 27.05.2020-ന് കൂടിയ എക്സിക്യൂട്ടീവ് സമിതിയുടെ ശുപാർശകളായ 2a, 2b, 2k എന്നിവയിൻമേൽ Dean, Faculty of Science നൽകിയ അഭിപ്രായം അംഗീകരിക്കുന്നതിന് തീരുമാനിച്ചു.

1985 ലെ മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് III 10(17) പ്രകാരം വൈസ് ചാൻസലർ കൈക്കൊണ്ട നടപടികൾ റിപ്പോർട്ട് ചെയ്യുന്നവ:

ഇനംനമ്പർ:124/73418/AC A5-1/2020

സി.എസ്.എസ് അക്കാദമിക് അഡ്വൈസറി കമ്മിറ്റി യോഗ ശിപാർശ - Revised CSS Regulations With Effect from 2020 Admissions അംഗീകരിക്കുന്നത് - മഹാത്മാ ഗാന്ധി സർവ്വകലാശാലാ ആക്ട് 1985 അധ്യായം III .10 (17) പ്രകാരം വൈസ് ചാൻസലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച ഉത്തരവും അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് - reg

13/11/2020 -നു കൂടിയ സി.എസ്.എസ് അക്കാദമിക് അഡ്വൈസറി കമ്മിറ്റി യോഗം പുതുക്കിയ സി.എസ്.എസ് റെഗുലേഷൻസ് 2020 (**Revised CSS Regulations With Effect from 2020 Admissions** - Applicable to all Programmes of Undergraduate, Postgraduate and Integrated Postgraduate/Doctoral programmes, and Doctoral programmes of all the functionally autonomous University Schools/ Centres/ Institutes of teaching and research in Mahatma Gandhi University) അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 01.01.2021-ലെ 4 /എ.സി.എ 5/2021/എം.ജി.യു, നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

**ഇനംനമ്പർ:125/40921/AC A5-2/2021/
VC SECTION**

സ്കൂൾ ഓഫ് സോഷ്യൽ സയൻസസ് എം ഫിൽ പ്രോഗ്രാം -ശ്രീമതി.Linda T .Shaji - പ്രബന്ധം വൈകി സമർപ്പിക്കുന്നതിനുള്ള അനുമതി ഉത്തരവ് നൽകിയത് - അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് - സംബന്ധിച്ച്.

സ്കൂൾ ഓഫ് സോഷ്യൽ സയൻസസ് എം. ഫിൽ പ്രോഗ്രാം -ശ്രീമതി. Linda T .Shaji- ക്ക് പ്രബന്ധം വൈകി സമർപ്പിക്കുന്നതിനുള്ള അനുമതി നൽകികൊണ്ട് മഹാത്മാഗാന്ധി സർവ്വകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസലർ കൈക്കൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 20.02.2021 -ലെ 1105/ACA5/2021/MGU, നമ്പർ സർവ്വകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

**ഇനംനമ്പർ:126/73418/AC A5-1/2020
(Part 1)**

സി.എസ്.എസ് അക്കാദമിക് അഡ്വൈസറി കമ്മിറ്റി യോഗ ശിപാർശകൾ - ഗ്രേഡ് പോയിന്റിന് തുല്യമായ Percentage Equivalency സർട്ടിഫിക്കറ്റ് നൽകുന്നത് സംബന്ധിച്ച് , പുതുക്കിയ സി.എസ്.എസ് റെഗുലേഷൻ 2020 -ൽ ക്രെഡിറ്റ് ട്രാൻസ്ഫർ പ്രൊവിഷൻ കൂടി ഉൾപ്പെടുത്തണമെന്നതു സംബന്ധിച്ച് - മഹാത്മാ ഗാന്ധി സർവകലാശാല ആക്ട് 1985 അധ്യായം III .10 (17) പ്രകാരം വൈസ് ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച ഉത്തരവും അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് - സംബന്ധിച്ച്

ഗ്രേഡ് പോയിന്റിന് തുല്യമായ Percentage Equivalency സർട്ടിഫിക്കറ്റ് നൽകുന്നത് സംബന്ധിച്ചും, പുതുക്കിയ സി.എസ്.എസ് റെഗുലേഷൻ 2020-ൽ ക്രെഡിറ്റ് ട്രാൻസ്ഫർ പ്രൊവിഷൻ കൂടി ഉൾപ്പെടുത്തണമെന്നതു സംബന്ധിച്ചും ഉള്ള 13/11/2020 -നു കൂടിയ സി.എസ്.എസ് അക്കാദമിക് അഡ്വൈസറി കമ്മിറ്റി യോഗത്തിന്റെ ശിപാർശകൾ അംഗീകരിച്ചുകൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 01.01.2021-ലെ 28/എ.സി.എ5/2021/എം.ജി.യു, നമ്പർ സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

ഇനംനമ്പർ:127/215004 (എസിഎ5/3/ LLM/SILT /2021)

School of Indian Legal Thought (SILT)- One Year LLM പ്രോഗ്രാം - Intellectual Property Rights പ്രോഗ്രാം എന്ന സ്പെഷ്യലൈസേഷൻ കൂടി ഉൾപ്പെടുത്തി പുതുക്കിയ റെഗുലേഷൻസ്, സ്കീം ആൻഡ് സിലബസ് 2019-20 അക്കാദമിക് വർഷം മുതൽ പ്രാബല്യത്തിൽ വരുത്തിക്കൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985 അധ്യായം III ചേരാം 10 (17) പ്രകാരം വൈസ് ചാൻസലർ അനുമതി നൽകി ഉത്തരവ് പുറപ്പെടുവിച്ചത് - അക്കാദമിക് കൗൺസിലിലേക്ക് റിപ്പോർട്ട് ചെയ്യുന്നത് സംബന്ധിച്ച്

School of Indian Legal Thought (SILT)- One Year LLM പ്രോഗ്രാം - Intellectual Property Rights പ്രോഗ്രാം എന്ന സ്പെഷ്യലൈസേഷൻ കൂടി ഉൾപ്പെടുത്തി പുതുക്കിയ റെഗുലേഷൻസ്, സ്കീം ആൻഡ് സിലബസ് 2019-20 അക്കാദമിക് വർഷം മുതൽ പ്രാബല്യത്തിൽ വരുത്തിക്കൊണ്ട് മഹാത്മാഗാന്ധി സർവകലാശാല ആക്ട് 1985, അധ്യായം 3 വകുപ്പ് 10 (17) പ്രകാരം വൈസ്-ചാൻസലർ കൈകൊണ്ട നടപടിയും തദനുസരണം പുറപ്പെടുവിച്ച 07.01.2021 -ലെ 125/ACA5/3/LLM/SILT/2021/Acad, നമ്പർ സർവകലാശാല ഉത്തരവും അക്കാദമിക് കൗൺസിൽ യോഗത്തിൽ റിപ്പോർട്ട് ചെയ്തു.

**ക്രമ ഇനങ്ങൾ
നടപ്പ് ഇനങ്ങൾ:**

ഇനംനമ്പർ:128/18211/ACA5SO/2019/ACA മലയാള ഭാഷക്കും സാഹിത്യത്തിനും നൽകിയ വിലപ്പെട്ട സംഭാവനകൾ പരിഗണിച്ചു ഡോ . സ്കൂറിയ സക്കറിയ -ക്ക് ഓണററി ഡോക്ടറേറ്റ് ബിരുദം നൽകുന്നത് -സംബന്ധിച്ച്.

ഓണററി ഡി.ലിറ്റ്. നൽകുവാൻ യോഗ്യതയുള്ള മറ്റുപേരുകൾ അംഗങ്ങൾക്ക് നിർദ്ദേശിക്കുവാൻ ഉണ്ടെങ്കിൽ രേഖാമൂലം നൽകുവാൻ ചെയർമാൻ അംഗങ്ങളോട് ആവശ്യപ്പെട്ടു.

ഡോ . സ്കൂറിയ സക്കറിയായുടെയും അംഗങ്ങൾ നിർദ്ദേശിക്കുന്ന മറ്റു വ്യക്തിത്വങ്ങളും നൽകിയിട്ടുള്ള സംഭാവനകളെ കുറിച്ച് വിശദമായി പഠിക്കുന്നതിനായി താഴെ പേർ ചേർത്തിരിക്കുന്നവരെ അംഗങ്ങളായി ഉൾപ്പെടുത്തി ഒരു വിദഗ്ധ സമിതിരൂപീകരിക്കുവാൻ തീരുമാനിച്ചു.

1. പ്രൊഫ.(ഡോ).സി. റ്റി. അരവിന്ദകുമാർ (പ്രൊ -വൈസ്ചാൻസലർ) കൺവീനർ
2. ഡോ .സുധാകരൻ കെ.എം. (മെമ്പർ, സിൻഡിക്കേറ്റ്)
3. ശ്രീ. ഹരികൃഷ്ണൻ പി. (മെമ്പർ, സിൻഡിക്കേറ്റ്)
4. പ്രൊ.ഡോ . കെ.എം. കൃഷ്ണൻ (മെമ്പർ, സിൻഡിക്കേറ്റ്)

ഇനംനമ്പർ:129/AcD/01/53958/CR/2020 **THUNCHATH EZHUTHACHAN MALAYALAM UNIVERSITY** അവാർഡ് ചെയ്ത **M. A LOCAL DEVELOPMENT STUDIES (regular)** ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ **Master of Arts in Development Studies** ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്:

THUNCHATH EZHUTHACHAN MALAYALAM UNIVERSITY അവാർഡ് ചെയ്ത **M. A LOCAL DEVELOPMENT STUDIES (regular)** ബിരുദം മഹാത്മാഗാന്ധി സർവകലാശാലയുടെ **Master of Arts in Development Studies** ബിരുദത്തിന് തുല്യമായി അംഗീകരിക്കേണ്ടതില്ലെന്നും എന്നാൽ മഹാത്മാഗാന്ധി സർവകലാശാലയിൽ **Master of Arts in Development Studies** അടിസ്ഥാന യോഗ്യതയായി വരുന്ന ഉപരിപഠന കോഴ്സുകൾക്ക് ചേരുന്നതിനുള്ള യോഗ്യതയായി അംഗീകരിക്കുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:130/41396/AC A5-2/2020

മഹാത്മാ ഗാന്ധി സർവകലാശാലയുടെ സ്വയംഭരണ കോളേജായ എസ് .ബി കോളേജ് ചങ്ങാശേരിയിൽ നിന്നും M. Phil Environmental Science ബിരുദം നേടിയ ശ്രീ .Arun Cyriac -ന്റെ എം ഫിൽ എൻവയോൺമെന്റൽ സയൻസ് ബിരുദത്തിന് സുവോളജി വിഷയവുമായി ബന്ധമുണ്ടെന്ന യോഗ്യത സാക്ഷ്യപത്രം (Eligibility Certificate) നൽകണമെന്ന അപേക്ഷ -സംബന്ധിച്ച്.

മഹാത്മാ ഗാന്ധി സർവകലാശാലയുടെ സ്വയംഭരണ കോളേജായ എസ് .ബി കോളേജ് ചങ്ങാശേരിയിൽ നിന്നും M. Phil Environmental Science ബിരുദം നേടിയ ശ്രീ .Arun Cyriac -ന്റെ എം ഫിൽ എൻവയോൺമെന്റൽ സയൻസ് ബിരുദത്തിന് സുവോളജി വിഷയവുമായി ബന്ധമുണ്ടെന്ന യോഗ്യത സാക്ഷ്യപത്രം (Eligibility Certificate) നൽകാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:131 /38271/AC A5-1/2021

സ്കൂൾ ഓഫ് ബിഹേവിയറൽ സയൻസിൽ നടത്തി വരുന്ന M.Sc Psychology programme - ന്റെ പ്രവേശന യോഗ്യതയിൽ മാറ്റം വരുത്തുന്നത് സംബന്ധിച്ച് .

സ്കൂൾ ഓഫ് ബിഹേവിയറൽ സയൻസിൽ നടത്തി വരുന്ന M.Sc Psychology programme - ന്റെ പ്രവേശന യോഗ്യത minimum qualification for admission to M.Sc Psychology Programme in School of Behavioural Sciences is a pass in B.A / B.Sc Psychology with not less than 50 % marks in part III എന്ന രീതിയിൽ ഭേദഗതി വരുത്തുവാൻ തീരുമാനിച്ചു.

ഇനംനമ്പർ:132 /എ .സി.എ. IV/2/എൽ.എൽ.ബി - പരീക്ഷ ക്ലാസ്സിഫിക്കേഷൻ /2020

ത്രിവത്സര - പഞ്ചവത്സര എൽ.എൽ.ബി കോഴ്സുകൾ - വ്യത്യസ്ത സ്തീമുകളിലേക്ക് പുനഃപ്രവേശനം നേടുന്ന വിദ്യാർത്ഥികളുടെ പരീക്ഷാഫലം ക്ലാസ്സിഫൈ ചെയ്യുന്നത് - ബോർഡ് ഓഫ് സ്റ്റഡീസ് ഇൻ ലോ (യു.ജി) യുടെ ശുപാർശകൾ - അക്കാദമിക് കൗൺസിലിന്റെ പരിഗണനയ്ക്ക് സമർപ്പിക്കുന്നത് സംബന്ധിച്ച്.

ത്രിവത്സര -പഞ്ചവത്സര എൽ.എൽ.ബി കോഴ്സുകളുടെ വിവിധ സ്തീമുകളിലായി പഠനം പൂർത്തീകരിക്കുന്ന വിദ്യാർത്ഥികളുടെ പരീക്ഷ ക്ലാസ്സിഫിക്കേഷൻ, രണ്ട് സ്തീമുകളിലായി പഠനം തുടരേണ്ടി വരുന്ന വിദ്യാർത്ഥികൾ പഠിക്കേണ്ട വിഷയങ്ങൾ , ഇന്റേണലുകൾ ചെയ്യുന്നത് എന്നിവ സംബന്ധിച്ച വിഷയങ്ങളിൽ 23/11/2020 ൽ ചേർന്ന ബോർഡ് ഓഫ് സ്റ്റഡീസ് ഇൻ ലോ (യു.ജി) സമർപ്പിച്ച താഴെ പറഞ്ഞിരിക്കുന്ന ശുപാർശകൾ അംഗീകരിക്കാൻ തീരുമാനിച്ചു.

“ The board resolved to clarify that all the 3 year and 5 year LL.B students who are readmitted to the new scheme are eligible to be qualified in the new scheme. All subjects passed in the previous semesters are to be re classified in the new scheme and the date of pass and scheme are to be entered in the Mark list as per the new scheme. In the case of duplication of subjects (of the previous semesters) the candidate need not appear for examination in the same subject, it has to be redistributed according to the new scheme. Any subject which is not studied in the old scheme , prior to re admission, and included in the new scheme, the candidate has to qualify for that subject in the new scheme along with the new scheme students. The candidate shall appear for internal component of the subjects of the previous semesters, not studied in the new scheme as directed by the Principal except for attendance part. The attendance part shall be considered as ‘nil’. The candidate is eligible for moderation as per the new scheme. The papers which are declared as pass in the previous semesters shall not be changed in any circumstance.”

ഇനംനമ്പർ: 133/30456/ACA9 SO/2021

ബിരുദാനന്തരബിരുദം - ഇക്കണോമിക്സ് - സിലബസ് വെട്ടിക്കുറയ്ക്കണമെന്നും, സെമസ്റ്റർ പരീക്ഷ നീട്ടിവെയ്ക്കണമെന്നും ആവശ്യപ്പെട്ട് വിദ്യാർത്ഥികളുടെ നിവേദനം - വൈസ് ചാൻസലറുടെ ഉത്തരവ് പ്രകാരം അക്കാദമിക് കൗൺസിലിന് മുമ്പാകെ സമർപ്പിക്കുന്നത് സംബന്ധിച്ച്:-

ഇക്കണോമിക്സ് ബിരുദാനന്തര ബിരുദ സിലബസ് കുറവ് ചെയ്യണമെന്ന വിദ്യാർത്ഥികളുടെ ആവശ്യം നിരസിക്കാൻ തീരുമാനിച്ചു.

III. അക്കാദമിക് കൗൺസിൽ അംഗങ്ങൾ അവതരിപ്പിക്കുന്ന പ്രമേയങ്ങൾ

1. അവതാരകൻ: ഡോ. തോമസ് മാത്യു പി.

കേരള സർവ്വകലാശാല മാതൃകയിൽ സർവ്വകലാശാല അപ്രൂവ്ഡ് ജേണലുകളുടെ ഒരു ലിസ്റ്റ് തയ്യാറാക്കി പ്രസിദ്ധീകരിക്കണം.

ഡോ. രാജിമോൾ എ. പ്രമേയത്തെ പിന്താങ്ങുകയും പ്രമേയം സഭ അംഗീകരിക്കുകയും ചെയ്തു.

2. അവതാരക: ശ്രീമതി. സുര്യ എൻ. എസ്.

അഫിലിയേറ്റഡ് കോളേജുകളിൽ കൂടി ഉപയോഗപ്രദമാകുന്ന വിധത്തിൽ നാക്-അക്രഡിറ്റേഷൻ സഹായകരമായ തരത്തിലുള്ള ഒരു സോഫ്റ്റ് വെയർ സർവ്വകലാശാല തലത്തിൽ തയ്യാറാക്കണം.

ഡോ. ജി.രാജാമണി പ്രമേയത്തെ പിന്താങ്ങുകയും പ്രമേയം സഭ അംഗീകരിക്കുകയും ചെയ്തു.

3. അവതാരക: ഡോ. രാജിമോൾ എ.

2017-ൽ നിലവിൽ വന്ന ബിരുദ സിലബസ് നാലുവർഷം പൂർത്തിയാക്കിയിരിക്കുകയാണ്. ഇത് പരിഷ്കരിക്കുന്നതിന് ആവശ്യമായ നടപടികൾ സ്വീകരിക്കണം.

ഡോ.തോമസ് മാത്യു പി. പ്രമേയത്തെ പിന്താങ്ങുകയും പ്രമേയം സഭ അംഗീകരിക്കുകയും ചെയ്തു.

4. അവതാരക: ഡോ. പ്രിയ സേനൻ വി.

സർവ്വകലാശാല പ്രസിദ്ധീകരണ വിഭാഗത്തിന് സ്ഥിരം ഡയറക്ടറെ നിയമിച്ചുകൊണ്ട് അതിന്റെ പ്രവർത്തനങ്ങൾ മികച്ച രീതിയിൽ ഏകോപിപ്പിക്കുന്നതിന് ആവശ്യമായ പദ്ധതികൾ തയ്യാറാക്കണം.

അവതാരക യോഗത്തിൽ പങ്കെടുക്കാത്തതിനാൽ പ്രമേയം സഭയിൽ അവതരിപ്പിക്കപ്പെട്ടില്ല

5. അവതാരക: ഡോ. പുഷ്പ മരിയൻ

University Grants Commission (Minimum Standards and Procedure for Award of M.Phil/Ph.D Degrees) Regulations, 2016 എത്രയും വേഗം മഹാത്മാഗാന്ധി സർവ്വകലാശാലയിൽ നടപ്പിലാക്കുന്നതിന് ആവശ്യമായ നടപടികൾ സ്വീകരിക്കേണ്ടതാണ്.

അവതാരകയെ പ്രമേയം അവതരിപ്പിക്കാൻ ക്ഷണിച്ചപ്പോൾ ഹാജരാകാതിരുന്നതിനാൽ പ്രമേയം സഭയിൽ അവതരിപ്പിക്കപ്പെട്ടില്ല

6. അവതാരകൻ: ഡോ. പ്രവീൺ എൻ.

കലാ കായിക മത്സരങ്ങളിൽ പങ്കെടുക്കുന്ന വിദ്യാർത്ഥികൾക്ക് ലഭിക്കുന്ന ഗ്രേസ് മാർക്ക് നഷ്ടപ്പെടാത്ത സാഹചര്യം ഉണ്ടാകണം. എല്ലാ ഇനങ്ങളിലും മത്സരം നടത്തുകയും സോണുകൾ ആക്കിതിരിച്ച് പ്രാഥമിക മത്സരം നടത്തുകയും അതിൽ നിന്നും തിരഞ്ഞെടുക്കപ്പെട്ട ആളുകളെ പങ്കെടുപ്പിച്ചുകൊണ്ട് അവസാന വട്ട മത്സരം നടത്തുകയും ചെയ്യുന്നതരത്തിൽ ക്രമീകരണം ഉണ്ടാകണം.

ഡോ. രാജിമോൾ എ. പ്രമേയത്തെ പിന്താങ്ങുകയും പ്രമേയം സഭ അംഗീകരിക്കുകയും ചെയ്തു.

7. അവതാരകൻ: ഡോ. കെ.ജെ. എബ്രഹാം

DELNET മാതൃകയിൽ യൂണിവേഴ്സിറ്റി ലൈബ്രറി സൗകര്യങ്ങൾ അഫിലിയേറ്റഡ് കോളേജുകൾക്കകൂടി ഉപയോഗിക്കാൻ സാധിക്കും വിധം നെറ്റ് വർക്ക് ചെയ്തുകൊണ്ടു ആധുനിക വൽക്കരിക്കണം.

അവതാരകൻ യോഗത്തിൽ പങ്കെടുക്കാത്തതിനാൽ പ്രമേയം സഭയിൽ അവതരിപ്പിക്കപ്പെട്ടില്ല.

8. അവതാരക: ശ്രീമതി. എ.ജി. ഒലീന

ഉന്നത വിദ്യാഭ്യാസരംഗത്തിന്റെ സമഗ്ര പുരോഗതിയെ ലക്ഷ്യമാക്കി പോസ്റ്റ് ഡോക്ടറൽ ഫെലോഷിപ്പുകൾ ഉൾപ്പെടെയുള്ള വിവിധ പദ്ധതികൾ പ്രഖ്യാപിച്ചുകൊണ്ട്, ബജറ്റിൽ അതിനനുസൃതമായ തുക വകയിരുത്തിയ കേരള സർക്കാരിനെ അഭിനന്ദിക്കുന്നതോടൊപ്പം, ഈ പദ്ധതികൾ കാര്യക്ഷമമായി നടപ്പിലാക്കുന്നതിനാവശ്യമായ മുന്നോട്ടുപോകലുകൾ സർവ്വകലാശാല തലത്തിൽ അടിയന്തിരമായി ആരംഭിക്കണമെന്ന് ഈ സഭ പ്രമേയമായി ആവശ്യപ്പെടുന്നു.

അവതാരക യോഗത്തിൽ പങ്കെടുക്കാത്തതിനാൽ പ്രമേയം സഭയിൽ അവതരിപ്പിക്കപ്പെട്ടില്ല

9. അവതാരകൻ: ഡോ. മോഹൻ എസ്.

2018 യു.ജി.സി. റെഗുലേഷൻ സംസ്ഥാന സർക്കാറും സർവ്വകലാശാലയും പൂർണ്ണമായി നടപ്പിൽ വരുത്താൻ തീരുമാനിച്ച സാഹചര്യത്തിൽ, റെഗുലേഷൻ അനുശാസിക്കുന്നത് പ്രകാരം അഫിലിയേറ്റഡ് കോളേജുകളിലെ അധ്യാപകർക്ക് പ്രൊഫസർ തസ്തികയിലേയ്ക്ക് പ്രമോഷൻ പ്ലേസ്മെന്റ് നൽകുന്നതിന് ആവശ്യമായ നടപടിക്രമങ്ങൾ സർവ്വകലാശാല തലത്തിൽ അടിയന്തിരമായി ആരംഭിക്കേണ്ടതാണ്

ഡോ. പ്രവീൺ എൻ.പ്രമേയത്തെ പിന്താങ്ങുകയും പ്രമേയം സഭ അംഗീകരിക്കുകയും ചെയ്തു.

10. അവതാരക: ഡോ. നാഗമണി പി. എസ്.

സംസ്ഥാന ഉന്നത വിദ്യാഭ്യാസ കൗൺസിലിന്റെ സഹായത്തോടെ അധ്യാപകർക്ക് ആവശ്യമായ ഓറിയന്റേഷൻ റിഹ്രഷർ കോഴ്സുകൾ സർവ്വകലാശാലയുടെ ആഭിമുഖ്യത്തിൽ നടപ്പിലാക്കണം.

ശ്രീമതി. സൂര്യ എൻ. എസ്. പ്രമേയത്തെ പിന്താങ്ങുകയും പ്രമേയം സഭ അംഗീകരിക്കുകയും ചെയ്തു.

11. അവതാരക: ഡോ. അനൂജ തോമസ് കെ.

സർവ്വകലാശാലയിലെ പരീക്ഷ സോഫ്റ്റ് വെയർ അടിയന്തിരമായി പരിഷ്കരിച്ചുകൊണ്ട് വിദ്യാർത്ഥികളുടെ പരീക്ഷാഫലം സമയബന്ധിതമായി പുറപ്പെടുവിക്കാൻ ആവശ്യമായ നടപടികൾ സ്വീകരിക്കണം.

ഡോ. മോഹൻ എസ്.പ്രമേയത്തെ പിന്താങ്ങുകയും പ്രമേയം സഭ അംഗീകരിക്കുകയും ചെയ്തു.

പങ്കെടുത്ത അംഗങ്ങൾക്ക് അദ്ധ്യക്ഷൻ നന്ദിയറിയിച്ച് കൊണ്ട് 12.30ന് സഭ നടപടികൾ പര്യവസാനിപ്പിച്ചു.

(ഒപ്പ്)

രജിസ്റ്റാർ

(ഒപ്പ്)

വൈസ് ചാൻസലർ

**REGULATIONS,
SCHEME AND SYLLABUS**

**MAHATMA GANDHI UNIVERSITY
KOTTAYAM
KERALA**

for

INTEGRATED MCA

**Five Year Integrated Degree Course in MCA leading to, Masters degree in
Computer Application (MCA)**

(With effect from 2020 admissions)



Board of Studies in Computer Application- P.G

No	Name	Designation and Address	Position
1	Smt.Leena C Sekhar	HOD,Asso.Professor,MES College ,Marampally	Chairman
2	Smt.Shereena V B	Asst.Professor,MES College, Marampally	Member
3	Smt.Bindhu Prabha	Asst.Professor, SAS SNDP Yogam College,Konni	Member
4	Dr.Ajitha R S	Asso.Professor, NSS College,Rajakumari	Member
5	Smt.Simi M	Asst.Professor, SAS SNDP Yogam College,Konni	Member
6	Smt.Saumya M R	Asst.Professor,Sree Sankara College,Kalady	Member
7	Shri.John Varghese P	Asst.Professor, K. E College,Mannanam	Member
8	Dr.Binu Thomas	Asst.Professor,Marian College,Kuttikanam	Member
9	Shri.Rajesh N	Asst.Professor,SAS SNDP Yogam College,Konni	Member
10	Dr.Rajimol A	Asso. Professor,Marian College,Kuttikanam	Member
11	Shri.Thomas T Monoth	Asst.Professor,Mary Matha College,Mananthavady	Member

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REGULATIONS FOR INTEGRATED MASTER OF COMPUTER APPLICATIONS (IMCA) PROGRAMME

AIM

The Integrated MCA programme helps students to learn advanced courses soon after Class XII studies without any gap in the academics. After completing this program, student will have the ability to pursue their career professionally with ethics and they will have sound theoretical knowledge and skill for analysing real life problems, design complex computing systems appropriate to its solutions with the recent technology. Thus the programme of the University aims at bridging the gap between the industry need and academics.

OBJECTIVE

The educational objectives of the Integrated MCA programme at Mahatma Gandhi University is to impart knowledge to students in foundation of mathematics, computer application, problem solving and decision-making technique for effective implementation in the area of software development and at the same time, be sensitive to the issues prevailing in the society.

R1. ELIGIBILITY CRITERIA

Qualifications

A candidate seeking admission to Integrated MCA course must have a pass with not less than 45% marks in 10+2 level with Mathematics / Statistics /Accountancy as compulsory subjects.

- i) Subject to the regulation relating to prescribed minimum of the respective qualifying examination, the minimum marks of Admission to the Course of studies shall be 40% in the case of candidates belonging to reserved category.
- ii) Candidates belonging to Socially and Educationally Backward Classes (SEBC) referred to GO(P)208/66/Edn dated. 2-5-96 and subsequent amendments to order issued by the Government shall be given a relaxation of 3% marks in the prescribed minimum for admission and 5% for OEC.
- iii) Relaxation of 5% marks from the prescribed minimum shall be allowed in the case of physically handicapped persons.
- iv) Reservation of seats shall be as per rules prescribed in the relevant rules by the Directorate of Technical Education, Government of Kerala / MG University.

R2. DURATION OF THE COURSE

The Course shall extend over a period of Five Academic years consisting of Ten Semesters.

R3. PROGRAMME COORDINATOR

To help the students in planning their Courses of Study and for getting general advice on academic programme, the concerned Department may assign a programme coordinator for IMCA programme under the Department. The programme coordinator will be the overall in charge in all matters concerning the students' work and progress.

R4. Medium of Instruction and Assessment

English

R5. Faculty under which the Degree is awarded

Faculty of Technology and Applied Sciences.

R6. CURRICULUM

The Curriculum will comprise the Courses of Study as given in the scheme in accordance with the prescribed syllabi.

Candidates will be required to undertake a suitable master's research project work and industrial training and mini project in consultation with the Head of the Department and the Faculty Advisor and submit the project report and industrial training report there on at the end of the respective Semesters, on dates announced by the College/Department.

R7. REQUIREMENTS OF ATTENDANCE AND PROGRESS

- I. A candidate will be deemed to have completed the requirements of study of a semester and permitted to appear for each University End Semester Examinations (ESE) only if,
 - a) The candidate has kept not less than 75% of attendance of the total number of working days in each semester.
 - b) He /She has a minimum of 50 % of internal assessment marks for each subject in that semester.
 - c) His/her progress has been good.
 - d) His/her character and conduct has been good.
- II. A student who has an attendance lower than 75% in a semester will not be permitted to appear for the ESE and he/she has to redo the semester along with the regular batch at the next available opportunity. However, a candidate can repeat the course or have condonation of attendance or temporary break of study, only twice during the entire programme as per the University norms.

- III. A student who has secured sessional marks lower than 50% in any course in a semester will not be permitted to appear for the ESE of those course in that semester and subsequently he/she has to redo all the internal assessments of those course with the regular batch at the next available opportunity. The sessional marks earned during repetition of course alone will be counted in such case.
- IV. A Regular student who has undergone a programme of study and could not complete the programme due to shortage of attendance may rejoin the semester along with the regular batch subject to the condition that he has to undergo all the examinations of the previous semesters as per the University norms.

Note: As these are academic mandatory prerequisites no exemption will be granted in these cases whatever may be the causes.

R8. PROCEDURE FOR COMPLETING COURSE

- A. The Examinations of the odd semesters will be conducted only in odd semesters and that of the even semesters only in even semesters.
- B. A candidate may proceed to the course of study for the next semester only after completing the requirements of attendance and progress (Regulation clause R5) of the previous semester.
- C. A candidate is eligible for condonation of shortage of attendance only twice in the entire programme subject to the conditions given below.
 - a. His conduct and progress must be good as certified by the Principal.
 - b. Condonation will be granted only on medical grounds if he/she has secured not less the 65% of attendance.
 - c. By the recommendation of the head of the institution, the condonation shall be granted subject to rules and procedures prescribed by the University from time to time.
 - d. It is open to Vice Chancellor to grant condonation of shortage of attendance on the recommendation of the head of the concerned institution.
- D. A student who is not eligible for condonation of shortage of attendance shall repeat the course in full including the sessional work in the next immediate chance. The sessional marks earned during repetition of course alone will be counted in such case.
- E. A student can repeat the course only once in the entire course of study only on medical reasons (hospitalization / accident / specific illness). The hospitalization must be informed by the parent in writing with the certificate obtained from the Government Medical Officer to the faculty in charge of programme coordination, Head of the Department and Principal within fifteen days of hospitalization.
- F. He/She shall repeat the course work in full (including sessionals) in a particular semester/year once and within 6 consecutive semesters.

- G. He/She shall not combine his course work with regular course work of any other semester.
- H. He/She shall not be allowed to repeat the course work of any semester if he/she has already passed that semester examination in full.
- I. A candidate who has been registered for the higher semester examination will not be allowed to repeat the course work, in lower semesters.
- J. A candidate should complete up to six semesters before registering ninth semester.

R9. EXAMINATION AND VALUATION

a. Theory Examinations

There will be end semester University examination [ESE] at the end of each semester. There is no provision for improvement examinations.

For smooth conduct all the theory examinations at various centres, a Chief Superintendent and an Assistant Chief Superintendent from senior faculty members are to be appointed by the Principal and approved by the University.

b. Practical Examinations

The Principals of colleges with the help of Chairmen/Chairperson should arrange the practical examination for all semesters with approval from the University. Bonafide laboratory record / Master's project report / Industrial training/ Seminar report etc. are mandatory for appearing for the practical / viva-voce examinations.

To conduct practical examination, University will appoint an internal examiner from a panel of faculty (specialization in the relevant subject) of concerned college and an external examiner from other colleges. The external examiner will conduct the exam and decide the marks to be awarded to the candidates. The mark list filled and duly signed by the external examiner should forward to the Chairman by the external examiner. The external examiner will be the custodian of the valued answer script till the commencement of subsequent examination. There is no provision for revaluation.

c. Valuation

- i) The assessment will comprise of sessional assessment and University examination in certain subjects, and wholly sessional assessments in others, carrying marks as specified in the subject of study and scheme of assessment.
- ii) A candidate shall be declared to have passed in any subject in full in any semester if he/she secures not less than 50% marks in sessional, not less than 40% marks in the University Examination including Project and Viva and not less than 50% of the overall aggregate marks for the subject ie., University Examination marks and sessional marks of the subjects put together.
- iii) There will be no provision to improve the sessional marks of any semester unless he /she repeats the semester.
- vi) University Examinations will be conducted at the end of each semester for subjects offered during the semester.

- v) Semester examinations will normally be conducted in October/November and in April/May of each year.
- vi) All sessional work shall be valued and marks awarded on the basis of day to day performance, periodic tests and assignments. The allocation of sessional marks for individual subjects shall be on the following basis.

Theory Subjects		Practicals	
Attendance	10%	Attendance	10%
Assignment /Seminar	30%	Regular class work / Lab record / Class Performance	50%
Tests	60%	Tests	40%
Total	100%	Total	100%

The sessional marks allotted for attendance shall be awarded in direct proportion to the percentage of attendance secured by the candidate in the subject. However, full sessional marks for attendance shall be awarded to those who are securing 80% of the attendance and above.

R10. UNIVERSITY EXAM QUESTION PAPER PATTERN

The Question Paper pattern shall comprise of 2 parts:

PART A (10 x 3=30 marks) and

PART B (5 x 9=45 marks).

Total 75 marks

Part A shall have 30 marks, in which the student is expected to answer 10 short questions (3 marks each) out of 12 questions evenly prepared from all the five modules. These questions can consist of definitions, theoretical concepts, short illustrative examples, block schematics etc.

Part B shall have 2 questions from each module, out of which the student has to answer one from each module (9 marks). These can be descriptive type questions, derivations, problems or collection of 2 or more smaller questions in a topic. This offers 50% choice to the students, yet forces him to study all the five modules.

R11. PASSING REQUIREMENTS AND PROVISIONS

- i. All Credits should be earned by a candidate to be qualified for the MCA.
- ii. The candidate should have cleared all dues to the Institute/University.
- iii. No disciplinary action is pending against him/her.
- iv. A candidate shall be declared to have passed in any subject in full in any semester if he/she secures not less than 50% marks in sessional, not less than 40% marks in the University Examination including Project and Viva and not less than 50% of the

overall aggregate marks for the subject i.e., University Examination marks and sessional marks of the subjects put together.

- v. A candidate, who is absent or secures a grade F or less than 40% in ESE in any subject carrying sessional marks and ESE marks, will retain the already secured sessional marks for subsequent supplementary appearance in the examination of that subject.
- vi. A candidate who fails to submit the report on the project/industrial training within the prescribed date (or whose report is not accepted for reasons of incompleteness or other serious deficiencies) will have to register, redo the project / industrial training and submit the report at the end of a subsequent semester.
- vii. A candidate who successfully completes the course satisfying all the passing requirements of the courses will be declared to be qualified for the award of MCA.
- viii. Candidates who have passed all subjects of the Ten semesters at the first opportunity within Ten consecutive chances after the commencement of his/her study shall be ranked based on the CGPA obtained. In the case of a tie in the CGPA the total theory marks of the students who have secured same CGPA shall be considered for finalizing the rank.
- ix. A candidate who qualifies for the award of IMCA degree having passed all the subjects of all the Ten Semesters within a period of maximum Ten consecutive semesters after the commencement of his/her study and secures a CGPA of 8 and above considering all the Ten semesters, will be declared to have passed the MCA degree in FIRST CLASS with DISTINCTION.
- x. A candidate who qualifies for the award of IMCA degree having passed all the subjects of all the Ten semesters within a period of maximum Ten consecutive semesters after the commencement of his/her study and secures a CGPA of 6.75 and above considering all the Ten semesters will be declared to have passed the MCA degree in FIRST CLASS.
- xi. All other successful candidates will be declared to have passed the MCA degree in SECOND CLASS.
- xii. In the case of a student (regular / repeated /temporary break study) who has taken a **supplementary** chance for passing a subject will be given grade with regard to the mark obtained by the candidate in that exam and will be considered for all classification purpose.
- xiii. Candidates shall be declared to have qualified for the award of the MCA degree provided the Candidate has successfully completed the course requirements and has passed all the prescribed subjects of study in the ten semesters within a maximum period of seven years from the commencement of his/her study.
- xiv. Every candidate shall, based on his/her project work/dissertation, send a paper for publication in journal or a conference in which all papers are published after usual review

xv. Minimum for a pass

- a. A candidate shall be declared to have passed a semester examination in full in the first appearance if he/she secures not less than SGPA 5 with a minimum of 'E' grade for the all individual subject in that semester.
- b. A candidate shall be declared to have passed in an individual subject of a semester examination if he/she secures grade 'E' or above.
- c. A candidate who does not secure a full pass in a semester examination as per clause (a) above will have to pass in all the subjects of the semester examination as per clause (b) above before he is declared to have passed in that semester examination in full.

R12. SCHEME OF EVALUATION

a. Credit System

Each subject shall have a certain number of credits assigned to it depending upon the academic load and the nature and importance of the subject. The credit associated with each subject will be shown in the prescribed scheme and syllabi. Each course shall have an integer number of credits, which reflects its weightage.

b. Grading

The University shall award the letter grade to students based on the marks secured by them in both internal assessment and semester end examinations taken together in the subjects registered. Each letter grade indicates a qualitative assessment of the student's performance and is associated with a specified number of grade points. The grading system along with the grade points for each grade, applicable to passed candidates is shown below. All passed candidate will be allotted a grade S, A, B, C, D, E, and F according to the total marks scored by him/her.

There will be a continuous evaluation system. Various components of evaluation are Teachers' Assessment (TA), Class Tests (CT) and University end semester examination (ESE). To make the evaluation more effective, teachers' assessment could be broken into various components like assignments, quizzes, attendance, group discussions, tutorials, seminars, field visit reports etc. These two components i.e., TA & CT put together will form the sessional components. End semester examination will be conducted by the institution through concerned affiliating University, as per its rules and regulations.

On the basis total marks (TA+CT+ESE) for each subject obtained, a letter grade should be awarded, where S = 10, A = 9, B = 8, C = 7, D = 6, E = 5, F = 0. "F" denotes failure in the course.

All letter grades except 'F' will be awarded if the marks for the University examination is 40 % or above and the total mark (TA+CT+ESE) is 50 % or above. No absolute mark will be indicated in the grade card. Letter grade corresponding to total marks (TA+CT+ESE) and the corresponding grade point in a ten-point scale is described in table below.

Letter grade corresponding to total marks and corresponding grade point in ten point scale

Range of % of total marks	Letter grade	Grade point
90 to 100	S	10
80 to 89	A	9
70 to 79	B	8
60 to 69	C	7
55 to 59	D	6
50 to 54	E	5
0 to 49	F	0

c. Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA)

Semester Grade Point Average is the semester wise average points obtained by each student in a ten point scale. SGPA for a particular semester is calculated as per the formula shown below.

$$\text{SGPA (S}_j\text{)} = \sum (C_i \times G_i) / \sum C_i$$

(SGPA = Total credit point awarded in a semester / Total credits of the semester)

Where 'S_j' is the **jth** semester, 'G_i' is the grade point scored by the student in the **ith** course 'C_i' is the credit of the **ith** course.

d. Cumulative Grade Point Average (CGPA)

Cumulative Grade Point Average shall be computed for all the students at the end of each semester by taking into consideration their performance in the present and the past semesters as follows:

$$\text{CGPA} = \sum (C_i \times S_i) / \sum C_i$$

(CGPA = Total credit points awarded in all semesters / Total credits of the programme)

Where 'C_i' is the credits for the **ith** semester, 'S_i' is the SGPA for the **ith** semester.
SGPA and CGPA shall be rounded to two decimal points.

- e. Grade Card** The grade card issued to the students shall contain course number and subject name, credits for the subject, letter grades obtained, SGPA for the semester and CGPA up to that particular semester. In addition to the grade cards for each semester all successful candidate shall also be issued a consolidated statement grades. On specific request from a candidate and after remitting the prescribed fees the University shall issue detailed marks to the individual candidate.

R13. REVISION OF REGULATIONS

Notwithstanding all that has been stated above, the University has the right to modify any of the Regulations, Scheme of Studies, Examinations and Syllabi from time to time.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO) OF THE INTEGRATED MCA PROGRAMME LEADING TO A DEGREE IN MCA

1. PEO1: To impart knowledge to students in foundation of mathematics, computer application, problem solving and decision-making technique for effective implementation in the area of software development.
2. PEO2: Student will be capable of communicating effectively and use recent technology, environments and platform in analyzing, designing, developing and maintaining complex application in computer domain that are technically sound, economically feasible and socially acceptable.
3. PEO3: Students will exhibit communication skills, team work, ethical attitude, professionalism and adapt to current trends by engaging in lifelong learning.

PROGRAMME OUTCOME (PO)

At the end of the Programme, a student will be able to achieve the following programme outcomes:

1. Computational Knowledge:

Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.

2. Problem Analysis:

Identify, formulate, research literature, and solve *complex* computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

3. Design /Development of Solutions:

Design and evaluate solutions for *complex* computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

4. Conduct Investigations of Complex Computing Problems:

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Modern Tool Usage:

Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

6. Professional Ethics:

Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practice.

7. Life-long Learning:

Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

8. Project management and finance:

Demonstrate knowledge and understanding of the computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

9. Communication Efficacy:

Communicate effectively with the computing community, and with society at large, about *complex* computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.

10. Societal and Environmental Concern:

Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.

11. Individual and Team Work:

Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.

12. Innovation and Entrepreneurship

Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.

PROGRAM SPECIFIC OBJECTIVES (PSO)

PSO1: Recent Technology

Students will have sound theoretical knowledge and skill for analysing real life problems, design complex computing systems appropriate to its solutions with the recent technology.

PSO2: Employability Skill

After Completing this program students will have ability to pursue their career professionally with ethics as an individual or as a member of a team in software industry, corporate sector, Government organization, academia, research, consultancy firm, entrepreneurship and will possess knowledge and skill for problem solving and decision making.

PSO3: Management /Leadership skill and Analytical Reasoning

After this program students will possess management and leadership skill, analytical reasoning for solving time critical problems with best professional ethical practice, environmental and social concern.

MAPPING OF PO TO PEO

Program Educational Objectives	PEO1	PEO2	PEO3
Program Outcomes			
PO1: Computational Knowledge	√	√	
PO2: Problem Analysis		√	
PO3: Design /Development of Solutions		√	
PO4: Conduct Investigations of Complex Computing Problems		√	
PO5: Modern Tool Usage		√	√
PO6: Professional Ethics		√	√
PO7: Life-long Learning			√
PO8: Project management and finance		√	
PO9: Communication Efficacy		√	√
PO10: Societal and Environmental Concern		√	√
PO11: Individual and Team Work	√	√	√
PO12: Innovation and Entrepreneurship		√	√

PSO1: Recent Technology		√	√
PSO2: Employability Skill		√	√
PSO3: Management /Leadership skill and Analytical Reasoning		√	√

SCHEME

SEMESTER I

Sl no	Course code	Subject	Hours / week			Sessional	ESE	Total	Credits
			L	T/P	P				
1	IMCA101	English	4	-	-	25	75	100	4
2	IMCA102	Digital Electronics and Microprocessor	4	1	-	25	75	100	4
3	IMCA103	Statistics	4	-	-	25	75	100	4
4	IMCA104	Introduction to Computers & PC Hardware	4	-	-	25	75	100	4
5	IMCA105	Programming Methodology & C Programming	4	1	-	25	75	100	4
6	IMCA106	PC hardware Practicals	-	-	4	25	75	100	2
7	IMCA107	C Practicals	-	-	4	25	75	100	2
Total			20	2	8	-	-	700	24

L-Lecture T-Tutorial P-Practical ESE-End Semester Examination

SEMESTER II

Sl no	Course code	Subject	Hours / week			Sessional	ESE	Total	Credits
			L	T/P	P				
1	IMCA201	Fundamentals of Accounting	4	-	-	25	75	100	4
2	IMCA202	Probability and Statistics	4	-	-	25	75	100	4
3	IMCA203	Computer Organization And Architecture	4	-	-	25	75	100	4
4	IMCA204	Data Structures- C	4	1	-	25	75	100	4
5	IMCA205	Object Oriented Programming with C++	4	1	-	25	75	100	4
6	IMCA206	Data Structures -C Practicals	-	-	4	25	75	100	2
7	IMCA207	C ++ Practicals	-	-	4	25	75	100	2
Total			20	2	8	-	-	700	24

L-Lecture T-Tutorial P-Practical ESE-End Semester Examination

SEMESTER III

Sl no	Course code	Subject	Hours / week			Sessional	ESE	Total	Credits
			L	T/P	P				
1	IMCA301	Mathematical Foundation of Computer Science	4	-	-	25	75	100	4
2	IMCA302	Management Information Systems	4	-	-	25	75	100	4
3	IMCA303	DBMS AND NO SQL	4	1	-	25	75	100	4
4	IMCA304	Principles of Management	4	-	-	25	75	100	4
5	IMCA305	Visual Programming(C#.NET)	4	1	-	25	75	100	4
6	IMCA306	DBMS Practical (ORACLE & Mongodb)	-	-	4	25	75	100	2
7	IMCA307	Visual Programming Practicals	-	-	4	25	75	100	2
Total			20	2	8	-	-	700	24

L-Lecture T-Tutorial P-Practical ESE-End Semester Examination

SEMESTER IV

Sl no	Course code	Subject	Hours / week			Sessional	ESE	Total	Credits
			L	T/P	P				
1	IMCA401	Technical Communication	4	1	-	25	75	100	4
2	IMCA402	Java	4	1	-	25	75	100	4
3	IMCA403	Elective I	4	-	-	25	75	100	4
4	IMCA404	System Software	4	-	-	25	75	100	4
5	IMCA405	E-Commerce	4	-	-	25	75	100	4
6	IMCA406	Java Practicals	-	-	4	25	75	100	2
7	IMCA407	RDBMS Practicals	-	-	4	25	75	100	2
Total			20	2	8	-	-	700	24

L-Lecture T-Tutorial P-Practical ESE-End Semester Examination

SEMESTER V

Sl no	Course code	Subject	Hours / week			Sessional	ESE	Total	Credits
			L	T/P	P				
1	IMCA501	Operations Research	4	-	-	25	75	100	4
2	IMCA502	Operating Systems	4	1	-	25	75	100	4
3	IMCA503	Web Technology	4	1	-	25	75	100	4
4	IMCA504	Object Oriented Modeling and Design	4	-	-	25	75	100	4
5	IMCA505	Software Engineering And Project Management	4	-	-	25	75	100	4
6	IMCA506	Python Programming Practicals	-	-	4	25	75	100	2
7	IMCA507	Web Technology Practicals	-	-	4	25	75	100	2
Total			20	2	8	-	-	700	24

L-Lecture T-Tutorial P-Practical ESE-End Semester Examination

SEMESTER VI

Sl.No	Course code	Subject	Hours / week			Sessional	ESE	Total	Credits
			L	T/P	P				
1	IMCA601	Research Methodology	4	-	-	25	75	100	4
2	IMCA602	Data Communications	4	-	-	25	75	100	4
3	IMCA603	Elective II	4	-	-	25	75	100	4
4	IMCA604	Seminar- I	-	-	2	100	-	100	2
5	IMCA605	Software Development- Project I	-	-	4	25	75	100	6
Total			12	-	6	-	-	500	20

L-Lecture T-Tutorial P-Practical ESE-End Semester Examination

SEMESTER VII

Sl no	Course code	Subject	Hours / week			Sessional	ESE	Total	Credits
			L	T/P	P				
1	IMCA701	Linux OS and Shell programming	4	1	-	25	75	100	4
2	IMCA702	Analysis & Design of Algorithms	4	-	-	25	75	100	4
3	IMCA703	Data Mining & Warehousing	4	-	-	25	75	100	4
4	IMCA704	Cryptography	4	-	-	25	75	100	4
5	IMCA705	Computer Networks	4	-	-	25	75	100	4
6	IMCA706	PHP Programming Practicals	-	1	4	25	75	100	2
7	IMCA707	Linux OS and Shell programming Practicals	-	-	4	25	75	100	2
Total			20	2	8	-	-	700	24

L-Lecture T-Tutorial P-Practical ESE-End Semester Examination

SEMESTER VIII									
Sl no	Course code	Subject	Hours / week			Sessional	ESE	Total	Credits
			L	T/P	P				
1	IMCA801	Employability Skills	4	-	-	100	-	100	4
2	IMCA802	Artificial Intelligence	4	-	-	25	75	100	4
3	IMCA803	Internet Technology And Applications	4	1	-	25	75	100	4
4	IMCA804	Compiler Design	4	1	-	25	75	100	4
5	IMCA805	Elective III	4	-	-	25	75	100	4
6	IMCA806	Compiler Design Practicals	-	-	4	25	75	100	2
7	IMCA807	Mini Project - Application Development	-	-	4	25	75	100	2
Total			20	2	8	-	-	700	24
L-Lecture T-Tutorial P-Practical ESE-End Semester Examination									

SEMESTER IX

Sl no	Course code	Subject	Hours / week			Sessional	ESE	Total	Credits
			L	T/P	P				
1	IMCA901	Computational Sustainability	4	-	-	25	75	100	4
2	IMCA902	Network Security with IPR	4	1	-	25	75	100	4
3	IMCA903	Data Science	4	1	-	25	75	100	4
4	IMCA904	IT Infrastructure Management	4	-	-	25	75	100	4
5	IMCA905	Elective IV	4	-	-	25	75	100	4
6	IMCA906	Data Science Practicals	-	-	4	25	75	100	2
7	IMCA907	Cloud Computing Practicals	-	-	2	25	75	100	2
8	IMCA908	Main Seminar - Current Trends			2	100	-	100	2
Total			20	2	8	-	-	800	26

L-Lecture T-Tutorial P-Practical ESE-End Semester Examination

SEMESTER X

Sl no	Course code	Subject	Hours / week			Sessional	ESE	Total	Credits
			L	T/P	P				
1	IMCAX01	Main Project- Application Development	-	-	-	150	100	250	8
2	IMCAX02	Viva-Voce	-	-	-	50	100	150	4
Total			-	-	-	-	-	400	12

L-Lecture T-Tutorial P-Practical ESE-End Semester Examination

LIST OF ELECTIVES (ANY 1 FROM THE FOLLOWING LIST)

Elective I – Semester IV

1. Client server Computing
2. Parallel Processing
3. Enterprise Resource Planning

Elective II – Semester VI

1. Android Programming
2. Real Time Operating System
3. Distributed Processing
4. Embedded System Design

Elective III – Semester VIII

1. Social Network analysis
2. Knowledge Management and Business Intelligence
3. Foundation of Cloud Computing
4. Computer Graphics

Elective IV – Semester IX

1. Application Development and Maintainance
2. Software Testing
3. Customer Relationship Management
4. Informatics and Cyber Ethics
5. Machine Learning

Semester I

IMCA 101 ENGLISH

Course Overview

Program	IMCA
Semester	1
Course Code	IMCA 101
Course Title	ENGLISH
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

English has been gaining grounds in global communication. To emerge as a winner and stand apart from the crowd in today's fierce competitive world, an individual must have excellent communication skills. A high degree of proficiency in English and excellent communication skills enhance the student's employability. Communication Skills in English aims to develop students' ability to use English accurately, appropriately, and fluently. The course intends to introduce the students to the speech sounds of English to enable them to listen to English and speak with global intelligibility. It introduces listening skills, barriers to listening and the strategies of academic reading such as scanning, skimming, surveying, predicting, and making inferences. It also aims to enhance the learners' group discussion and telephone skills.

Course Objectives

By the end of the course the students will be able to:

1. Develop the ability to use English language accurately and effectively by enhancing their communication skills.
2. Introduce the students to the speech sounds of English to enable them to listen to English and speak with global intelligibility.
3. Enable the students to speak English confidently and effectively in a wide variety of situations.
4. To improve their reading efficiency by refining their reading strategies.
5. Enhance group discussion skill

Course Outcomes

On successful completion of the course, the students will be able to:

CO.No	Course Outcome Description
IMCA101.1	Define and identify various methods to develop communication skills.
IMCA101.2	Discuss and describe the strategies to improve listening, speaking, reading, and writing skills.
IMCA101.3	Explain the skills required for creating a formal speech and participating in group discussion.
IMCA101.4	Classify the sounds of English and their symbols.
IMCA101.5	Develop the ability to converse on any topic.

Detailed Syllabus

Topic	Session	References
Module I Phonetics-Air Stream Mechanism organs of speech-The Respiratory System, The Phonatory System, The Articulatory System, Phonemic Symbols – Vowels, Diphthongs, Consonants	1-12	Cambridge English Pronouncing Dictionary A textbook of ENGLISH PHONETICS for Indian students – T. Balasubramanian.
Module II Syllables - Word stress - Stress in Polysyllabic Words. Stress in words used as different parts of speech - Sentence Stress. Word Stress and Rhythm – Pauses and Sense Groups, Weak forms and Strong Forms. Intonation - Falling and Rising Tones – Fluency and Pace of Delivery. Awareness of different accents: American, British, and Indian Influence of the Mother Tongue	13-23	Cambridge English Pronouncing Dictionary A textbook of ENGLISH PHONETICS for Indian students – T. Balasubramanian. V.Sasikumar, P.Kiranmai Dutt and Geetha Rajeevan,. “Communication Skills in English” Cambridge University Press and Mahatma Gandhi University.
Module III Active listening – Barriers to listening – Listening and Notetaking .Art of Small Talk – Participating in Conversations. Making a Short Formal Speech. Describing People, Place, Events and Things	24-31	Study Listening: A Course in Listening to Lectures and Note-taking by Tony Lynch. V.Sasikumar, P.Kiranmai Dutt and Geetha Rajeevan,. “Communication Skills in English” Cambridge University Press and Mahatma Gandhi University.
Module IV Group Discussion Skill, Telephone Skill.	32-35	V.Sasikumar, P.Kiranmai Dutt and Geetha Rajeevan,. “Communication Skills in English” Cambridge University Press and Mahatma Gandhi University.
Module V Reading: Theory and Practice – Scanning - Surveying a textbook using an index - Reading with a purpose. Making predictions – Understanding text structure – Locating main points. Making inferences - Reading graphics - Reading critically – Reading for research	36-40	V.Sasikumar, P.Kiranmai Dutt and Geetha Rajeevan,. “Communication Skills in English” Cambridge University Press and Mahatma Gandhi University

References:

1. V.Sasikumar, P.Kiranmai Dutt and Geetha Rajeevan,. “Communication Skills in English” Cambridge University Press and Mahatma Gandhi University.
2. A Course in Reading Skills for Academic Purposes by Glendinning, Eric H. and Beverly Holmstrom
3. Communication Studies by Sky Massan
4. Course in Spoken English for Academic Purposes by Anderson, Kenneth, Joan Maclean and Tony Lynch
5. A textbook of ENGLISH PHONETICS for Indian students – T. Balasubramanian.

IMCA 102 DIGITAL ELECTRONICS & MICROPROCESSORS

Course Overview

Program	IMCA
Semester	1
Course Code	IMCA102
Course Title	Digital Electronics & Microprocessors
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course Description

Basic objective of this course is to introduce the fundamentals of basic electronics, microprocessors and an introduction to microcontrollers. Students will learn about number systems, gates, combinational and sequential circuits. Also, the basic architecture and instructions of the first 16-bit microprocessor 8086. An introduction to microcontroller 8051 is presented to understand the fundamentals of microcontroller working and its signals.

Course Objectives

By the end of the course the students will be able to:

1. Acquaint with the fundamental principles of two-valued logic and various circuits used to implement logical operations.
2. Know the basics for further studies in areas such as microprocessor and microcontroller.

Course Outcomes

On successful completion of the course :

CO.No	Course Objective Description
IMCA102.1	Students will be able to understand the number systems and codes
IMCA102.2	Students will be able to draw basic circuits using gates AND, OR, NOT, NAND, NOR, XOR etc.
IMCA102.3	Students will be able to understand the working of basic combinational circuits and sequential circuits
IMCA102.4	Students will learn the architecture, signals of 8086 processor.
IMCA102.5	Students will be able to learn the difference between processor and controller, learn about instructions and signals of controller.

Detailed Syllabus:

Topic	Session	References
Module I Number systems – Efficiency of number system, Decimal, Binary, Octal, Hexadecimal, conversion from one to another, Binary addition, Subtraction, Multiplication and Division, Representation of signed numbers, Addition and subtraction using 2's complement and 1's complement. Binary codes – BCD code, Error detection codes, Error correcting code-Hamming code.	1-7	Digital principles and Applications- Albert Paul Malvino, Donald P Leach, McGraw Hill
Module II Logic Gates – Basic logic gates- AND, OR, NOT, NAND, NOR, Exclusive OR, Exclusive NOR gates- Logic symbols, Truth table and timing diagrams. Boolean Algebra – Basic laws and theorems, Boolean functions, Truth table, Minimization of Boolean function using K map method, Realization using logic gates and universal gates.	8-15	Digital principles and Applications- Albert Paul Malvino, Donald P Leach, McGraw Hill
Module III Combinational circuits – Half adder, Full Adder, Decoders, Encoders, Multiplexers, Demultiplexers, Sequential circuits – Flip Flops – RS, JK, D Flip Flops, Master slave Flip Flops. Registers – Serial in serial out, Serial in Parallel out, Parallel in serial out, Parallel in Parallel out registers, Bidirectional shift registers. Counters-Synchronous and asynchronous counters, Counters using shift registers.	16-26	Digital principles and Applications- Albert Paul Malvino, Donald P Leach, McGraw Hill
Module IV 8086 Register Organization of 8086, Architecture. Signal Description of 8086, Minimum Mode 8086 System and Timings, Maximum Mode 8086 System and Timings. Addressing Modes of 8086.	27-33	Digital principles and Applications- Albert Paul Malvino, Donald P Leach, McGraw Hill
Module V Instruction Set of 8086. Use of stack. Interrupts – Types of Interrupts and Interrupt Service Routine. Microcontrollers: Architecture of 8051 Microcontroller – Signals.	34-40	Bhurchandi and Ray, “Advanced Microprocessors and Peripherals”, Third Edition

Recommended Books & Reading List

1. Digital principles and Applications- Albert Paul Malvino, Donald P Leach, McGraw Hill
2. Bhurchandi and Ray, “Advanced Microprocessors and Peripherals”, Third Edition McGraw Hill, 2006.
3. Fundamentals of Digital Circuits – A Anand Kumar, PHI Learning Pvt. Ltd. 2nd edition, 2013
4. Digital logic and Computer Design – Morris Mano, Prentice Hall of India, 2004.
5. Digital Fundamentals – Floyd, Pearson Education, 2009.
6. Digital computer Fundamentals – Thomas C Bartee, McGraw Hill.

IMCA 103 STATISTICS

Course Overview

Program	IMCA
Semester	1
Course Code	IMCA103
Course Title	Statistics
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

Basic objective of this course is to understand the basic concepts in Statistics. It also introduces students to different methods to calculate central tendency and measure of dispersion. It gives an idea of skewness, moments, and kurtosis. It also gives an idea to calculate the relation between two variables in statistics.

Course Objectives

By the end of the course the students will be able to:

1. understand the concepts central tendency.
2. understand the concepts of measure of dispersion.
3. understand the correlation between two variables.

Course Outcomes

On successful completion of the course :

CO.No	Course Outcome Description
IMCA103.1	Students will be able to understand and reproduce the core concepts of Statistics.
IMCA103.2	Students will be able to understand the concepts related to basic ideas in Statistics.
IMCA103.3	Students will be able to apply mathematical formulae to find the values in Statistics.
IMCA103.4	Students will have the ability to create a mathematical model from the real life problems.
IMCA103.5	Students will be able to evaluate different parameters in Statistics.

Detailed Syllabus:

Topic	Session	References
Module I Scope and Limitations of Statistics Introduction, Limitations of Statistics, Misuse of Statistics. Collection of data- primary and secondary data, collection of primary data. Classification and tabulation- methods of classification and tabulation	1-2	Fundamentals of statistics: S.C.Gupta, 6th Revised and enlarged edition-April 2004, Himalaya Publications.
Module II Diagrams and Graphs Pictorial representation of data, Representation of categorical data. Graphs of frequency distribution, ogives and uses of ogives.	6-9	Fundamentals of statistics: S.C.Gupta, 6th Revised and enlarged edition-April 2004, Himalaya Publications
Module III Measures of central tendency and Dispersion Definition of central tendency, Measures- Mean, Median, Mode, Geometric Mean, Harmonic Mean, Dispersion – Introduction, Absolute and relative measures of dispersion- Range, Inter- quartile range, quartile deviation, Mean deviation and standard deviation	10-22	Fundamentals of statistics: S.C.Gupta, 6th Revised and enlarged edition-April 2004, Himalaya Publications
Module IV Skewness, Moments and Kurtosis Definition and types of Skewness, Measures of Skewness- Karl Pearson's coefficient of skewness, Bowley's coefficient of skewness. Moments- raw and central moments. Kurtosis	23-30	Fundamentals of statistics: S.C.Gupta, 6th Revised and enlarged edition-April 2004, Himalaya Publications
Module V Correlation and Regression Meaning and definition, types of correlation, Karl Pearson's coefficient of correlation. Rank correlation, Regression- Meaning and definition, types of regression. Lines of regression.	31-39	Fundamentals of statistics: S.C.Gupta, 6th Revised and enlarged edition-April 2004, Himalaya Publications

Recommended Books & Reading List

1. Fundamentals of statistics: S.C.Gupta, 6th Revised and enlarged edition-April 2004, Himalaya Publications.
2. Introduction to Probability and Statistics, Medenhall, Thomson Learning, 12 Edn.\
3. B.L. Agarwal: Basic Statistics, New Age International (p) Ltd. 4) Murthy M.N.: Sampling theory and Methods, Statistical Publishing Society, Calcutta

IMCA 104 INTRODUCTION TO COMPUTER AND PC HARDWARE

Course Overview

Program	IMCA
Semester	1
Course Code	IMCA104
Course Title	Introduction to Computer and PC Hardware
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

Basic objective of this course is to describe the internal components of a computer, assemble a computer system, and troubleshoot using system tools. This course covers the fundamentals of computer hardware and software as well as advanced concepts.

Course Objectives

By the end of the course the students will be able to:

1. Understand the names and functions of hardware ports and the parts of the motherboard.
2. Identify the names and distinguishing features of different kinds of input and output devices
3. Understand how the CPU processes data and instructions and controls the operation of all other devices.
4. Understand different kinds of memory and storage devices

Course Outcomes

On successful completion of the course :

CO.No	Description
IMCA104.1	Students will be able to understand and identify computer hardware and peripheral devices
IMCA104.2	Students will be able to explain the function of the system components, including CPU, motherboard and system unit
IMCA104.3	Students will be able to diagnose and troubleshoot computer systems hardware and software, and other peripheral equipment

IMCA104.4	Students will have the ability to identify types and characteristics of various peripherals, including storage and I/O
IMCA104.5	Students will be able to explain the purpose of preventive maintenance and identify the elements of the troubleshooting process and install an operating system

Detailed Syllabus:

Topic	Session	References
Module I Introduction to computer: Basic Components of a Computer, History, Types of computers. Interacting with computers: Input Devices - Keyboard, Mouse, Hand held devices, Optical Input devices. Output devices: Printers, Display Devices, Scanners	1-6	The Complete Reference – PC Hardware – Craig Zacker & John rourke
Module II Data processing – CPU, ALU, Control Unit & Registers. Memory- RAM, Variants of RAM, ROM, Variants of ROM Physical Memory organization: DIP, SIMM, DIMM, SIPP	7-14	PC Hardware – A Beginners Guide
Module III Introduction of PC- Getting started with PC hardware support. Operating systems, CPUs and motherboards. Basic Input/output System, Memory systems, Bus structures, Expansion cards, Ports, connectors, and cables. Data storage devices, Video and multimedia input/output devices	15-25	PC Hardware – A Beginners Guide
Module IV Hard Disk: Hard disk drive components- Disk Geometry: Sides or heads, track, cylinder, sector, Disk Recording: Data recording method, writing on reading from a magnetic disk. Hard Disk formatting: Concepts of Interfacing Formatting: Low level and high level.	26-33	PC Hardware – A Beginners Guide
Module V Mother Board: CPU socket, Memory and secondary Cache sockets or chips, ROM BIOS and BIOS CMOS, Universal serial bus. Secondary Storage Devices: Floppy disk, CD Family, DVD, ZIP Drive. General Trouble shooting and PC Maintenance: Installation of processor, SMPS, HDD, RAM, Drives, cards, devices and cables	34-40	PC Hardware – A Beginners Guide

Recommended Books & Reading List

1. The Complete Reference – PC Hardware – Craig Zacker & John rourke, Edition 2001 Tata McGraw Hill

2. All About Hard Disk, Manohar Lotia
3. All About Motherboard, Manohar Lotia
4. PC Hardware – A Beginners Guide , Rongilster , 2001

IMCA 105 PROGRAMMING METHODOLOGY & C PROGRAMMING

Course Overview

Program	IMCA
Semester	1
Course Code	IMCA105
Course Title	Programming Methodology & C Programming
Type of Course	Core
Contact Hours	4T +1T/P hours per week
Credit	4

Course Description

This course introduces the students to C programming. It covers in detail the basic concepts of C Programming including data types, operators and expressions, simple input and output statements, conditional statements, repetitive statements. It gives an overview of functions, the storage classes in c, single and multidimensional arrays, character strings, pointers, structures, and unions. The course also covers the general concept of files, low level programming features like register variable, bitwise operations, bit fields and additional features of C such as enumeration, command line parameters, macros, the C preprocessor

Course Objectives

By the end of the course the students will be able to:

1. Be familiar with the basic constructs of C Language.
2. Learn how to write algorithms and draw flowcharts.
3. Develop the ability to write structured, modular programs.
4. Improve their problem-solving capacity.

Course Outcomes

On successful completion of the course :

CO. No	Course Outcome Description
IMCA105.1	Students will be able to list the different datatypes, operators, statements, pre-defined functions in C
IMCA105.2	Students will be able explain the usage of different program elements in C.

IMCA105.3	Students will be able to develop modular programs using the various C programming constructs.
IMCA105.4	Students will have the ability to write algorithms/ flowcharts / programs to Solve problems of varied nature.
IMCA105.5	Students will be able compare the different memory allocation mechanisms and elaborate how they help to create efficient solutions to problems.

Detailed Syllabus:

Topic	Session	References
Module I Introduction to algorithm, pseudo code, flowchart, structured programming concept. Introduction to C Language: The C character set, identifiers and keywords, data types, constants, variables, arrays, declarations, expressions, statements, Introduction to preprocessor directives, symbolic constants. Data input and output: Single character input, single character output, scanf, printf, puts, gets functions.	1-7	Programming with C – Byron s Gottfried second edition – Schaum’s outlines 2 nd Edition, 2010
Module II Operators and expressions: Arithmetic operators, unary operator, relational and logical operator, assignment operators, the conditional operator, type conversion, Library function. Control statement: Branching: if else statement, looping, nested control structure, switch statement, break statement, continue statement, comma operator, goto statement.	8-15	Programming with C – Byron s Gottfried second edition – Schaum’s outlines 2 nd Edition, 2010
Module III Functions: Overview, function prototypes, passing arguments to a function, recursion. Program structure: Storage classes, automatic variables, external variables, static variables, multifile program, Arrays: Defining an array, passing array to functions, multidimensional arrays, Strings: one dimensional character array, array of strings	16-25	Programming with C – Byron s Gottfried second edition – Schaum’s outlines 2 nd Edition, 2010
Module IV Pointers: Fundamentals, void pointer, null pointer, passing pointers to a function, pointers and one dimensional arrays, dynamic memory allocation, operation on pointers, pointers and multidimensional arrays, array of pointers, pointer to an array, pointers and strings, pointers to function, pointers and variable length arguments list, passing functions to other functions. Structures and unions: Defining a structure, processing a structure, user defined data types, structure, and pointers, passing structure to function, self-referential structures, and union	26-35	Programming with C – Byron s Gottfried second edition – Schaum’s outlines 2 nd Edition, 2010
Module V Data files: Why files, opening and closing a data file, reading, and writing a data file, processing a data file, unformatted data file, concept of binary file. Low level programming: Register variable, bitwise operations, bit fields. Additional features of C: Enumeration, Command line parameters, Macros (definition, function macros, conditional macros), C Preprocessor	36-42	Programming with C – Byron s Gottfried second edition – Schaum’s outlines 2 nd Edition, 2010

Recommended Books & Reading List

1. Programming with C – Byron s Gottfried second edition – Schaum’s outlines 2nd Edition, 2010
2. The C programming language – Brian W Kernighan & Dennis Ritchie IInd edition Eastern Economy Edition, Prentice Hall 2001
3. Computer Science: A Structured Programming Approach Using C, Forouzan, 3rd Cengage Learning 2007
4. C- How to program, Deitel & Deitel, Pearson Education Asia, 6th Edition,2009
5. Programming in C –Pradip Dey, Manas Ghosh – Oxford Higher Education ,2007
6. ANSI C programming, Bronson, Cengage Learning , C2009
7. Understanding pointers in C- Yashavant Kanetkar – BPB publication , 2009

IMCA106 PC HARDWARE PRACTICALS

Course Overview

Program	IMCA
Semester	1
Course Code	IMCA106
Course Title	PC HARDWARE PRACTICALS
Type of Course	Core
Contact Hours	4 Hours per week
Credit	2

Course Description

Hardware is the most visible part of any information system: the equipment such as computers, scanners and printers that is used to capture data, transform it and present it to the user as output. Focus of this course is on the personal computer (PC) and the peripheral devices that are commonly used with it, the same principles apply to the different types of computers.

Course Objectives

By the end of this course students will be able to:

1. Identify the computer hardware.
2. Have knowledge on the processors, memories, motherboards, different add-on cards, and other peripherals like printers, plotters and the scanners
3. Assemble and disassemble the PCs.
4. Maintain and troubleshoot peripheral components.
5. Troubleshoot system components.
6. Install and configure operating systems.
7. Maintain and troubleshoot installations of Microsoft Windows/LINUX/UNIX.

Course Outcomes

On successful completion of the course :

CO.No	Description
IMCA106.1	Students will be able to Identify the components of standard desktop personal computers and identify fundamental components and functions of personal computer operating systems.

IMCA106.2	Students will be able to understand the difference between an operating system and an application program, and what each is used for in a computer.
IMCA106.3	Students will be able to Install and configure system components and Operating system with device Drivers.
IMCA106.4	Students will have the ability to assemble the fundamental hardware components that make up a computer's hardware to form a working computer.
IMCA106.5	Students will be able Maintain and troubleshoot peripheral components. Troubleshoot system components.

Detailed Syllabus:

Topic	Session
Identification of PC Components Demonstration of Personal Computer Identification of Input Output Ports of CPU	1-3
Study of various Components of Motherboard	4-6
Assembling the PC Replacing and fitting of Hard Disk and Floppy Disk on PC Identification of different cards in the PC Replacing and fitting Processors, Motherboards and Memory Connecting input output device	7-12
Understanding BIOS set up	13
Installation of Operating Systems and formatting the Hard Disk	14-15
Installation of Software Packages	16
PC Tools and its use Disc Managers and it's use Backup and Restoration utility	17-19
Virus removal and disc scan	20-21
Connecting input/output devices and installation of their driver software. Configuration of Audio and Video	22-25
Trouble shooting of the PC	26-28
Installation of LINUX/UNIX OS with Windows OS (Dual Boot)	29-30

Recommended Books & Reading List

1. The Complete Reference – PC Hardware – Craig Zacker & John rourke, Edition 2001 Tata McGraw Hill
2. All About Hard Disk, Manohar Lotia
3. All About Motherboard, Manohar Lotia
4. PC Hardware – A Beginners Guide , Rongilster , 2001

IMCA 107 C PRACTICALS

Course Overview

Program	IMCA
Semester	1
Course Code	IMCA107
Course Title	C Practicals
Type of Course	Core
Contact Hours	4 Hours per week
Credit	2

Course Description

The course introduces the students to the fundamentals of C programming language. It covers in detail the basic programming concepts of C. They learn the syntax and semantics of various programming constructs in C. Students use these constructs to solve different problems. It aims to improve a student's problem-solving ability by laying emphasis on formulating problems.

Course Objectives

By the end of this course Students will be able to:

1. Design solutions for simple and complex problems.
2. Develop modular programs.
3. Write programs using good programming style in C.
4. Enhance their problem-solving capacity.
5. Learn how to Test and debug C programs.

Course Outcomes

On successful completion of this course:

CO.No	Course Objective Description
IMCA107.1	Students will be able to show the representation of data structures such as arrays, structures, unions.

IMCA107.2	Students will be able to explain the syntax and semantics of different programming constructs in C.
IMCA107.3	Students will be able to apply modular programming concepts to develop reusable program elements.
IMCA107.4	Students will have the ability to solve problems of varying natures using different program constructs.
IMCA107.5	Students will be able analyze problems encountered in everyday life, decide on the functionality required to solve it and create efficient solutions to problems.

Detailed Syllabus:

Topic	Session	References
Section A Implementation of the various Data Types in C. Demonstration of Data type conversion (Hint: Usage of type casting). Implementation of various Storage Types.	1-5	
Demonstration of nested if (Hint: Use logical operators). Demonstration of switch... case structure.	6-10	
Demonstration of for loop. Demonstration of do...while loop. Demonstration of while loop.	11-14	
Implementation of arrays Implementation of multidimensional arrays (Hint: implement matrix operation).	15-17	
Implementation of functions (Hint: Demonstrate call by value, call by address, passing of arrays). Demonstration of various string operations (Hint: Usage of user defined functions only allowed). Demonstration of recursion (Hint: factorial, Fibonacci series).	18-20	
Demonstration of pointer operations.	21-25	
Section B Implementation of structures (Hint: simple structure operations, array of structures). Implementation of Union. Implementation of pointers to structures and unions.	26-30	
Demonstration of dynamic allocation of memory (Hint: malloc, calloc, realloc, free). Demonstration of sorting techniques (Hint: selection sort, bubble sort). Demonstration of searching techniques (Hint: linear search, binary search).	31-34	
Demonstration of various file operations.	35-39	

Implementation of character counting, line counting and word counting for a file.		
Demonstration of bitwise operations. Demonstration of macro processing.	40-41	

Recommended Books & Reading List

1. The C programming language – Brian W Kernighan & Dennis Ritchie IInd edition Eastern Economy Edition, Prentice Hall 2001
2. Programming with C – Byron s Gottfried second edition – Schaum’s outlines 2nd Edition, 2010
3. Computer Science: A Structured Programming Approach Using C, Forouzan, 3rd Cengage Learning 2007
4. C- How to program, Deitel & Deitel, Pearson Education Asia, 6th Edition,2009
5. Programming in C –Pradip Dey, Manas Ghosh – Oxford Higher Education ,2007

Semester II

IMCA 201 FUNDAMENTALS OF ACCOUNTING

Course Overview

Program	IMCA
Semester	2
Course Code	IMCA 201
Course Title	Fundamentals of Accounting
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

The course Fundamentals of Accounting aims to provide basic knowledge about business transactions and types of accounting treatment. The course explains the basics of financial accounting and its analysis.

Course Objectives

By the end of the course the students will be able to:

1. Get insights into basic knowledge of business transactions.
2. Be familiar with Book Keeping and various types of accounting.
3. Able to understand the double entry system of book keeping.
4. Able to prepare final accounts.
5. Analyze the financial position of the organization.

Course Outcomes

On successful completion of this course :

CO No	Course Objective Description
IMCA201.1	Students will be able to know about the need and importance of accounting.
IMCA201.2	Students will be able to understand the different types of accounting systems
IMCA201.3	Students will be able to apply the rules of accounting system to prepare the books of accounts.
IMCA201.4	Students will be able to construct Final Accounts from the business transaction.
IMCA201.5	Students will be able to evaluate the business position of the organizations from their financial statements.

Detailed Syllabus

Topic	Session	References
Module I Accounting and its Functions, Scope of Accounting, Emerging Role of Accounting Accounting as an Information System, Internal and external users of accounting information Forms of organization:- sole proprietorship, partnership and company. Role and Activities of an Accountant, Accounting Concepts.	1-6	Accounting for Management, Srinivasan & Murugan, S.Chand & Company Ltd An Introduction to Accountancy, Maheshwari S.N & Maheshwari S K (Vikas)
Module II Accounting Equation, Classification of Accounts, Definitions of Journal and Ledger. Journalizing Process, Ledger Posting , Balancing and Account.	7-18	Accounting for Management, Srinivasan & Murugan, S.Chand & Company Ltd, An Introduction to Accountancy, Maheshwari S.N & Maheshwari S K (Vikas)
Module III Trial Balance. Objectives of trial balance. Preparing Trial Balance. Preparation of Final Accounts: Trading accounts Profit & loss a/c Balance sheet	19-27	Accounting for Management, Srinivasan & Murugan, S.Chand & Company Ltd, An Introduction to Accountancy, Maheshwari S.N & Maheshwari S K (Vikas)
Module IV Adjustment Entries of Final accounts: Adjustment with respect to Closing stock Outstanding expenses, Prepaid expenses Accrued income, Income received in advance Depreciation, Bad debts, Provision for	28-33	Accounting for Management, Srinivasan & Murugan, S.Chand & Company Ltd, An Introduction to Accountancy, Maheshwari S.N & Maheshwari S K (Vikas)

doubtful debts, Provision for discount on debtors		
Module V Analysis of financial statement: Ratio Analysis , solvency ratios, profitability ratios, liquidity ratios Common Size Statement Comparative Balance Sheet and Trend Analysis	34-40	Fundamentals of Accounting and Financial Analysis Chowdhary Anil(Pearson Education)

Recommended Books & Reading List

- 1.Accounting for Management, Srinivasan & Murugan, S.Chand & Company Ltd
- 2.An Introduction to Accountancy, Maheshwari S.N & Maheshwari S K (Vikas)
- 3.Fundamentals of Accounting and Financial Analysis Chowdhary Anil(Pearson Education)

IMCA 202 PROBABILITY AND STATISTICS

Course Overview

Program	IMCA
Semester	2
Course Code	IMCA202
Course Title	Probability And Statistics
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

Basic objective of this course is to understand the basic concepts in Probability and estimation. It also introduces students to different probability distributions in probability. It gives an idea of sampling and Estimation theory. It also introduces some methods to test a hypothesis.

Course Objectives

By the end of the course the students will be able to:

1. Students must understand the concepts probability and probability distributions.
2. Students must understand the concepts of sampling and estimation of parameters
3. Students must understand the concepts of testing.

Course Outcomes

On successful completion of this course:

CO No	Course Objective Description
IMCA 202.1	Students will be able to understand and reproduce the core concepts of probability.

IMCA 202.2	Students will be able to understand the concepts related to basic ideas in probability, sampling and testing.
IMCA 202.3	Students will be able to apply mathematical formulae to find the values in probability.
IMCA 202.4	Students will have the ability to create a statistical model from the real-life problems.
IMCA 202.5	Students will be able to evaluate the probability of an event.

Detailed Syllabus:

Topic	Session	References
Module I- Probability Theory Introduction, Sample space, Events, Different approaches to probability, Addition and multiplication theorems on probability, Independent events, conditional probability, Bayes theorem	1-7	Fundamentals of Mathematical Statistics- S.C.Gupta ,V.K.Kapoor. Sultan Chand Publications.
Module II- Random Variables and Mathematical Expectations Random Variables , probability functions and distribution functions, marginal density functions, joint density functions. Mathematical Expectation- Definition, elementary properties of expectation, Mean ,Variance	8-16	Fundamentals of Mathematical Statistics- S.C.Gupta ,V.K.Kapoor. Sultan Chand Publications.
Module III- Standard distributions Discrete probability distributions-Uniform distribution.Binomial distribution, Poisson distribution.Continuous probability distributions-Uniform distribution,Normal distribution	17-23	Fundamentals of Mathematical Statistics- S.C.Gupta ,V.K.Kapoor. Sultan Chand Publications.

Module IV- Sampling and Estimation Theory of Sampling-population and sample, Types of sampling, Theory of Estimation- Introduction to point estimation and Interval estimation. Central Limit theorem (statement only)	24-31	Fundamentals of Mathematical Statistics- S.C.Gupta ,V.K.Kapoor. Sultan Chand Publications.
Module V- Testing of Hypothesis errors, level of significance, critical region, Large sample Tests- Testing of hypothesis concerning mean of a population equality of means of two populations (large samples only)	32-40	Fundamentals of Mathematical Statistics- S.C.Gupta ,V.K.Kapoor. Sultan Chand Publications.

Recommended Books & Reading List

- 1) Fundamentals of statistics: S.C.Gupta, 6th Revised and enlarged edition- April 2004, Himalaya Publications.
- 2) Fundamentals of Mathematical Statistics- S.C.Gupta ,V.K.Kapoor. Sultan Chand Publications.
- 3) Introduction to Mathematical Statistics -Robert V. Hogg & Allen T. Craig. Pearson education. 12 Edn.
- 4) Probability and Statistics – Schaums outline series

IMCA 203 COMPUTER ORGANIZATION AND ARCHITECTURE

Course Overview

Program	IMCA
Semester	2
Course Code	IMCA203
Course Title	Computer Organization And Architecture
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

This course will introduce students to the fundamental concepts underlying modern computer organization and architecture. Main objective of the course is to familiarize students about hardware design including logic design, basic structure and behavior of the various functional modules of the computer and how they interact to provide the processing needs of the user. It will cover computer arithmetic, CPU structure and functions, memory system organization and architecture and system input/output. The emphasis is on studying and analyzing fundamental issues in architecture design and their impact on performance.

Course Objectives

By the end of the course the students will be able to:

1. To conceptualize the basics of organizational and architectural issues of a digital computer.

2. To analyze performance issues in processor and memory design of a digital computer.
3. To understand various data transfer techniques in digital computer.
4. To analyze processor performance improvement using instruction level parallelism

Course Outcomes

On successful completion of this course:

CO No	Course Objective Description
IMCA203.1	Students will be able to define the fundamental concepts of computers organization
IMCA203.2	Students will be able to understand the theory and architecture of computer and its fundamental parts including parallel processing and pipelining
IMCA203.3	Students will be able to determine the coordination and the role of different components in the computer for a program execution
IMCA203.4	Students will be able to analyze and compare some of the design issues in terms of speed, technology, cost, performance.
IMCA203.5	Students will be able to evaluate the enhancement in the performance of computer by incorporating new concepts and technological developments

Detailed Syllabus:

Topic	Session	References
Module I Introduction: Basic structure of computers-Machine Instructions and programs: Memory Locations and addresses, Memory Operations, Instructions and Instruction sequencing, Addressing modes, Basic Input Output Operations, Subroutines.	1-9	Computer Organization, V C Hamacher
Module II Central Processing Unit: Basic Concepts - Instruction execution cycle - Sequencing of control signals - Hardwired control . Microprogrammed control - Control signals - Microinstructions- Microprogram sequencing - Branch address modification- Pre fetching of microinstructions	10-16	Computer Organization, V C Hamacher
Module III The Main Memory: Memory Hierarchy – Main memory - RAM-ROM .Cache Memory – Performance Considerations.Virtual Memory- Memory Management Requirements– Memory interleaving	17-26	Computer Organization, V C Hamacher

Module IV Input / Output Organization: Accessing I/O devices - Interrupts: Interrupt processing – hardware interrupts –programmable interrupt controller Vectored Interrupts - Interrupt nesting - Daisy chaining.Direct memory access (DMA): DMA operations & DMA Controller.	27-34	Computer Organization, V C Hamacher
Module V Parallel Processing : Basic Parallel Processing Architecture . Flynn’s Classification - SISD, MISD, SIMD, MIMD structures - Pipelining – Basic Concepts of pipelining, Instruction Pipelining, Hazards-Data Hazards, Instruction Hazards, Vector processing & Vector processors - Loosely Coupled & Tightly Coupled Systems.	35-42	Computer System Architecture – M Morris Mano

Recommended Books & Reading List

1. Computer Organization, V C Hamacher, Mc-Graw Hill International Edition, Fifth Edition.
2. [Computer Architecture: A Quantitative Approach](#) - John Hennessy and David Patterson, Morgan Kaufmann Publishers Inc., Third Edition
3. Computer System Architecture – M Morris Mano –(Prentice Hall)- Third Edition.
4. Computer Organization and Architecture- William Stallings - Fifth Edition.
5. Structured Computer Education – Andrew S Tanenbaum-(Prentice Hall)-Fourth Edition.

IMCA 204 DATA STRUCTURES- C

Course Overview

Program	IMCA
Semester	2
Course Code	IMCA 204
Course Title	Data Structures- C
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course Description

The course focuses on the logical structures of data and their physical representation. It introduces the concept of design of algorithms and their complexity. It will review elementary data structures such as arrays, linked lists, stacks, queues, and related algorithms for manipulating the data structures. It will also explore more advanced data structures such as graphs and graph algorithms, balanced trees, and heaps. It covers in detail the different sorting and searching techniques and their complexity.

Course Objectives

By the end of the course the students will be able to:

1. To analyze the performance of the algorithm in terms of their time and space complexity.
2. To implement linked lists using arrays and pointer variables.
3. To differentiate the types of data structures and their applications in real world.
4. Be familiar with the concept of trees, tree traversals and graph representations.
5. To implement various sorting and searching algorithms

Course Outcomes

On successful completion of this course:

CO.No	Course Objective Description
IMCA204.1	Students will be able to list the different types of data structures in C.
IMCA204.2	Students will be able to describe and explain the different data structures and their operations.
IMCA204.3	Students will be able to apply the data structures concepts learned to solve various real-world problems.
IMCA204.4	Students will have the ability to design algorithms for manipulating various data structures
IMCA204.5	Students will be able to analyze the different sorting and searching techniques.

Detailed Syllabus:

Topic	Session	References
MODULE I Introduction: Algorithmic notation, Introduction to algorithm analysis for time and space requirements. Arrays: Ordered lists – polynomial addition, sparse matrices, representation of array	1-8	Fundamentals of data structures – Ellis Horowitz and Sartaj Sahni (Galgotia)
MODULE II Stacks and Queues: Definition and concepts, Operations on stacks. Application of stacks-recursion, polish expressions and their compilation, Queue, representation of queue, circular queue, deque, priority queue, Application of queues	9-16	Fundamentals of data structures – Ellis Horowitz and Sartaj Sahni (Galgotia)
MODULE III Linked List: Singly linked list, Linked stacks, and queues, Polynomial addition, Equivalence relation, sparse matrices, doubly linked list Dynamic storage management, Garbage collection and	17-25	Fundamentals of data structures – Ellis Horowitz and Sartaj Sahni (Galgotia)

compaction. Strings – data representation for strings, Pattern matching in strings.		
MODULE IV Trees: Basic terminology, binary trees, binary tree representation, Binary tree traversal, threaded binary trees, binary tree representation of trees, Application of trees – Set representation, Balanced Trees-B Tree. Graphs: Terminology and representation, Traversals.	26-32	Fundamentals of data structures – Ellis Horowitz and Sartaj Sahni (Galgotia)
MODULE V Internal Sorting and External Sorting: Searching – Linear search, binary search, and interpolation search. Comparison of different methods. Sorting – Insertion, Bubble, Selection, Radix sort. Sorting with disks - K way merging, Run generation. Hashing Techniques: Different hashing functions, methods for collision handling	33-40	Fundamentals of data structures – Ellis Horowitz and Sartaj Sahni (Galgotia)

Recommended Books & Reading List

- 1.Fundamentals of data structures – Ellis Horowitz and Sartaj Sahni (Galgotia)
- 2.An introduction to data structures with applications – Jean Paul Tremblay, paul G Sorenson(Tata McGraw Hill)
- 3.Data Structures – E.M Reingald , W Hamen (CBS Publishers and distributors)
- 4,Data Structures – a psedocode approach with C –Richard F Gilberg, Behrouz A Forouzan, Thomson Learning, 2 Edn.
- 5.Data Structures and program design – R. L Kruse (Prentice Hall of India)
- 6.Data structures using C – Tanenbaum and Augustine (Prentice Hall of India)
- 7.Theory and problems of data structures – Seymour lipschutz (Tata McGraw Hill)
- 8.Data structures and Algorithms in C++, Adam Drozdek, Thomson Learning, 3 Edn
- 9.Classic data structures – D Samanta (PHI)
10. Data Structures through C in Depth – S.K. Srivastava, Deepali Srivastava, BPB Publications

IMCA 205 OBJECT ORIENTED PROGRAMMING WITH C++

Course Overview

Program	IMCA
Semester	2
Course Code	IMCA 205
Course Title	Object Oriented Programming with C++
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course Description

This course introduces the students to object oriented programming with C++. C++ is a widely used programming language for application development. The fundamental concepts of the object-oriented paradigm are introduced, and

object-oriented programming is stressed in place of traditional structured programming. It covers in detail concepts such as classes and objects, abstraction, polymorphism, overloading, inheritance, exception handling and template classes.

Course Objectives

By the end of the course the students will be able to:

1. Master object-oriented concepts and the syntax of C++ Language.
2. Write reusable C++ code.
3. Develop the ability to design programs using Object Oriented Concepts.
4. Be able to handle exceptions occurring in programs.

Course Outcomes

On successful completion of this course:

CO.No	Course Objective Description
IMCA205.1	Students will be able to list and define the basic concepts of object-oriented programming
IMCA205.2	Students will be able to explain the usage of different program elements in C++.
IMCA205.3	Students will be able to apply the concepts learned and generate fault tolerant code.
IMCA205.4	Students will be able to write programs by applying the various oops concepts.
IMCA205.5	Students will be able to analyze real world problems and create extensible, reusable code.

Detailed Syllabus:

Topic	Session	References
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<p>ModuleI Introduction to Object-Oriented Programming: Evolution of programming methodologies. Procedural Approach Vs Object-Oriented Approach. Basic Concepts and Benefits of OOP. Objects and Classes: Access Specifiers. Memory Allocation for Objects, Inline functions, Friend Functions and Friend Classes. Static Data Members; Static Member Functions. const Member Functions, this pointer. Comparison of class with structure. Arrays of Objects; Objects as Function Arguments;</p>	1-7	Mastering C++ by K.R Venugopal, Rajkumar,
String Manipulation using objects	8	A Structured Programming Approach Using C++, Forouzan,
<p>ModuleII Constructors and Destructors: Purpose of Constructors and Destructors. Default Constructors, Constructors with & without parameters, Constructor Overloading, Copy Constructor. Invoking Constructors and Destructors. Pointers in C++ : Pointer declaration and Access, Pointer to void, pointer and arrays, memory management – new and delete, pointer to object, self-referencing class, wild pointers.</p>	9-16	Mastering C++ by K.R Venugopal, Rajkumar
<p>ModuleIII Polymorphism: Overloading Concepts, Function Overloading: Operator Overloading: Defining Operator Function, Rules for overloading Operators. Overloading unary operators, overloading binary operators, Overloading << and >> Operators for Objects, Overloading [], (), new, delete Operators. Type Conversions – Basic to Class, Class to Basic and One class to another class type.</p>	17-24	Mastering C++ by K.R Venugopal, Rajkumar
<p>ModuleIV Inheritance: Basic Concepts, Reusability & Extensibility. Defining derived classes, protected access specified in Base class constructors and destructors in derived classes – Types of Inheritances, Virtual Base Classes. Virtual Functions: Normal member functions accessed with pointers, virtual member function access, late binding, pure virtual function, abstract classes.</p>	25-32	Mastering C++ by K.R Venugopal, Rajkumar
<p>ModuleV Console I/O operations: C++ stream classes – Predefined Objects, unformatted I/O operations, Formatted I/O operations. Disk I/O Operations: Stream Classes, classes for file stream operations, opening and closing a file, file nodes, writing an object to disk, reading an object from disk, binary versus character files, I/O with multiple objects, tellg() and seekg(), seekp() and tellp(). Error Handling During File Operations. Templates: Generic Functions- A generic swap function, Functions with more than one Generic Type, Overloading a Function Template, Class templates, Template Restrictions, The power of Templates. Exception Handling: Fundamentals of Exception Handling, Catching Class Types, Using Multiple catch statements, Catching All Exception, Restricting</p>	33-42	Mastering C++ by K.R Venugopal, Rajkumar

Exception, throw statement, Setting the Terminate and Unexpected Handlers, Uncaught exception.		
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Recommended Books & Reading List

1. K.R Venugopal Rajkumar, Mastering C++ , TMH.
2. Computer Science: A Structured Programming Approach Using C++, Forouzan, Thomson Learning , 2 Edn
3. Deitel & Deitel, C++ How to program, Pearson Education Asia, 7th Edition, 2010.
4. C++ Programming: Malik, Thomson Learning , 3 Edn
5. Gaddis Tony, Starting Out with C++, dreamtech Press,
6. Sotter A Nicholas and Kleper J Scott, Professional C++, Wiley Publishing Inc.
7. Schildt Herbert, The Complete Reference C++, Tata McGraw Hill, 4th Edition

IMCA 206 DATA STRUCTURES-C PRACTICALS

Course Overview

Program	IMCA
Semester	2
Course Code	IMCA 206
Course Title	Data Structures- C Practicals
Type of Course	Core
Contact Hours	4 hours per week
Credit	2

Course Description

The main objective of the course is to introduce the students to the fundamentals of Data structures using C programming language and to increase their intuitive understanding of basic concepts. It aims to improve a student's Problem-solving ability by laying emphasis on formulating problems. The knowledge of Data Structures and Algorithms vastly improves the student's ability to store and manipulate data.

Course Objectives

By the end of the course the students will be able to:

1. Be able to formulate a problem by examining a situation.
2. Is adept in selecting appropriate data structures required for a problem thus saving computer memory.
3. Have a good knowledge of the various storage structures used for linear as well as non-linear Data Structures.
4. Can improve the performance of sorting methods by selecting an appropriate Data Structure.

Course Outcomes

On successful completion of this course:

Sl.No	Description
IMCA206.1	Students will be able to represent data in various formats including an array, linked list, trees etc.
IMCA206.2	Students will be able to describe various data structures along with how to manipulate them.
IMCA206.3	Students will be able to solve various real-world problems by applying the data structure concepts.
IMCA206.4	Students will be able to write programs to show the working of various data structures
IMCA206.5	Students will be able to analyze and simulate various sorting and searching techniques

Detailed Syllabus:

Topic	Session	References
1. Program to represent Sparse Matrix manipulation using arrays.	1-5	
2. Program to represent Stack operations using array and pointers.	6-9	
3. Program to represent Evaluation of Expressions.	10	
4. Program to represent Conversion of infix to postfix.	11-12	
5. Program to represent Queue operations using array and pointers.	13-14	
6. Program to represent Singly Linked List.	15-16	

7. Program to represent Linked Stacks.	17-18	
8. Program to represent Linked Queues.	19-20	
9. Program to represent Circular Linked List	21-22	
10, Program to represent Doubly Linked List.	23-24	
11.Program to represent String operations.	25-28	
12. Program to represent Binary Tree Operations.	29-30	
13. Program to represent Binary Tree Traversals.	31-32	
14. Program to represent Searching procedures (Linear search, Binary search and Interpolation search)	33-35	
15. Program to represent Sorting procedures (Selection, Bubble , Insertion)	36-40	

Recommended Books & Reading List

1. Fundamentals of data structures – Ellis Horowitz and Sartaj Sahni (Galgotia)
2. An introduction to data structures with applications – Jean Paul Tremblay, paul G Sorenson(Tata McGraw Hill)
3. Data Structures – E.M Reingald , W Hamen (CBS Publishers and distributors)
4. Data Structures – a psedocode approach with C –Richard F Gilberg, Behrouz A Forouzan, Thomson Learning, 2 Edn.
5. Data Structures and program design – R. L Kruse (Prentice Hall of India)
6. Data structures using C – Tanenbaum and Augustine (Prentice Hall of India)
7. Theory and problems of data structures – Seymour lipschutz (Tata McGraw Hill)
8. Data structures and Algorithms in C++, Adam Drozdek, Thomson Learning, 3 Edn
9. Classic data structures – D Samanta (PHI)
10. Data Structures through C in Depth – S.K. Srivastava, Deepali Srivastava, BPB Publications

IMCA 207 C++ PRACTICALS

Course Overview

Program	IMCA
Semester	2
Course Code	IMCA 207
Course Title	C++ Practicals
Type of Course	Core
Contact Hours	4 hours per week
Credit	2

Course Description

The main objective of the course is to introduce the students to the fundamentals of C ++ programming language and to increase their understanding of basic concepts of oops. It aims to improve a student's problem-solving ability by laying emphasis on solving real world problems using object-oriented techniques. They study the syntax and semantics of C++ programming language and learn how to create extensible, reusable, manageable software

Course Objectives

By the end of the course the students will be able to:

1. Create user defined datatypes using classes and objects.
2. Write C++ programs using all major features of C++ Language like inheritance, encapsulation, exception handling.
3. Understand the importance of reuse of code.
4. Create fault tolerant code.

Course Outcomes

On successful completion of this course :

Sl.No	Description
IMCA 207.1	Students will be able to define the basic program elements of c++ programming language.
IMCA 207.2	Students will be able to explain the different concepts of oops incorporated in a program.
IMCA 207.3	Students will be able to apply object-oriented programming concepts to develop reusable program elements.
IMCA 207.4	Students will be able to solve problems of varying natures using different program constructs.
IMCA 207.5	Students will be able to analyze problems encountered in everyday life, decide on the functionality required and create programs to solve it.

Detailed Syllabus:

Topic	Session	References
1. Program to Implement Classes and Objects.	1-5	
2. Program to Implement Constructors and Destructors with array of Objects.	6-8	
3. Program to Implement Passing objects as parameters and returning	9-10	

objects.		
4. Program to demonstrate Function Overloading.	11-12	
5. Program to overload different operators – incr & decr operators with post & pre forms; new, delete, [], () and arithmetic operators.	13-16	
6. Program to perform dynamic memory allocation using pointers.	17-19	
7. Program to demonstrate friend functions and friend classes.	20-23	
8. Program using objects for String manipulation functions.	24-25	
9. Program to implement different types of inheritances.	26-28	
10. Program to demonstrate the use of Virtual Functions.	29	
11. Program to demonstrate the use of abstract classes.	30	
12. Program to demonstrate I/O streams and functions.	31	
13. Program to Overload << and >> operators as a member and as a non-member operator functions.	32	
14. Program to create a file to store some records and search for a record and display it.	33-34	
15. Program to perform all possible Type Conversions.	35-37	
16. Program to create function Templates and overload the function Templates.	38-39	
17. Program to create a generic stack class and member functions to perform stack operations.	40	
18. Program to implement Exception Handling with minimum 5 exception classes.	41-42	

Recommended Books & Reading List

1. K.R Venugopal Rajkumar, Mastering C++ , TMH.
2. Computer Science: A Structured Programming Approach Using C++, Forouzan, Thomson Learning , 2 Edn
3. Deitel & Deitel, C++ How to program, Pearson Education Asia, 7th Edition, 2010.
4. C++ Programming: Malik, Thomson Learning , 3 Edn
5. Gaddis Tony, Starting Out with C++, dreamtech Press,
6. Sotter A Nicholas and Kleper J Scott, Professional C++, Wiley Publishing Inc.
7. Schildt Herbert, The Complete Reference C++, Tata McGraw Hill, 4th Edition

Semester III

IMCA 301 MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE

Course Overview

Program	IMCA
Semester	3

Course Code	IMCA301
Course Title	Mathematical Foundation of Computer Science
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

The course Mathematical Foundations of Computer Science aims to explain the underlying concepts and tools in Discrete Mathematics with emphasis on their applications to Computer Science. It emphasizes mathematical definitions and applicable methods. The course contents include Sets, Relations, Functions, Logic and the basics of Graph Theory and Trees.

Course Objectives

By the end of the course the students will be able to:

1. To familiarize the students with the definitions and notations used in the theory of Sets, Relations, Functions, Logic, Graphs and Trees.
2. To enable the student to apply the key operations and concepts of the theory of Sets, Relations, Functions, Logic, Graphs and Trees to solve problems.

Course Outcomes

On successful completion of this course:

CO.No	Course Objective Description
IMCA301.1	Students will be able to define the important terms used in the various topics included in the course
IMCA301.2	Students will be able to demonstrate an understanding of relations and functions and be able to determine their properties, compositions and inverses.
IMCA301.3	Students will be able to apply the operations of Sets, rules of inference graph theory and trees to solve applied problems
IMCA301.4	Students will have the ability to create a mathematical model of a real-world problem using the concepts of Sets or Graphs.
IMCA301.5	Students will have the ability to evaluate a real world problem using the concepts of Sets or Graphs .

Detailed Syllabus:

Topic	Session	References
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Module I Set Theory- Definition, representation, types of sets, set operations, laws of set theory(statement only), Principle of Inclusion and Exclusion . Relations –representation of relations as matrices and digraphs, properties of relations- reflexive, symmetric, transitive, equivalence and partial ordering, inverse and composition of relations Functions-Injective, surjective and bijective functions, inverse and composition of functions	1-9	Discrete Mathematical Structures with Applications to Computer Science by J. P. Tremblay and R Manohar
Module II Logic- Propositions and Connectives, Tautology and Contradiction. Logical Implications and Equivalences. Theory of Inference of Statement Calculus- proof by direct method, contradiction and conditional proof.	10-18	Discrete Mathematical Structures with Applications to Computer Science by J. P. Tremblay and R Manohar
Module III Graph Theory Basic terminology: Different types of graphs – Directed and undirected, Simple, Pseudo, Complete, Regular, Bipartite. Incidence and degree, Pendant and Isolated vertex and Null graph. Matrix Representation of graphs – Incidence and Adjacency matrices. Isomorphism and Sub graphs	29-27	Discrete Mathematical Structures with Applications to Computer Science by J. P. Tremblay and R Manohar
Module IV Euler & Hamiltonian Graphs :Walk, Path and Circuit, Connected and disconnected graphs and components, Operations on graphs. Euler Graphs, Fleury’s Algorithm, Hamiltonian circuits and paths. Traveling salesman problem.	30-36	Graph Theory by Narsingh Deo
Module V Trees- Rooted Tree, Binary tree, Binary search tree. Tree traversals- preorder, post order and inorder traversals. Spanning tree- depth first and breadth first search	37-41	Discrete Mathematics and Its Applications by Kenneth H Rosen

Recommended Books & Reading List

1. Discrete Mathematical Structures with Applications to Computer Science by J. P. Tremblay and R Manohar, Tata McGraw-Hill Publications, 1997.
2. Graph Theory by Narsingh Deo, Prentice-Hall of India publications, 2004. Malik, Thomson Learning , I Edn.
3. Discrete Mathematics for Computer Science, Haggard, Thomson Learning , I Edn.
4. Discrete Mathematics and Its Applications by Kenneth H Rosen. Tata McGraw-Hill Publications.
5. Mathematical foundation of Computer Science by Y. N Sings. New Age international Publishers.
6. Bernard Kolman, Robert.C.Busby & Sharon Ross, "Discrete Mathematical structures" Prentice Hall of India, 2001.

IMCA 302 MANAGEMENT INFORMATION SYSTEM

Course Overview

Program	IMCA
Semester	3
Course Code	IMCA302
Course Title	Management Information System
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

Computer application is an area where students need exposure to information systems and their use in Management. In today's world, information systems play a very crucial role in helping the Management in taking the right decision at the right time, especially in this highly competitive environment. This paper gives an insight into technology, systems approach, management practices and the decision-making process.

Course Objectives

By the end of the course, the students will be able to :

1. Understand technology
2. Understand various types of systems and the concept of organizational systems
3. Explain the concept of management
4. Develop a systems approach thinking
5. Understand various types of decision making

Course Outcomes

On successful completion of this course:

CO.No	Course Objective Description
IMCA302.1	Identify technologies and their applications
IMCA302.2	Systems approach and application of technology
IMCA302.3	Levels of decision making and choosing and building a design of the appropriate information system.
IMCA302.4	Various levels of management and their role in decision making process.
IMCA302.5	Design a structure of an information system based on the problem.

Detailed Syllabus:

Topic	Session	References
Module I Digital Firm-Concepts, Definition, Role, Control System, Management Support, Management Effectiveness, Digital Firm. E-Business and E-Commerce, System Concepts, Feedback and Control, Corporate Planning, Types of strategies, Business Planning, Balance Score Card, Strategic Business Planning. Security Challenges- threats and vulnerabilities, controlling threats, disaster management, information security.	1-10	Management Information Systems, Waman S Jawadekar, 4 th Edition, McGraw Hill
Module II DSS, Decision Analysis, Organizational Decision Making, concepts on information, Information Classification, Knowledge and Knowledge management. Business Intelligence, Expert Systems. System Analysis, General Model of MIS, Need and role of System Analysis, System development Model, OOA, SSAD, OOSAD Development Life Cycle. Development process of MIS, Process Model.	11-20	Management Information Systems, Waman S Jawadekar, 4 th Edition, McGraw Hill Management Information System, Laudon, Laudon & Dass, 11 th Edition, Pearson Education
Module III Business Process Re-engineering, Value Stream Model, MIS and BPR. DSS, GDSS, Knowledge Management Systems, DSS in E-enterprises, Enterprise Management System, ERP, SCM, CRM, EMS and MIS.	21-27	Management Information Systems, Waman S Jawadekar, 4 th Edition, McGraw Hill Information system for Modern management, Murdick, Rose & Cloggett, PHI
Module IV Technology of IS - Data Processing, Transaction Processing, OLAP, TQM, Networks - Topology, Data Communication, Unified Communications, Components of UC, WiMAX. Database- Database Models, Database Design, RDBMS, Client-Server Architecture and implementation strategies. Data Warehouse, Architecture of Data Warehouse, Implementation.	28-34	Management Information Systems, Waman S Jawadekar, 4 th Edition, McGraw Hill
Module V E-Business, Internet and WWW, E-Commerce, categories of E-Commerce, Electronic payment Systems, Content Management Systems, Enterprise Portal, Security in e - business, privacy issues, Tools for security management, Systems Control and Audit, Global MIS - Outsourcing and Off shoring, Global Business strategies.	35-40	Management Information Systems, Waman S Jawadekar, 4 th Edition, McGraw Hill

Recommended Books & Reading List

1. Management Information Systems, Waman S Jawadekar, 4th Edition, McGraw Hill
2. Management Information Systems, O'Brien, Marakas and Behl, 9th Edition, Tata Mcgraw Hill Publication.
3. Management Information System, Laudon, Laudon & Dass, 11th Edition, Pearson Education
4. Management Information System, Davis & Olson, Tata McgrawHill Publication.
5. Information system for Modern management, Murdick, Rose & Cloggett, PHI Publications.

IMCA 303 DBMS AND NO SQL

Course Overview

Program	IMCA
Semester	3
Course Code	IMCA303
Course Title	DBMS and NoSql
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course Description

The course exposes the student to the fundamental concepts and techniques in database use and development as well provides a foundation for research in databases. It reviews topics such as conceptual data modeling, relational data model, relational query languages, relational database design, transaction processing and NoSQL.

Course Objectives

By the end of the course the students will be able to:

1. Introduces the basic concepts of a database system and query language.
2. Emphasizes the understanding of the fundamentals of relational database systems including data models, database architectures, database manipulations and normalization.
3. Provides an understanding of new developments and trends such as distributed database, replication, fragmentation and NoSQL.

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA303.1	Students will be able to define the architecture and functioning of Database Management Systems. They can also describes how aggregates manifest themselves in data models in NoSQL
IMCA303.2	Students will be able to illustrate the techniques for controlling the consequences of concurrent data access and crash recovery.
IMCA303.3	Students will be able to apply normalization techniques to develop a good database design.
IMCA303.4	Students will have the ability to create and maintain a relational database using SQL and its advanced features.
IMCA303.5	Students will be able to summarize different applications of DBMS.

Detailed Syllabus:

Topic	Session	References
Module I Overview of Database Systems: A Historical Perspective, Files System versus a DBMS, Advantages of a DBMS. Describing and Storing Data in a DBMS : The Relational Model, Levels of Abstraction in a DBMS, Data Independence. Structure of a DBMS. Introduction to Database Design: Entities, Attributes and Entity Sets. Relationship and relationship sets. Additional Features of the ER Model.	1-7	Database Management Systems,Raghu Ramakrishnan and Johannes Gehrke, Third Edition, McGraw Hill, 2003.
Module II Relational Model: Introduction to the Relational Model. Integrity Constraints over Relations: Primary Key, Foreign Key and General Constraints. E-R Model to Relational Model: Entity Sets to Tables, Relationship Sets to Tables, Translating Relationship Sets with Key Constraints. Translating Relationship Sets with Participation Constraints, Translating Weak Entity Sets.	8-14	Database Management Systems,Raghu Ramakrishnan and Johannes Gehrke, Third Edition, McGraw Hill, 2003.
ModuleIII Structured Query Language Overview of SQL, Basic Queries in SQL, UNION, INTERSECT and EXCEPT, Nested Queries, Aggregate Operators, Null Values, String and Date Functions, Complex Integrity Constraints in SQL, Triggers and Views in SQL, Embedded SQL, Dynamic SQL and Cursors. Relational Database Design Introduction to Schema Refinement, Functional Dependencies, Normal Forms: First Normal Form, Second Normal Form, Third Normal Form, Boyce Codd Normal Form.	15-25	Database Management Systems,Raghu Ramakrishnan and Johannes Gehrke, Third Edition, McGraw Hill, 2003.
ModuleIV Transaction Management, Concurrency Control, Distributed System - The ACID Properties of a Transaction, Concurrent Execution of Transactions: Serialisability, Anomalies Due to Interleaved Execution, Schedules Involving Aborted Transactions, Lock-Based Concurrency Control: Strict Two-Phase Locking (Strict 2PL), Deadlocks. Introduction to Crash Recovery: Stealing Frames and Forcing pages, overview of ARIES. Dealing with Deadlocks. Introduction to Distributed Database - Distributed DBMS Architectures, Storing data in a Distributed Databases: Replication, Fragmentation.	26-32	Database Management Systems,Raghu Ramakrishnan and Johannes Gehrke, Third Edition, McGraw Hill, 2003.
ModuleV Nosql Data Management - Introduction to NoSQL- Four types of NoSQL Databases - Aggregate data models - Aggregates – Key-Value and Document Data Models – Relationships – Graph Databases – Schemaless Databases – Materialized views – Distribution Models – Sharding – Master-Slave Replication – Peer-Peer Replication.	34-40	P. J. Sadalage and M. Fowler, "NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence", Addison-Wesley Professional, 2012

Recommended Books & Reading List

1. Database Management Systems,Raghu Ramakrishnan and Johannes Gehrke, Third Edition, McGraw Hill, 2003.
2. P. J. Sadalage and M. Fowler, "NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence", Addison-Wesley Professional, 2012.
3. Database Systems: Design, Implementation and Management, Peter Rob, Thomson Learning, 7Edn.
4. Concept of Database Management, Pratt, Thomson Learning, 5Edn.
5. Database System Concepts , Silberchatz, Korth and Sudarsan, Fifth Edition, McGraw Hill, 2006
6. The Complete Reference SQL, James R Groff and Paul N Weinberg, Second Edition, Tata McGraw Hill, 2003.

IMCA 304 PRINCIPLES OF MANAGEMENT

Course Overview

Program	IMCA
Semester	3
Course Code	IMCA304
Course Title	Principles of Management
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

The course Principles of Management aims to provide basic knowledge about business domain and basic guidelines for managing an organization. Course discuss about various management functions to be performed in business firms.

Course Objectives

By the end of the course the students will be able to:

1. Get insights into basic knowledge of Management theories and principles.
2. To make the students aware of basic concept of business functions and working environment.
3. To acquire knowledge about HR systems & procedures adopted for performance appraisal.
4. Understand and analyze the phases in recruitment process.
5. Acquire knowledge in various marketing techniques.

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA304.1	Students will be able to know about the guiding principles and theories of
IMCA304.2	Students will be able to understand the core functions of Management.
IMCA304.3	Students will be able to apply the stages of recruitment in different organization.
IMCA304.4	Students will be able to customize & suggest appropriate performance appraisal system for the organisation.
IMCA304.5	Students will be able to evaluate the pros and cons of applying various marketing strategies.

Detailed Syllabus:

Topic	Session	References
Module I Introduction : Basic Managerial Concepts, Levels of management, managerial skills. Concept of management principles, nature and need of management. Management functions. Management thought – classical approach Scientific management, fayol’s management. Bureaucratic approach, systems approach, Contingency approach.	1-9	Principles of Management, R N Gupta, S.Chand & Company Ltd. -Principles of Management, L M Prasad, Sultan Chand Publications -Management Theory & practice ,J S Chandan
Module II Planning & Organising Planning – Meaning, nature, structure, steps, effective planning. MBO, SWOT Analysis. Organizing – meaning, process, structure. Formal and informal, types of organization. Departmentation, delegation of authority.	10-16	Essentials of Management – Koontz & Wheinrich, 7th Edition, PHI Publications -Principles of Management, R N Gupta, S.Chand & Company Ltd. -Principles of Management, L M Prasad, Sultan Chand Publications -Management Theory & practice ,J S Chandan
Module III Staffing & Communication. Staffing – meaning, nature. Staffing process, recruitment & selection. Directing, supervision. Motivation – significance, motivational theories- Maslow's need hierarchy, McGregor's Theory X & Theory Y. Leadership. Communication – formal and informal, Oral and written, barriers, effective communication. Controlling-concepts, steps, objectives, features of a good control system.	17-27	Essentials of Management – Koontz & Wheinrich, 7th Edition, PHI Publications -Principles of Management, R N Gupta, S.Chand & Company Ltd. -Principles of Management, L M Prasad, Sultan Chand Publications -Management Theory & practice ,J S Chandan
Module IV Organizational Behavior Organizational behavior – Key elements, scope. Models of OB, Individual behavior. Personality, attitudes values and job satisfaction. Group behavior. Team building- Types, process, roles.	28-34	Organisational Behavior, S.S Khanka, S.Chand & Company Ltd
Module V Marketing Management Marketing Management- importance, scope. Core Marketing Concepts, Marketing research. Customer value, Customer relationship management. Brand Equity. Product Life Cycle, Pricing Strategies. Distribution Channels, Promotions – Sales promotions, advertising and public relations. Marketing Information System.	35-40	Marketing management – Kotler, Keller, Jha and Koshy, 13th edition, Pearson Education -Principles of Management, R N Gupta, S.Chand & Company Ltd.

Recommended Books & Reading List

1. Management Theory & practice ,J S Chandan
2. Principles of Management, R N Gupta, S.Chand & Company Ltd.
3. Essentials of Management – Koontz & Wheinrich, 7th Edition, PHI Publications
4. Principles of Management, L M Prasad, Sultan Chand Publications
5. Organisational Behavior, S.S Khanka, S.Chand & Company Ltd
6. Marketing management – Kotler, Keller, Jha and Koshy, 13th edition, Pearson Education

IMCA 305 VISUAL PROGRAMMING(C#.NET)

Course Overview

Program	IMCA
Semester	3
Course Code	IMCA 305
Course Title	Visual Programming (C#.NET)
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course Description

This course provides a comprehensive introduction to Visual Programming Tools using C#.NET. By the end of the course, the student should be able to easily understand all the major aspects of Visual Programming Tools and C# language. The students will get familiar with MS Sql as the backend of the application. At the end of the course they use C# language to produce their own windows based applications with Database Connectivity.

Course Objectives

By the end of the course the students will be able to:

1. Be familiar with Visual studio.net Framework
2. Be familiar with C# Language.
3. Develop windows applications.
4. Create applications with database connectivity.
5. Be familiar with creation of web based applications

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA305.1	Students will be able to list all the tools and features of visual studio framework.
IMCA305.2	Students will be competent to use the visual studio framework and ms sql database.
IMCA305.3	Students will be able to justify the usage of different tools to create windows-based applications.
IMCA305.4	Students will be able to design and develop applications with database connectivity by the use of C#.net language.
IMCA305.5	Students will be able to test and maintain the applications created in visual studio framework with MS SQL as data base.

Detailed Syllabus:

Topic	Session	References
Module I The C# Environment: Origins of .Net Technology, .NET Framework, Common Language Runtime. Overview of C#: Simple C# program, Namespaces, Comments, Command line arguments, Main with a class, Interactive input.	1-7	E Balagurusamy, "Programming with C#", (TMH)
Module II Literals, Variables and Data Types - Operators and Expressions - Decision making and branching - Decision making and Looping. Methods in C# - Handling Arrays - Manipulating Strings: Creating strings, string methods, inserting strings, comparing strings, mutable strings, arrays of strings.	8-14	E Balagurusamy, "Programming with C#", (TMH)
Module III Classes and Objects: introduction, basic principles of OOP. defining a class, adding variables, methods, member access modifiers, creating objects, accessing class members, constructors, overloaded constructors, static members, copy constructors, destructors, member initialization, this reference, nesting of classes, constant members. Inheritance and Polymorphism -Interface - Operator Overloading - Delegates and Events - Managing Errors and Exceptions	15-21	E Balagurusamy, "Programming with C#", (TMH)
Module IV Windows Application: Event-driven program model, classes used in windows application, textbox and label controls, button control, checkbox control, radiobutton control, groupbox control, Listbox control, checkedlistbox control, combobox control, monthcalendar control. Menu control, dialog box.	23-27	CMuthu, "VisualC#.Net"
Module V Database Connectivity: Introduction, advantages of ADO.net, managed Providers, Developing simple ADO.net based application, Creation of Data table, Retrieving data from Tables, Table Updation, Disconnected data Access through Dataset object. Basic web controls: Introduction, Advantages of ASP.Net, ASP.Net object model, Server side controls, server side processing of client side events, creating the first ASP.Net page	28-40	CMuthu, "VisualC#.Net"

Recommended Books & Reading List

1. E Balagurusamy, "Programming with C#", (TMH)
2. C Muthu, "VisualC#.Net"

IMCA 306 DBMS PRACTICAL (ORACLE & MONGODB)

Course Overview

Program	IMCA
Semester	3
Course Code	IMCA 306
Course Title	DBMS Practical (ORACLE & Mongoddb)
Type of Course	Core
Contact Hours	4 hours per week
Credit	2

Course Description

The course presents an introduction to ORACLE and MongoDB with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS.

Course Objectives

By the end of the course the students will be able to:

1. Provide an introduction to ORACLE and MongoDB, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS.
2. Introduces queries to insert data, update, delete and fetch the data from the tables.
3. Describe merging of tables using aggregate functions, nested queries, clauses to filter and sort the data, has been covered in detail.

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA306.1	Students will be able to understand the working of DBMS.
IMCA306.2	Students will be able to Create and alter table structures using ORACLE.
IMCA306.3	Students will be able to Build subqueries to extract rows from processed data.
IMCA306.4	Students will be able to formulate queries to perform Insert, update and delete, select and rollback operations in a database.
IMCA306.5	Students will be able to create and manipulate collections in Mongoddb and perform various operations.

Detailed Syllabus:

Topic	Session
Module I Building a database: Table by table <ul style="list-style-type: none">a) Table creation with constraints(primary key, referential integrity constraints, not null, check constraints and unique constraints)b) Display a table's structure.c) Create Index.d) Drop and Truncate table.e) Listing all tables.f) Altering the table structure.	1-7
Module II Data manipulation language (DML) commands <ul style="list-style-type: none">a) Row insertion, deletion and updating.b) Save using COMMIT.c) Inserting Table rows with a subquery.d) Restoring table contents (Rollback). Basic SELECT statements <ul style="list-style-type: none">a) Simple select queryb) Using arithmetic operators in SQL statementsc) Using DISTINCT statement.d) Selecting rows with conditional restrictions (>, <, =, <>, >=, <=, BETWEEN, IN, ALL, LIKE, IS NULL / IS NOT NULL)e) SELECT with Logical Operators (AND, OR and NOT).	8-16
Module III Advanced SELECT Statements <ul style="list-style-type: none">a) Sorting Data - ORDER BYb) Aggregate Functions – COUNT, MIN ,MAX SUM ,AVGc) SELECT with GROUP BY & HAVING clause.d) Subqueries – Nested Queries (IN, ALL, ANY, SOME)e) Create & Drop View. <p>Create & Replace complex Data types. Insert and select data to and from complex data types.</p>	17-23

<p>ModuleIV Joining database tables & SQL Functions</p> <p>Joining Tables</p> <ul style="list-style-type: none"> a) Left outer join b) Right outer join c) Full Outer Join d) EXISTS and NOT EXISTS e) Union, Intersect, and Difference (Except) <p>SQL Functions</p> <ul style="list-style-type: none"> a) Numeric Functions(ABS, ROUND, TRUN, SQRT, MOD) b) String Functions(CONCAT, UPPER/LOWER, SUBSTR,) 	<p>24-32</p>
<p>ModuleV NoSQL – MongoDB</p> <ul style="list-style-type: none"> a) Create & Drop database in Mongodb, b) Create collection and Drop collection, c) Insert, Find, and Update & Delete documents. d) Find with Projection, e) Sorting, Indexing & Create Backup 	<p>33-40</p>

Recommended Books & Reading List

1. ORACLE DATABASE 11G, THE COMPLETE REFERE by LONEY and KEVIN, McGraw Hill
2. **SQL & PL/SQL for Oracle 11g Black Book,Dr.P.S Deshpande, Wiley publication**
3. MongoDB: The Definitive Guide, Second Edition by Kristina Chodorow, O'Reilly Media publication; Second edition (June 4, 2013)

IMCA 307 VISUAL PROGRAMMING PRACTICALS

Course Overview

Program	IMCA
Semester	3
Course Code	IMCA 307
Course Title	Visual Programming Practicals
Type of Course	Core
Contact Hours	4 hours per week
Credit	2

Course Description

This course provides an in-depth knowledge of Visual Studio Framework using C#.NET. By the end of the course, the student should be able to easily develop windows based application in visual studio framework using C# language and MS SQL as back end .The students will also be able to develop a basic web application in Visual Studio Framework at the end of the course.

Course Objectives

By the end of the course the students will be able to:

1. Get in-depth knowledge of Visual studio.net Framework
2. Get in-depth knowledge of C# Language.
3. Able to develop windows applications.
4. Create applications with database connectivity.
5. Be familiar with creation of web based applications

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA307.1	Students will be familiar with all the tools and features of visual studio framework.
IMCA307.2	Students will be competent to use the visual studio framework and ms sql database.
IMCA307.3	Students will be able to justify the usage of different tools to create windows-based applications and also in-depth knowledge about MS SQL Database.
IMCA307.4	Students will be able to design and develop applications with database connectivity by the use of C#.net language.
IMCA307.5	Students will be able to test and maintain the applications created in visual studio framework with MS SQL as data base.

Detailed Syllabus:

Topic	Session
1.Create a program in C# to demonstrate command line arguments. 2.Create a program in C# to demonstrate pass by value and pass by reference 3. Create a program in C# to demonstrate two dimensional array. 4. Create a program in C# to demonstrate jagged array. 5. Create a program in C# to demonstrate method overloading. 6. Create a program in C# to demonstrate string manipulations.	1-7
7. Create a program in C# to demonstrate classes and objects. 8. Create a program in C# to demonstrate constructor overloading. 9.Create a program in C# to demonstrate nesting of classes. 10. Create a program in C# to demonstrate multilevel inheritance.	8-18
11. Create a program in C# to demonstrate hierarchical inheritance. 12. Create a program in C# to demonstrate method overriding. 13. Create a program in C#to demonstrate abstract classes and abstract methods. 14. Create a program in C# to demonstrate interfaces. 15. Create a program in C# to demonstrate operator overloading. 16. Create a program in C# to demonstrate delegates and events	16-27
17. Create a program in C# to demonstrate exception handling. 18. Create a program in C# to demonstrate windows forms application. 19.Create a program in C# to demonstrate database application using ADO.Net. 20. Create a program in C# to demonstrate web application using ASP.Net	27-40

Recommended Books & Reading List

1. E Balagurusamy," Programming with C#", (TMH)
2. CMuthu,"VisualC#.Net"

Semester IV

IMCA 401 TECHNICAL COMMUNICATION

Course Overview

Program	IMCA
Semester	4
Course Code	IMCA 401
Course Title	Technical Communication
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course

Description

This course is designed according to the changing language needs of the students and makes them 'industry-ready in terms of language and presentation skills. It is an introduction to technical and professional writing. It mainly focuses on basic principles of good writing and on types of documents common in scientific and technical fields and organizations. The purpose of technical communication is to help the target audience understand the subject quickly and complete a task correctly. While the emphasis is on writing, oral communication in varied formal and informal context forms an important component of the course. It helps the students to accomplish a task by explaining what they need to do and how to do it.

Course Objectives

By the end of the course the students will be able to:

1. Understand the dynamics of Communication in the Technical world.
2. Expose to the different forms of Business communication.
3. Develop oral and written communication skills.
4. Understand functional grammar and style of writing.
5. Understand different reading and listening strategies.
6. Equip different skills to face interviews, Group Discussions & presentation.

Course Outcomes

On successful completion of the course, the students will be able to:

CO.No	Course Outcome Description
IMCA401.1	Students will be able to understand the dynamics of communication in the technical world.
IMCA401.2	Students will be able to apply grammatically accurate sentences.
IMCA401.3	Students will be able to develop corporate skills needed for employment in the industry.
IMCA401.4	Students will be able to explain events, processes, and situations
IMCA401.5	Students will be able to create a job application along with CV.

Detailed Syllabus

Topic	Session	References
<p>Module I Nature of Technical Communication: Stages of communication, Channels of communication, Technical communication skills, Barriers to effective communication. Types of communication. Style in Technical Communication: Technical style, ABC of Technical Communication, Objectivity in Technical Communication</p>	1-8	Rizvi, M. Ashraf. Effective Technical Communication. New Delhi: Tata McGraw-Hill Publishing Company, 2007 (ETC) (pages 1-20, 34- 50)
<p>Module II Reading- Reading activities (Skimming, Scanning, Note making), Critical Reading - Finding key information in a given text, Reading and interpreting a visual material. Writing- Free writing on a given topic. Describe People, Places, Incidents, General and Specific description of various objects. Speaking- Introducing oneself, Speaking in Formal situation (teachers, officials, foreigners). Telephone skills – Telephone etiquette. Grammar- Parts of Speech, Tenses</p>	13-23	Rizvi, M. Ashraf. Effective Technical Communication. New Delhi: Tata McGraw-Hill Publishing Company.
<p>Module III Reading- Reading and language comprehension, Reading different kinds of texts. Writing- Writing Effective Sentences- Sentence Structure, Types of Sentences. Dialogue Writing. Speaking - Group Interaction, Responding to questions. Grammar- Subject Verb Agreement, Clauses, Phrases, Idioms, Framing questions.</p>	24-31	Rizvi, M. Ashraf. Effective Technical Communication. New Delhi: Tata McGraw-Hill Publishing Company, 2007 (ETC) (pgs. 222, 323 – 332)
<p>Module IV Reading - Reading Method Writing - Letter Writing Skills, Personal and Business Letters, Letters of Inquiry, Letters Placing Orders, Complaint and Adjustment Letters. Speaking - Group Discussion (Group Discussion Strategies Grammar - Prefixes, Suffixes, Word Formation, Compound Words, Word Association, Synonyms and Antonyms. If conditional Clause</p>	32-35	Rizvi, M. Ashraf. Effective Technical Communication. New Delhi: Tata McGraw-Hill Publishing Company, 2007 (ETC) (pgs. 253, 176- 179)

<p>Module V Reading: Reading and Interpreting Graphic Information.</p> <p>Writing - E-mail Messages Resumes and Job Application</p> <p>Speaking - Professional Speaking -Job Interviews</p> <p>Grammar - Active Voice & Passive Voice, Direct and Indirect Speech.</p>	36-40	<p>Rizvi, M. Ashraf. Effective Technical Communication. New Delhi: Tata McGraw-Hill Publishing Company, 2007 (ETC) (pgs. 139- 164,256-257,391-422,441-451)</p>
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References:

1. V.Sasikumar, P.Kiranmai Dutt and Geetha Rajeevan,. “Communication Skills in English” Cambridge University Press and Mahatma Gandhi University.
2. A Course in Reading Skills for Academic Purposes by Glendinning, Eric H. and BeverlyHolmstrom
3. Communication Studies by Sky Massan
4. Course in Spoken English for Academic Purposes by Anderson, Kenneth, Joan Maclean and Tony Lynch
5. A textbook of ENGLISH PHONETICS for Indian students – T. Balasubramanian.

IMCA 402 JAVA

Course Overview

Program	IMCA
Semester	4
Course Code	IMCA402
Course Title	JAVA
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course Description

This course introduces computer programming using the JAVA programming language with object-oriented programming principles. It also introduces the students to use java swing and jdbc to create robust console and GUI applications.

Course Objectives

By the end of the course the students will be able to:

- 1 Write, compile and execute Java programs
- 2 Build robust applications using Java's object-oriented features
- 3 Create robust applications using Java class libraries
- 4 Develop platform-independent GUIs
- 5 Read and write data using Java streams

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA402.1	Students will be able Define the basic fundamentals of JAVA
IMCA402.2	Students will be able to Differentiate between C , C++ , JAVA
IMCA402.3	Students will be able to Apply Oops concepts in JAVA
IMCA402.4	Students will be able to Create GUI application using JAVA SWING and establish database connection using JDBC
IMCA402.5	Students will be able to explain the concept of multiple inheritance using interfaces

Detailed Syllabus:

Topic	Session	References
Module I Introduction to Java Programming: Basic concepts of Object oriented programming , Java history, Java Features, How java differs from C and C++ , Java Virtual Machine , Java Program structure , Variables , Data types, Operators , Reading Console input and Writing Console output , Control structures , Arrays , Strings	1-7	Programming With Java, E . Balagurusamy.
Module II Object oriented Programming: Classes and Objects , Access Specifiers , Methods, Method overloading, Static members , inheritance , method overriding , Abstract Classes and Wrapper Classes, final , super and this keyword. Packages : Creating Packages , Accessing a package , Using a package, Adding a class to a Package. Interfaces: Defining interface , Extending interface , Implementing interface	8-15	Programming With Java, E . Balagurusamy.
Module III Exception handling: the concept of exceptions , types of exceptions , syntax of exception handling , Multiple catch statements , Using finally statement, user defined exceptions. Threads: Thread life cycle , Creating Threads - Extending the thread class and Implementing the Runnable interface, Thread priority , Synchronization. Input/Output in java : Stream classes ,Byte stream classes , Character stream classes, Reading/ writing characters , Reading/writing bytes, Random access files.	16-26	Programming With Java, E . Balagurusamy.
Module IV Applets : Applet life cycle , The Applet Tag , Adding Applet to HTML file , Running the Applet , Passing parameters to Applets. The Graphics class: Drawing and filling shapes (Lines, Rectangles , Arcs , Oval). AWT: Awt classes , Window fundamentals, closing AWT Window or Frame , Layout managers , Event handling – delegation event model , event classes ,Sources,Listeners.	27-33	Programming With Java, E . Balagurusamy.
Module V Java Swing: Swing Package and classes , Components and Containers , Text Input, Choice components, Menus and Dialog Boxes. JDBC: JDBC Architecture , Types of JDBC drivers , Establishing Connection interface , Types of Statement objects (Statement , Prepared statement and Callable statement) , ResultSet , Rowset , Transactions (inserting , updating and deleting records)	34-40	The Complete Reference JAVA by Herbert Schildt, TMH Publication.

Recommended Books & Reading List

1. Programming With Java, E . Balagurusamy, Mc Graw Hill Education.
2. The Complete Reference JAVA by Herbert Schildt, TMH Publication.

IMCA 403(a) ELECTIVE I- CLIENT SERVER COMPUTING

Course Overview

Program	IMCA
Semester	4
Course Code	IMCA403(a)
Course Title	Client Server Computing
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

Client Server Computing Model defines the way successful organizations will use technology during the next decade. As a result knowledge of client server architecture has become an essential part of computer science. The main objective is to provide the basic concepts of client server computing and the new technologies involved in it.

Course Objectives

By the end of the course the students will be able to:

1. To introduce the client server architecture and fundamentals of distributed systems.
2. To understand Distributed Systems, distributed computing environment
3. Familiar with Distributed computing environment

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA403(a).1	Students will be able to define the underlying concepts in client server development using common access databases
IMCA403(a).2	Students will be able to examine the techniques which are required to develop network application/ internet based application.
IMCA403(a).3	Students will be able to differentiate between two-tier and three-tier architectures.
IMCA403(a).4	Students will be able to design and Set up a client /server environment using LAN and WAN Scenarios.
IMCA403(a).5	Students will be able to analyze the concept of middleware, and communication protocols. Needs

Detailed Syllabus:

Topic	Session	References
<p>Module I Overview of C/S Computing: Definition, Benefits & Evolution, Hardware & Software, Trends, Evolution of operating systems, networking trends. Overview of C/S applications: components, classes, categories. Overview of C/S computing: Dispelling the Myths, Obstacles- Upfront and hidden, open systems and standards, Standards setting organizations, factors of success.</p>	1-8	Tanenbaum and Van Steen, Distributed Systems Principles and Paradigam Pearson Education, 2005 Dawna Travis Dewire , Client Server Computing, McGraw Hill International
<p>Module II Client hardware and software: Client components and operating systems. What is GUI?, Xwindow vs. windowing, database access. Application logic client software products: GUI environments, converting 3270/5250 screens, Database access tools. Client requirements: GUI design standards, Open GUI standards, Interface dependents, testing interfaces, development aides.</p>	9-17	Tanenbaum and Van Steen, Distributed Systems Principles and Paradigam Pearson Education, 2005 Dawna Travis Dewire , Client Server Computing, McGraw Hill International
<p>Module III Server hardware: Benchmarks, categories of servers, features and classes of server machines. Server Environment: eight layers of software, network management and computing environments, extensions, Network operating systems, loadable modules. Server operating systems: OS/2, Windows new technology, UNIX based operating systems.</p>	18-25	Tanenbaum and Van Steen, Distributed Systems Principles and Paradigam Pearson Education, 2005 Dawna Travis Dewire , Client Server Computing, McGraw Hill International
<p>Module IV Server Requirements: Platform independence, transaction processing, connectivity, intelligent database, stored procedures, Triggers, Load Leveling, Optimizer, testing and diagnostics tools, real ability backup and recovery mechanisms.</p>	26-36	Tanenbaum and Van Steen, Distributed Systems Principles and Paradigam Pearson Education, 2005 Dawna Travis Dewire , Client Server Computing, McGraw Hill International
<p>Module V Server data management and access tools: Data manager features, data management software. Database gateways. LAN hardware and software, Network Operating Systems</p>	37-40	Tanenbaum and Van Steen, Distributed Systems Principles and Paradigam Pearson Education, 2005 Dawna Travis Dewire , Client Server Computing, McGraw Hill International

Recommended Books & Reading List

1. Dawna Travis Dewire , Client Server Computing, McGraw Hill International
2. Tanenbaum and Van Steen, Distributed Systems Principles and Paradigam Pearson Education, 2005
3. Orfali, Harkey and Edwards, The Essential Client server Survival guide, 2Nd edition Galgotia, 2003
4. Jeffrey.D.Schan, C/S Application and Architecture, Novell Press, BPB

5. Joe Salami, Guide to C/S Databases, Bpb Publ., 1994 7. David Vaskevitch , Client Server Strategies, Galgotia, 1994

IMCA 403(b) ELECTIVE I-PARALLEL PROCESSING

Course Overview

Program	IMCA
Semester	4
Course Code	IMCA403(b)
Course Title	Parallel Processing
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

This course will cover a range of topics involved in designing and programming parallel architectures. The course will focus on the most common type of parallel machines: shared and distributed memory multi-processor systems. The course will also cover other parallel machines and programming paradigms including data-flow, vector processing, and multi-threaded architectures.

Course Objectives

By the end of the course the students will be able to:

1. Be familiar with Parallel Processing concepts
2. Define terminology commonly used in parallel computing, such as *efficiency* and *speedup*.
3. Describe different parallel architectures, inter-connect networks, programming models, and algorithms for common operations such as matrix-vector multiplication.

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA403(b).1	Students will be able to list all terminology commonly used in parallel computing
IMCA403(b).2	Students will become familiar with different parallel architectures
IMCA403(b).3	Students will be able to justify the use of parallel processing algorithms
IMCA403(b).4	Students will be able to design parallel systems
IMCA403(b).5	Students will be able to analyze the different parallel processing architectures

Detailed Syllabus:

Topic	Session	References
Module I Introduction to parallel Processing, Evolution of Computer Systems, Parallelism in Uniprocessor systems, Parallel Computer Structures, Architectural Classification Schemes, Parallel processing Applications.	1-5	Computer Architecture & Parallel Processing By Kai Hwang & Faye A. Briggs. McGraw Hill International Editions.
Module II Pipelining: An overlapped parallelism, Instruction and Arithmetic Pipelines, Principles of Designing Pipelined Processors. Vector Processor Requirements, Pipeline Computers and Vectorization Methods, Pipeline chaining and Vector loops, Vectorization and Optimization Methods.	5-11	Computer Architecture & Parallel Processing By Kai Hwang & Faye A. Briggs. McGraw Hill International Editions.
Module III SIMD Array Processors, SIMD Interconnection Networks, Parallel Algorithms for Array Processors, Associative Array Processing – Associative Memory Organizations	12-23	Computer Architecture & Parallel Processing By Kai Hwang & Faye A. Briggs. McGraw Hill International Editions.
Module IV Multiprocessor Architecture and Programming, Functional Structures, Interconnection Network .Inter-process Communication Mechanisms, System Deadlock and Protection.	24-27	Computer Architecture & Parallel Processing By Kai Hwang & Faye A. Briggs. McGraw Hill International Editions
Module V Data Flow Computers Data Driven Computing and Languages, Data Flow Computer Architectures	28-40	Computer Architecture & Parallel Processing By Kai Hwang & Faye A. Briggs. McGraw Hill International Editions

Recommended Books & Reading List

1. Computer Architecture & Parallel Processing By Kai Hwang & Faye A. Briggs. McGraw Hill International Editions.
2. Advanced Computer Architecture Parallelism, Scalability & Programmability by Kai Hwang, McGraw Hill International Editions
3. Modern Computer Architecture By Rafiquzzaman & Chandra, Galgotia.
4. Perspectives in Computer Architecture by P.V.S. Rao, PHI.

IMCA 403(c) ELECTIVE I- ENTERPRISE RESOURCE PLANNING

Course Overview

Program	IMCA
Semester	4
Course Code	IMCA403 (c)
Course Title	Enterprise Resource Planning
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

This course will introduce you to enterprise systems and show how organizations use enterprise systems to run their operations more efficiently and effectively. You will learn about the critical success factors and implementation strategies that lead to enterprise system success, and about the informational, knowledge, and decision-making opportunities afforded by enterprise systems. By this learners learns about Fundamentals of enterprise resource planning (ERP) systems concepts, and the importance of integrated information systems in an organization. The focus of this course is on illustrating procurement, production, and sales business processes using ERP software.

Course Objectives

By the end of the course the students will be able to:

1. Understanding of the fundamental concepts of ERP systems, their architecture, and working of different modules, technologies and implementation and post implementation activities of in ERP.
2. Students will also able to understand the present trends and future developments in the field of Enterprise resource planning.

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA403(c).1	Understand the fundamental concepts of ERP systems.
IMCA403(c).2	Understand the Technologies used and Business modules of ERP systems.
IMCA403(c).3	To Learn about different implementation phases of ERP Software solutions
IMCA403(c).4	To Learn about post implementation process of ERP Software solutions
IMCA403(c).5	Understand emerging and trends in ERP Systems through various case studies related to ERP Systems.

Detailed Syllabus:

Topic	Session	References
Module I Introduction to ERP: Need for ERP, History of ERP. Justifying ERP Investment, Risks and Benefits of ERP. ERP-The Indian scenario, ERP Vendors.	1-7	Rajesh Ray, Enterprise Resource Planning, McGraw Hill Education (India) Pvt Ltd.
Module II ERP Business modules and Related technologies: ERP Business modules- Financial, Manufacturing, HR Management, Plant Maintenance, Material Management. Quality Management, Marketing, Sales, Distribution and other services. Related Technologies. Business Intelligence and Business Analytics, E-commerce and E-Business.	8-16	Alexis Leon, ERP Demystified, McGraw Hill Education (India) Pvt Ltd., Third edition.
Module III ERP Implementation: Implementation challenges. ERP Implementation strategies, ERP Implementation life cycle. Implementation methodologies, ERP deployment methods.	16-26	Alexis Leon, ERP Demystified, McGraw Hill Education (India) Pvt Ltd., Third edition.
Module IV ERP Post Implementation: Post-Implementation Activities, Employees and Employee resistance, Contracts with vendors-consultants. Employees, Trainings and Education. Data Migration, Project Management and Monitoring. Success and Failure factors of an ERP Implementation.	27-33	Alexis Leon, ERP Demystified, McGraw Hill Education (India) Pvt Ltd., Third edition.
Module V ERP Present and Future: ERP for Manufacturing Industries - ERP for Service Industries - Enterprise Application Integration (EAI). ERP and Total Quality Management (TQM) - Future Directions and trends in ERP. ERP and security. Case Study - Oracle ERP implementation at Maruti Suzuki	34-40	Alexis Leon, ERP Demystified, McGraw Hill Education (India) Pvt Ltd., Third edition.

Recommended Books & Reading List

1. Rajesh Ray, Enterprise Resource Planning, McGraw Hill Education (India) Pvt Ltd.
2. Alexis Leon, ERP Demystified, McGraw Hill Education (India) Pvt Ltd., Third edition.
3. Alexis Leon, Enterprise Resource Planning, McGraw Hill Education (India) Pvt Ltd., Fourth edition.
4. ERP and Supply Chain Management by Christian N. Madu, Publisher: CHI

IMCA 404 SYSTEM SOFTWARE

Course Overview

Program	IMCA
Semester	4
Course Code	IMCA404
Course Title	System Software
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

Introduce the concept of finite automata and terminologies related to it like DFA, NDFAs, Turing machines. To make students understand the design concepts of various system software like Assembler, Linker, Loader and Macro pre-processor, Utility Programs such as Text Editor and debugger.

Course Objectives

By the end of the course the students will be able to:

1. Distinguish different software into different categories.
2. Design, analyze and implement one pass, two pass or multi pass assembler.
3. Design, analyze and implement loader and linker.
4. Design, analyze and implement macro processors.
5. Critique the features of modern editing

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA404.1	Students will be able to understand Finite state automata, DFA, NDFAs, loaders, linkers, macroprocessors.
IMCA404.2	Students will be able to know structure of assemblers in detail.
IMCA404.3	Students will be able to apply data structures into design of various types of system software components.
IMCA404.4	Students will be able to analyze algorithms to fine tune them.
IMCA404.5	Students will be able to design a editor.

Detailed Syllabus:

Topic	Session	References
<p>Module I FINITE AUTOMATA- Introduction- Basic Mathematical Notation and techniques- Finite State systems – Basic Definitions – Finite Automaton – DFA & NDFA – Regular languages- Regular Expression – Equivalence of NFA and DFA – – Equivalence of finite Automaton and regular expressions – Minimization of DFA- – Pumping Lemma for Regular sets. Grammar- Types of Grammar – Context Free Grammars and Languages– Derivations and Languages. Turing Machines - Definitions of Turing machines – Models – Computable languages and functions –Techniques for Turing machine construction – Multi head and Multi tape Turing Machines.</p>	1-10	<p>Leland L. Beck, “System Software – An Introduction to Systems Programming”, Pearson Education Asia.</p> <p>Peter Linz, “An Introduction to Formal Language and Automata”, Third Edition, Narosa Publishers, New Delhi.</p>
<p>Module II INTRODUCTION - System software and machine architecture - The Simplified Instructional Computer (SIC) Machine architecture - Data and instruction formats - addressing modes - Instruction sets - I/O and programming</p>	8-15	<p>Leland L. Beck, “System Software – An Introduction to Systems Programming”, Pearson Education Asia.</p>
<p>Module III ASSEMBLERS - Basic assembler functions- A simple SIC assembler –Assembler algorithm and data structures -Machine dependent assembler features -Instruction formats and addressing modes –Program relocation -Machine independent assembler features -Literals –Symbol-defining statements – Expressions -One pass assemblers and Multi pass assemblers - Implementation example -MASM assembler.</p>	16-25	<p>D. M. Dhamdhare, “Systems Programming and Operating Systems”, Second Revised Edition, Tata McGraw-Hill.</p> <p>John J. Donovan “Systems Programming”, Tata McGraw - Hill Edition.</p>
<p>Module IV LOADERS AND LINKERS- Basic loader functions- Design of an Absolute Loader –A Simple Bootstrap Loader - Machine dependent loader features -Relocation –Program Linking –Algorithm and Data Structures for Linking Loader - Machine-independent loader features - Automatic Library Search –Loader Options -Loader design options -Linkage editors –Dynamic Linking –Bootstrap Loaders -Implementation example- MSDOS linker</p>	26-31	<p>John J. Donovan “Systems Programming”, Tata McGraw - Hill Edition.</p> <p>Leland L. Beck, “System Software – An Introduction to Systems Programming”, Pearson Education Asia.</p>

<p>Module V</p> <p>MACRO PROCESSORS- Basic macro processor functions - Macro Definition and Expansion – Macro Processor Algorithm and data structures -Machine-independent macro processor features -Concatenation of Macro Parameters –Generation of Unique Labels –Conditional Macro Expansion –Keyword Macro Parameters-Macro within Macro. SYSTEM SOFTWARE TOOLS- Text editors -Overview of the Editing Process -User Interface – Editor Structure. -Interactive debugging systems- Debugging functions and capabilities – Relationship with other parts of the system – User-Interface Criteria</p>	32-40	<p>D. M. Dhamdhere, “Systems Programming and Operating Systems”, Second Revised Edition, Tata McGraw-Hill.</p> <p>John J. Donovan “Systems Programming”, Tata McGraw - Hill Edition.</p>
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Recommended Books & Reading List

1. Leland L. Beck, “System Software – An Introduction to Systems Programming”, Pearson Education Asia.
2. D. M. Dhamdhere, “Systems Programming and Operating Systems”, Second Revised Edition, Tata McGraw-Hill.
3. John J. Donovan “Systems Programming”, Tata McGraw - Hill Edition.
4. Mishra K L P and Chandrasekaran N, “Theory of Computer Science – Automata, Languages and Computation”, Third Edition, Prentice Hall of India
5. Harry R Lewis and Christos H Papadimitriou, “Elements of the Theory of Computation”, Second Edition, Prentice Hall of India, Pearson Education, New Delhi.
6. Peter Linz, “An Introduction to Formal Language and Automata”, Third Edition, Narosa Publishers, New Delhi.

IMCA 405 E-Commerce

Course Overview

Program	IMCA
Semester	4
Course Code	IMCA405
Course Title	E-Commerce
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

This course focuses on principles of e-commerce from a business perspective, providing an overview of business and technology topics, business models, virtual value chains and social innovation and marketing strategies. In addition, some of the major issues associated with e-commerce—security, privacy, intellectual property rights, authentication, encryption, acceptable use policies, and legal liabilities—will be explored. Students will build their own web presence and market it using an online platform.

Course Objectives

By the end of the course the students will be able to:

1. Understand the concept of e-commerce
2. Fair idea on the infrastructure required from e-commerce
3. Evaluating servers and tools for maintaining e-commerce sites.
4. Understanding security, copy right issues, Intellectual property and payment systems
5. Understanding intelligent agents, online advertisements etc.

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA405.1	Students will have knowledge on E-commerce, business models, revenue models, technologies related to e-commerce, EDI, EFTS and other technical terms.
IMCA405.2	Students will have knowledge on Ecommerce revolution and its impact in business, design methodology of website, factors to be considered in design, security and promotional aspects. How to evaluate various aspects of a e-commerce site. Copyright intellectual property rights etc..
IMCA405.3	Students will have knowledge on various available technologies and structures available. List the advantages and disadvantages of having business on the web. Traditional vs. modern business models. Security approaches etc.
IMCA405.4	Students will have knowledge on the various methods to design evaluate and test a e-commerce website.
IMCA405.5	Students will have knowledge on a list of factors which would help an organization to design and host a efficient and effective website and also evaluate the performance of the website with adequate security measures.

Detailed Syllabus:

Topic	Session	Reference
Module I: INTRODUCTION to e-commerce -Traditional vs E commerce – categories of e-commerce – Understanding E-commerce infrastructure. Web client/server architecture – intranet and extranets.	1-8	Ravi Kalakota, “ Electronic Commerce”, Pearson Education, Gary P Schneider “Electronic commerce”, Thomson learning & James T Peny Cambridge USA, 2001.
Module II: E-COMMERCE MODELS – Brokerage model, Aggregator model, Info-mediary model, Community model, Value chain model, Manufacturer model, Advertising model, Subscription model.	9-17	Gary P Schneider “Electronic commerce”, Thomson learning & James T Peny Cambridge USA, 2001.
Module III: WEB BASED TOOLS FOR E COMMERCE Web server – performance evaluation - web server software feature sets – web server software and tools – web protocol – search engines – intelligent agents – EC software – web hosting – cost analysis	18-26	Gary P Schneider “Electronic commerce”, Thomson learning & James T Peny Cambridge USA, 2001.
Module IV: SECURITY Computer security classification – copy right and Intellectual property – electronic commerce threats – protecting client computers – electronic payment systems– electronic cash – strategies for marketing – sales and promotion – cryptography – authentication.	27-33	Efraim Turvan J.Lee, David kug and chung, “Electronic commerce” Pearson Education Asia 2001. Brenda Kienew E commerce Business Prentice Hall, 2001.
Module V: INTELLIGENT AGENTS Definition and capabilities – limitation of agents – security – web based marketing search engines and Directory registration – online advertisements – Portables and info - mechanics, website design issues.	34-40	Brenda Kienew E commerce Business Prentice Hall, 2001.

Recommended Books & Reading List

1. Ravi Kalakota, “ Electronic Commerce”, Pearson Education,
2. Gary P Schneider “Electronic commerce”, Thomson learning & James T Peny Cambridge USA, 2001.
3. Manlyn Greenstein and Miklos “Electronic commerce” McGraw-Hill, 2002.
4. Efraim Turvan J.Lee, David kug and chung, “Electronic commerce” Pearson Education Asia 2001.
5. Brenda Kienew E commerce Business Prentice Hall, 2001.

IMCA 406 JAVA PRACTICALS

Course Overview

Program	IMCA
Semester	4
Course Code	IMCA 406
Course Title	JAVA Practicals
Type of Course	Core
Contact Hours	4 hours per week
Credit	2

Course Description

In this hands-on course, students gain extensive experience with Java and its object-oriented features. Students learn to create robust console and GUI applications and store and retrieve data from relational databases.

Course Objectives

By the end of the course the students will be able to:

- 1 Students will learn how to Write, compile and execute Java programs
- 2 Build robust applications using Java's object-oriented features
- 3 Create robust applications using Java class libraries
- 4 Develop platform-independent GUIs
- 5 Read and write data using Java streams
- 6 Retrieve data from a relational database with JDBC

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA406.1	Students will be able to define the basic fundamentals of JAVA
IMCA406.2	Students will be able to differentiate between C , C++ , JAVA
IMCA406.3	Students will be able to apply Oops concepts in JAVA
IMCA406.4	Students will be able to develop GUI application using JAVA SWING and establish database connection using JDBC
IMCA406.5	Students will be able to explain the concept of multiple inheritance using Interfaces

Detailed Syllabus:

Topic	Session	References
Module I a) Simple programs to improve the logics using Control structures , Arrays, Strings (6 numbers) b) Programs to illustrate class, objects and constructors (2numbers)	1-7	
Module II a) Programs to implement polymorphism - overloading, overriding.(2 numbers) b) Programs to implement the usage of packages (2 numbers) c) Programs to implement inheritance(3numbers) d) Program to implement multiple inheritance using interfaces(1number)	8-16	
ModuleIII a) Programs to implement exception handling(3 numbers) b) Programs to Implement the concept of thread Programming (3 numbers) c) Programs for handling file operation (3 numbers)	17-23	
ModuleIV a) Applet Programs for passing parameters and applying graphics (3 numbers) b) Programs to implement AWT Components (4 numbers)	24-32	
ModuleV a) Programs for event-driven paradigm in Java (2 numbers) b) Programs to implement Java Swing components(3 numbers) c) Simple programs on JDBC(2 numbers) d) Develop a Product Management System using Swing and JDBC(Small Application) (1 number)	33-40	

Recommended Books & Reading List

1. Programming With Java, E . Balagurusamy, Mc Graw Hill Education.
2. The Complete Reference JAVA by Herbert Schildt, TMH Publication.

IMCA 407 RDBMS PRACTICALS

Course Overview

Program	IMCA
Semester	4
Course Code	IMCA 407
Course Title	RDBMS Practicals
Type of Course	Core
Contact Hours	4 hours per week
Credit	2

Course Description

This course focuses on the concepts and structures necessary to design and implement a relational database management system, mainly emphasizes on the integrity constraints and normalization techniques in RDMS. It also describes *the* techniques relating to ODBC and its implementations.

Course Objectives

By the end of the course the students will be able to:

1. Implement relational databases using a RDBMS
2. To emphasize the importance of normalization in databases.
3. To present the concepts and techniques relating to ODBC and its implementations
4. To present SQL and procedural interfaces to SQL comprehensively.

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA407.1	Design and implement a database schema for a given problem-domain
IMCA407.2	Declare and enforce integrity constraints on a database using a state-of-the-art RDBMS
IMCA407.3	Create a normalized database.
IMCA407.4	Design PL/SQL block
IMCA407.5	Implement ODBC techniques.

Detailed Syllabus:

Topic	Session
Table design using Foreign Key and Normalization Practice Transaction Control Language (TCL) commands (Grant, revoke, commit and save point options)	1-7
Usage of cursor, exception handling triggers, functions and Procedures using PL/SQL constructs.	8-18
Manage ODBC/JDBC connections	16-27
Development of sample applications using Oracle/MySQL as Back End. Sample applications may include Payroll Information ,Student Information System Bank Transaction ,Library Information System	27-40

Recommended Books & Reading List

4. ORACLE DATABASE 11G, THE COMPLETE REFERENCE by LONEY and KEVIN, McGraw Hill
5. *SQL & PL/SQL for Oracle 11g Black Book*, Dr.P.S Deshpande, Wiley publication.
6. *MySQL: The Complete Reference* by VASWANI, McGraw Hill publication. 1st edition, 2017
7. [MySQL Explained: Your Step By Step Guide to Database Design](#) by [Mr. Andrew Comeau](#), CreateSpace Independent Publishing Platform; 2 edition (November 22, 2017).

Semester V

IMCA 501 OPERATIONS RESEARCH

Course Overview

Program	IMCA
Semester	5
Course Code	IMCA501
Course Title	Operations Research
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

Basic objective of this course is to understand the basic concepts in Operations research. It introduces students how a real life problem can be converted to a linear programming problem. It gives different methods to solve a LPP. It also gives the basic ideas in Queuing theory, Game theory and Network Analysis. It introduces the basic concepts in simulation.

Course Objectives

By the end of the course the students will be able to:

1. Understand the concepts in Linear Programming Problems and its optimization.
2. Understand the concepts of Game theory and Network analysis.
3. Understand the concepts in Queuing theory and simulation theory.

Course Outcomes

On successful completion of this course :

CO.No	Description
IMCA501.1	Students will be able to understand and reproduce the core concepts of optimization and also queuing theory.
IMCA501.2	Students will be able to understand the how a real world problem is related to LPP .
IMCA501.3	Students will be able to apply mathematical formulae to find the optimum values.
IMCA501.4	Students will have the ability to create a mathematical model from a real life problem.
IMCA501.5	Students will be able to evaluate optimum values.

Detailed Syllabus:

Topic	Session	References
Module I- Linear programming problems Mathematical formulation, graphical method of solution simplex method(Big M, two phase)	1-8	Kanthi Swaroop, Manmohan Gupta P K ,Operations Research,Schandh,2008
Module II- Duality in linear programming problems, dual simplex method, transportation, assignment problems, Traveling salesman Problem	9-20	Kanthi Swaroop, Manmohan Gupta P K ,Operations Research,Schandh,2008
Module III- Game theory Introduction, two-person zero-sum games, some basic terms, the maximin- minimax principle, games without saddle points-Mixed Strategies. Graphic solution of $2 \times n$ and $m \times 2$ games, dominance property. CPM & PERT- project scheduling, critical path calculations	21-33	Kanthi Swaroop, Manmohan Gupta P K ,Operations Research,Schandh,2008
Module IV- Queueing theory Queueing systems, Elements of a queueing system, roles of the Poisson and exponential distributions, classification of queues, basic results of M/M/1: FIFO systems(Including problems).	34-39	Kanthi Swaroop, Manmohan Gupta P K ,Operations Research,Schandh,2008
Module V- Simulation: simulation concepts, simulation of a queueing system using event list pseudo random numbers, basic ideas of Monte-Carlo simulation(Including problems).	41-42 43-45	Kanthi Swaroop, Manmohan Gupta P K ,Operations Research,Schandh,2008

Recommended Books & Reading List

- 1) Taha.H.A ,operation Research : An Introduction, McMilan publishingCo., 1982.7th ed.
- 2) Ravindran A, Philips D.T & Solbery.J.J, Operations Research:Principles and practice, John Wiley & Sons, New York, 1987.
- 3) Frank S. Budnick, Dennis Mcleavey and Richard Mojena, Principles of Operations Research for Management. All India Traveler Book seller, Delhi.
- 4) G.Srinivasan, Operations Research, Principles And Applications, Prentice Hall,2008
- 5) Kanthi Swaroop, Manmohan Gupta P K ,Operations Research,Schandh,2008

IMCA 502 OPERATING SYSTEMS

Course Overview

Program	IMCA
Semester	5
Course Code	IMCA502
Course Title	Operating Systems
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course Description

Course covers the classical internal algorithms and structures of operating systems, including CPU scheduling, memory management, and device management. Considers the unifying concept of the operating system as a collection of cooperating sequential processes. Covers topics including file systems, virtual memory, disk request scheduling, concurrent processes, deadlocks, security, and integrity.

Course Objectives

By the end of this course students will be able:

1. To understand the services provided by and the design of an operating system.
2. To understand the structure and organization of the file system.
3. To understand what a process is and how processes are synchronized and scheduled.
4. To understand different approaches to memory management.
5. Students should be able to use system calls for managing processes, memory and the file system.
6. Students should understand the data structures and algorithms used to implement an OS.

Course Outcomes

On successful completion of this course :

CO.No	Description
IMCA502.1	Students will be able to understand and reproduce the concepts of Operating System.
IMCA502.2	Students will be able to develop the applications to run in parallel either using process or thread models of different OS
IMCA502.3	Students will be able to apply various device and resource management techniques for timesharing and distributed systems, Mutual exclusion, Deadlock detection and agreement protocols of Distributed OS.
IMCA502.4	Students will have the ability to Interpret the mechanisms adopted for file sharing in distributed Applications.
IMCA502.5	Students will have the ability to conceptualize the components involved in designing a contemporary OS

Detailed Syllabus:

Topic	Session	References
<p>Module I Introduction to Operating System:- Operating system Architecture, Operating System Structure, Operating System Operations. Types of operating systems-Batch Operating System, Multi programming-Time sharing, Real time, distributed operating systems. Systems Structures: - Systems Components, Operating System Services. Systems Structures: - System Calls, System Programs, System Structures.</p>	1-9	Abraham Silberschatz and Peter Baer Galvin, Greg Gange 'Operating System Concepts', (Sixth Edition) Wiley - India.
<p>Module II Process Management and Co-ordination:-Process Concept-The process, process state, PCB, Threads. Process Scheduling:-Types of schedulers, scheduling and performance criteria, scheduling algorithms, multiple processor scheduling. Process synchronization -Concurrent Processes- critical section problem, mutual exclusion-mutual exclusion algorithms. semaphores. Deadlocks: -Definition –Deadlock characterization-Resource allocation graph, methods for handling deadlocks, deadlock prevention, deadlock avoidance-, Banker's algorithm.</p>	10-19	Abraham Silberschatz and Peter Baer Galvin, Greg Gange 'Operating System Concepts', (Sixth Edition) Wiley - India.
<p>Module III Memory Management:-Memory Management Strategies-Basic Hardware-address binding, dynamic loading, Swapping. Paging-Basic method-structure of page table- hardware support, shared pages. Segmentation- hardware, implementation of segment table, protection and sharing, fragmentation, segmentation with paging. Virtual Memory Management: - Demand paging –performance. Page replacement-page replacement algorithms. Thrashing, Segmentation and paging implementation of virtual memory.</p>	20-27	Abraham Silberschatz and Peter Baer Galvin, Greg Gange 'Operating System Concepts', (Sixth Edition) Wiley - India.
<p>Module IV Storage Management:-File System-File-system structure, File system implementation.Directory implementation- Allocation methods, and free space management.Secondary storage structure:-Overview, disk structure, disk structure, disk attachment, disk scheduling, disk management.</p>	28-33	Abraham Silberschatz and Peter Baer Galvin, Greg Gange 'Operating System Concepts', (Sixth Edition) Wiley - India.
<p>Module V Distributed and Special purpose systems:-Distributed Operating system-Types of network, network structure, network topology, communication structure, communication protocol. Real time systems-overview, system characteristics, features. Implementing RTOS.Case Study - Desktop OS - Mobile OS – Android and iOS</p>	34-40	Abraham Silberschatz and Peter Baer Galvin, Greg Gange 'Operating System Concepts', (Sixth Edition) Wiley - India.

Recommended Books & Reading List

1. Abraham Silberschatz and Peter Baer Galvin, Greg Gange 'Operating System Concepts', (Sixth Edition) Wiley - India.
2. Milan Milenkovic 'Operating systems' TATA Mc GrawHill.
3. Andrew S. Tanenbaum, "Modern Operating System, Prentice Hall India
4. Learning Android OS – Oreilly Publishers
5. Learning iOS – Oreilly Publishers

IMCA 503 WEB TECHNOLOGY

Course Overview

Program	IMCA
Semester	5
Course Code	IMCA 503
Course Title	Web Technology
Type of Course	Core
Contact Hours	4T+1T/Hours per week
Credit	4

Course Description

Basic objective of this course is to introduce the students to the basic concepts of web and to build basic and advanced web applications using various web programming languages. It also introduces students to one of the latest javascript framework to get an idea of using frameworks so as to make them industry ready. Students need not have prior familiarity with web programming, but they must have the basic knowledge of computer programming in order for this course to be successful.

Course Objectives

1. To understand the concepts of web and its protocols.
2. This course able the students to do web programming.
3. It also focuses on building HTML, CSS, javascript, AJAX, javascript with Angular.js applications, JSP with JDBC applications and Ruby on Rails applications.

Course Outcomes

On successful completion of this course :

CO.No	Course Outcome Description
IMCA503.1	Define the web programming concepts.
IMCA503.2	Students will be able to develop and explain the concepts related to web programming.
IMCA503.3	Students will be able to apply programming logic by implementing information to develop web applications.
IMCA503.4	Students have the ability to compare and test different web technologies.
IMCA503.5	Students will be able to develop and construct applications based on different web technologies.

Detailed Syllabus:

Topic	Session	References
<p>Module I</p> <p>Introduction to web, connecting to internet – www – IP address, URL, DNS.</p> <p>Protocols governing the web – IP, TCP, HTTP, FTP, Telnet, Web applications – Architecture, Web application vs distributed application.</p> <p>Types of web application, writing web projects, Web team – Roles and responsibilities.</p>	1-7	<p>Tanweer Alam, “Introduction to Web Technology“, Khanna Book Publishing.</p> <p>Xavier. C, “Web Technology and Design”, New Age International.</p>
<p>Module II</p> <p>Web page designing: HTML, formatting and fonts, commenting code, anchors, backgrounds, images, hyperlinks, lists, tables, frames, HTML forms.</p> <p>Cascading style sheet (CSS): The need for CSS, Introduction to CSS, basic syntax and structure, inline styles, embedding style sheets, linking external style sheets, classes.</p> <p>XML: features, structures in XML, DTD, XML schemas, presenting and using XML.</p>	8-21	<p>Tanweer Alam, “Introduction to Web Technology“, Khanna Book Publishing.</p> <p>Xavier. C, “Web Technology and Design”, New Age International.</p> <p>Thomas A. Powell, “HTML & CSS: The Complete Reference”, Fifth Edition, McGraw Hill.</p>
<p>Module III</p> <p>Javascript – Introduction, core features, data types and variables, operators, expressions and statements, functions, objects, array, date and math related objects, document object model, event handling, controlling windows & frames and documents, form handling and validations.</p> <p>Introduction to AJAX – requests, response.</p> <p>Angular JS – Understanding Angular JS, overview of Angular JS lifecycle, integrating Angular JS with existing javascript, bootstrapping Angular JS in an HTML document, creating Angular JS application.</p>	22-28	<p>Kris Hadlock, “Ajax for Web Application Developers”, SAMS Publishing.</p> <p>Thomas Powell, “Javascript: The Complete Reference”, Tata McGraw-Hill.</p> <p>Brad Dayley, “Node.js, MongoDB, and Angular JS Web Development”, Addison Wesley.</p>
<p>Module IV</p> <p>Java server pages (JSP) – installing and configuring apache tomcat web server, JSP overview, JSP syntax and semantics, expressions, scriptlets, implicit objects, declarations, page directives.</p> <p>Sessions, cookies, java beans, database access.</p>	29-33	<p>Jason Brittain, Ian F Darwin, “Tomcat The Definitive Guide”, O’Reilly.</p> <p>Hans Bergsten, “Java Server Pages”, O’Reilly.</p> <p>Phil Hanna, “JSP The Complete Reference”, Osborne/McGraw-</p>

<p>Module V</p> <p>The Ruby language – Installing Ruby, working with numbers and strings, storing data in variables, creating constants, working with operators, arrays, conditionals, loops, methods, blocks.</p> <p>Classes and objects: Creating classes and objects, inheritance, overriding, variables, methods, modules, mixins.</p> <p>RAILS: Putting ruby on rails, introducing model-view-controller architecture, Building simple rails applications: Accessing data the user provides, connecting to databases.</p>	<p>34-42</p>	<p>Hill.</p> <p>Steven Holzner, “Beginning Ruby on Rails”, Wiley Publishing.</p>
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Recommended Books & Reading List

1. Tanweer Alam, “Introduction to Web Technology“, Khanna Book Publishing.
2. Xavier. C, “Web Technology and Design”, New Age International.
3. Thomas A. Powell, “HTML & CSS: The Complete Reference”, Fifth Edition, McGraw Hill.
4. Kris Hadlock, “Ajax for Web Application Developers”, SAMS Publishing.
5. Thomas Powell, “Javascript: The Complete Reference”, Tata McGraw-Hill.
6. Brad Dayley, “Node.js, MongoDB, and Angular JS Web Development”, Addison Wesley.
7. Jason Brittain, Ian F Darwin, “Tomcat The Definitive Guide”, O’Reilly.
8. Hans Bergsten, “Java Server Pages”, O’Reilly.
9. Phil Hanna, “JSP The Complete Reference”, Osborne/McGraw-Hill.
10. Steven Holzner, “Beginning Ruby on Rails”, Wiley Publishing.

IMCA504 OBJECT ORIENTED MODELING AND DESIGN

Course overview

Program	IMCA
Semester	5
Course Code	IMCA 504
Course Title	Object oriented Modeling & Design
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

This course empathizes on the basic concepts and methodologies required to perform quality object-oriented software engineering. Students are also equipped with the knowledge of the Unified Modeling Language (UML) – the de facto standard for OO modeling. Furthermore, this course introduces the advanced topic of design patterns and familiarizes the students with some of the most commonly used creational, structural, and behavioral design patterns.

Course Objectives

By the end of this course students will be able to :

1. Understand and learn the Object Oriented Concepts and their significance in software development.
2. Create, Critique and Refine customer Use Cases.
3. Transform Use Cases into Object Oriented software Realizations through OO Analysis and OO Design.
4. Document the requirements, analysis, and design models in the Unified Modeling Language (UML) notation.
5. Implement iterative and evolutionary way of development of Software Systems using Object Oriented concepts.

Course Outcomes

On successful completion of the course, the students will be able to:

CO.No	Course Objective Description
IMCA504.1	Define basic concepts, terms and principles of object-oriented analysis and design
IMCA504.2	Explain basic structure, behavior and architecture of modeling.
IMCA504.3	Illustrate the use of UML for object-oriented modeling.
IMCA504.4	Model an overall system using UML diagrams.

IMCA504.5	Evaluate various system development methodologies.
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Detailed Syllabus

Topic	Session	Reference
MODULE I AN OVERVIEW OF OBJECT ORIENTED SYSTEMS DEVELOPMENT: Introduction, Two Orthogonal Views of the Software WHY WE MODEL: The Importance of Modeling, Principles of Modeling, Object Oriented Modeling INTRODUCING THE UML: An overview of the UML, A Conceptual Model of the UML, Architecture, Software Development Life Cycle.	1-10	Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", 2nd Edition, Pearson Education, 2007. Ali Bahrami, "Object Oriented Systems Development using the unified modeling language", 1stEdition, TMH, 2008.
MODULE II BASIC STRUCTURAL MODELING: Classes, Relationships, Common Mechanisms, and diagrams, class diagrams. ADVANCED STRUCTURAL MODELING: Advanced classes. advanced relationships, Interfaces, Types and Roles, Packages, Object Diagrams	11- 18	Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", 2nd Edition, Pearson Education, 2007. Ali Bahrami, "Object Oriented Systems Development using the unified modeling language", 1stEdition, TMH, 2008.
MODULE III BASIC BEHAVIORAL MODELING: Interactions, Interaction diagrams, Use cases, Use case diagrams, Activity Diagrams ADVANCED BEHAVIORAL MODELING: Events and signals, state machines, processes and Threads, Time and Space, Statechart Diagrams.	19-26	Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", 2nd Edition, Pearson Education, 2007. Ali Bahrami, "Object Oriented Systems Development using the unified modeling language", 1stEdition, TMH, 2008.
MODULE IV ARCHITECTURAL MODELING I: Components, Component diagrams, Deployment, Deployment diagrams, System Models	27-32	Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", 2nd Edition, Pearson Education, 2007. Ali Bahrami, "Object Oriented Systems Development using the unified modeling language", 1stEdition, TMH, 2008.
MODULE V CASE STUDY: Bank ATM Application, Railway Reservation System.	33-38	Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", 2nd Edition, Pearson Education, 2007. Ali Bahrami, "Object Oriented Systems Development using the unified modeling language", 1stEdition, TMH, 2008.

Recommended Books and Reading List

1. Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", 2nd Edition, Pearson Education, 2007.
2. Ali Bahrami, "Object Oriented Systems Development using the unified modeling language", 1stEdition, TMH, 2008
3. Meilir Page-Jones, "Fundamentals of Object Oriented Design in UML", 1stEdition, Pearson Education, 2006.
4. Pascal Roques, "Modeling Software Systems Using UML2", 1stEdition, WILEY Dreamtech, 2007.
5. Atul Kahate, "Object Oriented Analysis & Design", 1stEdition, TMH, 2007.
6. Mark Priestley, "Practical Object-Oriented Design with UML", 2nd Edition, TMH, 2005.

7. Craig Larman, “Applying UML and Patterns: An introduction to Object”, Oriented Analysis and Design and Unified Process, 3rd Edition, Pearson Education, 2007.

IMCA 505 SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

Course Overview

Program	IMCA505
Semester	5
Course Code	IMCA505
Course Title	Software Engineering And Project Management
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

This course provides an understanding of both theoretical and methodological issues involved in modern software engineering project management and focuses strongly on practical techniques. The scale and complexity of the software systems now being developed demands that software engineer’s work in multi-functional teams and that they adopt scalable and robust methodologies and tools. This course will help the students to develop the transferable skills in logical analysis, communication and project management necessary for working within team-based, professional environments.

Course Objectives

By the end of this course students will be able to

1. Understand the process of Software Engineering
2. Conceptualize the Software Development Life Cycle (SDLC) models.
3. Familiarize Project Management framework and Tools

Course Outcomes

On successful completion of this course :

CO.No	Description
IMCA505.1	Students will be able to understand various software development techniques and methodologies
IMCA505.2	Students will be able to choose appropriate process model depending on the user requirements
IMCA505.3	Students will be able to Translate a requirement specification to a design using an appropriate software engineering methodology.
IMCA505.4	Students will be able to formulate appropriate testing strategy for the given software system

IMCA505.5	Students will be able to develop software projects based on current technology, by managing resources economically and keeping ethical values.
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Detailed Syllabus:

Topic	Session	References
<u>Module I</u> Software and Software Engineering: The Nature of Software, The Unique Nature of WebApps, Software Engineering, The Software Process, Software Engineering Practice. Process Models: A Generic Process Model, Process Assessment and Improvement, Perspective Process Models, Specialized Process Models.	1-8	Software Engineering – Roger S Pressman, ‘Software Engineering: A Practitioner’s Approach, 7thEdition, McGraw-Hill International Edition, 2010.
<u>Module II</u> Requirements Engineering, Developing Use Cases, Software Engineering Project Management: Major issues of Software Engineering. Functions and activities of Management, planning, organizing, staffing, directing and controlling a software Engineering Project. Project Evaluation: Strategic Assessment, technical assessment, Cost-benefit analysis, cash flow forecasting, cost-benefit evaluation techniques, Risk evaluation.	9-16	Software Engineering – Roger S Pressman, ‘Software Engineering: A Practitioner’s Approach, 7thEdition, McGraw-Hill International Edition, 2010.
<u>Module III</u> Selection of an appropriate project approach: Choosing Technologies, technical plan contents list, choice of process models, structure versus speed of delivery. The Waterfall model, The V-process model, the spiral model, Software prototyping, other ways of categorizing software prototypes. Controlling changes during prototyping, incremental delivery. Dynamic systems development method, Extreme programming Managing iterative processes, selecting the most appropriate process model	17-24	Software Engineering – Roger S Pressman, ‘Software Engineering: A Practitioner’s Approach, 7thEdition, McGraw-Hill International Edition, 2010.
<u>Module IV</u> Software Effort Estimation: Problems with over and under estimates. The basis for Software estimating, Software effort estimation techniques, expert judgment, estimating by analogy Albrecht function point analysis, function points Mark II, Object points, a procedural code –oriented approach, COCOMO: A Parametric Model.	25-33	Software Engineering – Roger S Pressman, ‘Software Engineering: A Practitioner’s Approach, 7thEdition, McGraw-Hill International Edition, 2010.
<u>Module V</u> Activity planning: The objectives of activity planning, When to plan, Project Schedules, Projects and activities, Sequencing and scheduling activities. Risk Management: The nature of risk, types of risks, Managing Risk, Hazard Identification, Hazard Analysis, Risk planning and control, Evaluating risks to the schedule.	34-40	Software Engineering – Roger S Pressman, ‘Software Engineering: A Practitioner’s Approach, 7thEdition, McGraw-Hill International Edition, 2010.
<u>Module VI</u> Microsoft Project Introduction	41	

Recommended Books & Reading List

- 1) Software Engineering – Roger S Pressman, ‘Software Engineering: A Practitioner’s Approach, 7th Edition, McGraw-Hill International Edition, 2010.
- 2) Richard Fairey, ‘Software Engineering concepts, Tata McGraw-Hill 2009 reprint
- 3) Software Project Management by Bob Hughes and Mike Cotterell, Tata McGraw-Hill Edition 2004.
- 4) Software Project Management- A unified framework by Walker Royce, Pearson Education, 2003.
- 5) Software Engineering-a Practitioner’s approach by Roger S Pressman, Sixth Edition, Tata McGraw Hill.
- 6) Software Management By Donald J Reifer, Sixth Edition, Wiley-IEEE Computer Society Press, 2002

IMCA 506 PYTHON PROGRAMMING PRACTICALS

Course Overview

Program	IMCA
Semester	5
Course Code	IMCA506
Course Title	Python Programming Practicals
Type of Course	Core
Contact Hours	4 hour per week
Credit	2

Course Description

This course leads the students from the basics of writing and running Python scripts to more advanced features such as file operations, regular expressions and using the extensive functionality of Python modules. Extra emphasis is placed on features unique to Python, such as tuples, array slices, and output formatting.

Course Objectives

By the end of this course :

1. Students will be able to install and run the Python interpreter
2. Students will be able to create and execute Python Programs
3. Students will be able to understand the concept of file I/O and also the appropriate Python visualization libraries

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA506.1	Students will be able to identify the commonly used operations involving file systems and regular expressions.
IMCA506.2	Students will be able to articulate the Object-Oriented Programming concepts such as encapsulation, inheritance and polymorphism as used in Python.
IMCA506.3	Students will be able to apply a solution clearly and accurately in a program using Python.
IMCA506.4	Students will have the ability to determine the methods to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples and sets
IMCA506.5	Students will have the ability to demonstrate web application using python web Framework-Django

Detailed Syllabus:

Topic	Session	References
<p>Module 1 Introduction: What is Python, Origin, Comparison, Environment setup; Basic Syntax: Comments, Operators, Variables and Assignment, Data Types: Numbers, Strings, Lists Tuples, Dictionaries, Boolean, Set; Differentiate Mutable, Immutable datatypes. Python Standard Library ,Modes of Python Programming: Interactive, Script mode; Introduction to Python coding styles : Imperative, Functional, Objectoriented, and Procedural .Control Structures: Sequential, Selection (if, if else elif, nested ifelse),Iteration(while, for, nested loops),Loop control statements(break, continue, pass) User-Defined Functions, Parameter Passing.</p>	1-8	LjubomirPerkovic, "Introduction to Computing Using Python: An Application Development Focus", Wiley, 2012.
<p>Module II Numbers: Integers and Boolean, Floating Point Numbers, Complex Numbers, None Strings: Declaration, use of escape sequence, Operations on strings: concatenation, Repetition, use of (in, not in), Slicing, Built-in String functions Lists: Construct a list, Derive from another list, use of range function, append to a list, access elements using index, loops with list, delete from list, list functions Tuples: Define tuple , indexing in tuples , add elements to a tuple , delete a tuple , slicing, Tuple functions Dictionaries: Create a dictionary, access dictionary elements, Delete elements, Append elements to a dictionary , update existing elements, Dictionary Functions</p>	9-14	LjubomirPerkovic, "Introduction to Computing Using Python: An Application Development Focus", Wiley, 2012.
<p>Module III Functions: Define a function, Calling a function , types of functions, function arguments, Global and local variables, Recursive function. Modules: Create a module, use a module, Renaming a module, Built-in modules, import from module, math module, random module,</p>	15-20	LjubomirPerkovic, "Introduction to Computing Using Python: An Application Development Focus", Wiley, 2012.
<p>Module IV Object Oriented Programming: Classes and objects, Attributes, methods, constructors, destructors, Deleting Attributes and objects, Python Inheritance ,overloading, overriding, Abstraction, Encapsulation, Polymorphism, Containers Errors and Exceptions: Syntax errors, Exceptions, handling exceptions (try, except, else, finally), raising exceptions, user defined exceptions</p>	21-30	LjubomirPerkovic, "Introduction to Computing Using Python: An Application Development Focus", Wiley, 2012.
<p>Module V Python GUI: Basics of tkinter GUI Development (Widgets, geometry management, organising layouts & widgets), Event-Based tkinter Widgets. Python frameworks : Django (create dynamic web application with Database)</p>	31-38	LjubomirPerkovic, "Introduction to Computing Using Python: An Application Development Focus", Wiley, 2012.

Recommended Books & Reading List

1. Ljubomir Perkovic, "Introduction to Computing Using Python: An Application Development Focus", Wiley, 2012.
2. Charles Dierbach, "Introduction to Computer Science Using Python: A Computational Problem-Solving Focus", Wiley, 2013.
3. Allen B Downey, "Think Python", Oreilly, 2012

Lab Record Programs

All students are supposed to prepare a lab record (written/printed) with minimum 30 programs including the mini project.

1. Develop programs based on control structures, functions and arrays (8)
2. Programs to implement the basic data structures using python(4)
3. Programs based on python data types(4)
4. Programs to implement functions (3)
5. Programs to implement Modules (2)
6. Programs to implement Object oriented concepts (6)
7. Programs to implement Exception handling(2)
8. Develop a Mini Project (Student Management System) using Django framework(1)

IMCA 507 WEB TECHNOLOGY PRACTICALS

Course Overview

Program	IMCA
Semester	5
Course Code	IMCA 507
Course Title	Web Technology Practicals
Type of Course	Core
Contact Hours	4 hours per week
Credit	2

Course Description

Basic objective of this course is to enable the students to build basic and advanced web applications using various web programming languages. Students need not have prior familiarity with web programming, but they must have the basic knowledge of computer programming in order for this course to be successful.

Course Objectives

By the end of this course students will be able:

1. To build basic web applications using HTML.
2. To enhance the web applications build using HTML with CSS.
3. To understand XML and performing validation of XML file using DTD and Schemas.
4. To create web applications using javascript.
5. To create web applications using JSP and using MySQL to build database applications.
6. To create web applications using Ruby and understanding its object oriented concepts.
7. Focusing on building Ruby on Rails applications.

Course Outcomes

On successful completion of this course :

CO.No	Course Outcome Description
IMCA507.1	Students will be able to define the web programming concepts.
IMCA507.2	Students will be able to develop and explain web programming.
IMCA507.3	Students will be able to apply programming logic to develop web applications.
IMCA507.4	Students have the ability to examine and test different web technologies.
IMCA507.5	Students will be able to design and construct applications based on different web technologies.

Detailed Syllabus:

Topic	Session
Create an HTML page to demonstrate lists and tables.	1-2
Create an HTML page using frames.	3-4
Create an image gallery using CSS.	5-6
Create an HTML form and style it using CSS.	7-8
Create an XML file and validate it using XML DTD.	9-10
Create an XML file and validate it using XML Schema.	11-12
Create javascript application using arrays and functions.	13-14
Create javascript application by implementing Date and Math related objects.	15-16
Create a javascript application that demonstrates form validation which includes text field, radio buttons, check boxes, list box and other controls.	17-21
Create a web application using JSP.	22-23
Create a JSP application to demonstrate sessions.	24-25
Create a JSP application to demonstrate cookies.	26-27
Create a database application using JSP and MySQL.	28-30
Create a JSP application to demonstrate java beans.	31-32
Create a ruby program to demonstrate classes and objects.	33
Create a ruby program to demonstrate inheritance.	34-35
Create a ruby program to demonstrate overriding.	36
Create a ruby program to demonstrate modules.	37
Create a ruby program to demonstrate mixins.	38-39
Create a database application using Rails.	40-42

Recommended Books & Reading List

1. Tanweer Alam, "Introduction to Web Technology", Khanna Book Publishing.
2. Xavier. C, "Web Technology and Design", New Age International.
3. Thomas A. Powell, "HTML & CSS: The Complete Reference", Fifth Edition, McGraw Hill.
4. Kris Hadlock, "Ajax for Web Application Developers", SAMS Publishing.
5. Thomas Powell, "Javascript: The Complete Reference", Tata McGraw-Hill.
6. Brad Dayley, "Node.js, MongoDB, and Angular JS Web Development", Addison Wesley.
7. Jason Brittain, Ian F Darwin, "Tomcat The Definitive Guide", O'Reilly.
8. Hans Bergsten, "Java Server Pages", O'Reilly.
9. Phil Hanna, "JSP The Complete Reference", Osborne/McGraw-Hill.
10. Steven Holzner, "Beginning Ruby on Rails", Wiley Publishing.

Semester VI

IMCA 601 RESEARCH METHODOLOGY

Course Overview

Program	IMCA
Semester	6
Course Code	IMCA601
Course Title	Research Methodology
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

The course aims at introducing them to the basic concepts used in research and to scientific social research methods and their approach. It includes discussions on sampling techniques, research designs and techniques of analysis.

Course Objectives

By the end of the course the students will be able to:

- 1) Develop understanding of the basic framework of research process.
- 2) Develop an understanding of various research designs and techniques.
- 3) Identify various sources of information for literature review and data collection.
- 4) Develop an understanding of the ethical dimensions of conducting applied research.

Course Outcomes

On successful completion of this course :

CO.No	Description
IMCA601.1	Students will be able to understand basic concepts of research and the framework of research
IMCA601.2	Students will be able to solve the research problem by analyzing the data analyze data.
IMCA601.3	Students will be able to define how the ethical dimensions of research will conduct.
IMCA601.4	Students will have the ability to create a problem statement from a real-life problem.
IMCA601.5	Students will be able to organize and conduct research in an appropriate manner and appreciate the components of scholarly writing.

Detailed Syllabus:

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Topic	Session	References
Module I- Meaning of Research – Types of Research. Research process- Problem definition-Objectives of Research. Research design- Data collection –Data Analysis. Interpretation of Results Validation of Results. Formulation of a Research problem.	1-7	Research Methodology By R Panneerselvam - Prentice Hall International 2004 - Eleventh printing, 2013
Module II- Basic Statistical measures - Measures of central tendency – Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean, Measures of variation – Range, Mean Deviation, Quartile Deviation, and Standard Deviation.	8-14	Research Methodology By CR Kothari - New Age International publishers Second Revised Edition, Reprint 2013.
Module III- Ethics of Research- Scientific Misconduct- Forms of Scientific Misconduct. Measurement parameters- Measurement of errors - Measurement uncertainty. Statistical test of hypothesis- Ttest, Z Test, F-test, Chi-square test.	15-22	Research Methodology By CR Kothari - New Age International publishers Second Revised Edition, Reprint 2013.
Module IV- Guidelines for writing research Papers - Guidelines for writing the abstract, introduction, methodology, results and discussion, conclusion sections of a manuscript. Impact factor- Validity, Merits, limitations. Other measurements of impact. h-index-advantages	23-30	Research Methodology By Francis C. Dane, Brooks/Cole Publishing Company, California.
Module V- Intellectual property rights (IPR)- forms of IPR- patents-copyrights- Trademarks. Introduction to Latex, Basic Latex Commands , Interpretation and Report Writing-Meaning of Interpretation. Significance of Report Writing , Different Steps in Writing Report, Layout of the Research Report, Types of Reports, Oral Presentation. Mechanics of Writing a Research Report Precautions for Writing Research Reports.	32-40	Research Methodology By Francis C. Dane, Brooks/Cole Publishing Company, California. Fundamentals of statistics: S.C. Gupta, 6th Revised and enlarged edition-April 2004, Himalaya Publications

Recommended Books & Reading List

1) Research Methodology By R Panneerselvam - Prentice Hall International 2004 -

Eleventh printing, 2013.

2) 2. Research Methodology By CR Kothari - New Age International publishers Second

Revised Edition, Reprint 2013.

3) 3. Research Methodology By Francis C. Dane, Brooks/Cole Publishing Company,

California.

IMCA 602 DATA COMMUNICATION

Course Overview

Program	IMCA
Semester	6
Course Code	IMCA602
Course Title	Data Communication
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

Basic objective of this course is to develop an understanding of the various aspects of data communications. The course covers the principles of data communications, the fundamentals of signaling, basic transmission concepts, transmission media, multiplexing etc. Students need not have prior familiarity with data communication, in order for this course to be successful.

Course Objectives

By the end of this course students will be able :

1. To understand the basic concepts of data communications.
2. To understand the concept of digital signal transmission
3. To understand the multiplexing techniques
4. To understand the switching techniques

Course Outcomes

On successful completion of the course :

CO.No	Description
IMCA602.1	Students will be able to understand and explain Data Communications System and its components
IMCA602.2	Students will be able to explain the process of data communication.
IMCA602.3	Students will be able to familiarize with the basic taxonomy and terminology of the data communication area.
IMCA602.4	Students will have the ability to select appropriate data communications solutions to business problems and needs.
IMCA602.5	Students will be able to summarize different application of data communications and multiplexing techniques.

Detailed Syllabus:

Topic	Session	References
<p>Module I Introduction: Simplified data communications model. Data and Signals: Analog and Digital Periodic Analog Signals, Digital Signals. Transmission impairments- Attenuation, Delay distortion, Noise. Transmission Media: Guided Transmission Media - Twisted pair wires, Coaxial, Optical fiber. Wireless Transmission - Terrestrial microwave, satellite microwave, broad cast Radio, Infrared.</p>	1-7	Behrouz A Forouzan- Data Communications and Networking, 4th Edition. McGraw Hill, William Stallings -Data and Computer communications –
<p>Module II Digital Transmission: Digital-to-Digital Conversion- Line Coding- Characteristics of line coding. Line coding schemes- Unipolar encoding- NRZ, RZ, Manchester, Differential Manchester. Bipolar encoding: AMI., Block coding. Analog-to-Digital Conversion: Pulse Code Modulation (PCM)- Sampling, Sampling theorem, Nyquist rate, Pulse Amplitude Modulation (PAM)</p>	8-15	Behrouz A Forouzan- Data Communications and Networking
<p>Module III Analog Transmission: Digital-to-Analog Conversion – Bit Rate and Baud Rate, ASK, FSK, PSK, QAM. Analog-to-Analog Conversion- Amplitude Modulation, Frequency Modulation, and Phase Modulation Multiplexing: FDM, TDM, statistical TDM, WDM. Channelization: FDMA, TDMA, CDMA..</p>	16-27	Behrouz A Forouzan- Data Communications and Networking
<p>Module IV Transmission Mode: Parallel transmission, Serial transmission, Asynchronous transmission, synchronous transmission. Line Configurations, full duplex and half duplex transmission. Circuit switching: Telephone networks-local loops, trunks. Packet Switching: Datagram, virtual circuit. Effect of packet size on transmission time. Comparison of circuit switching and packet switching</p>	28-35	Behrouz A Forouzan- Data Communications and Networking
<p>Module V High-Speed Digital Access: DSL Technology-ADSL, xDSL, Spread Spectrum- Concept, Frequency Hopping, Direct Sequence. Cellular Telephony: Basic concepts, Frequency-Reuse Principle, Transmitting, Receiving, Handoff, Roaming. First Generation, Second Generation- GSM, Third Generation, Fourth Generation.</p>	35-40	Behrouz A Forouzan- Data Communications and Networking

Recommended Books & Reading List

1. Behrouz A Forouzan- Data Communications and Networking, 4th Edition. McGraw Hill
2. William Stallings -Data and Computer communications – Prentice Hall of India, 7th Edition.
3. Andrews S. Tanenbaum -Computer Networks, Prentice Hall of India, 4th Edition.

IMCA 603(a) ELECTIVE II -ANDROID PROGRAMMING

Course Overview

Program	IMCA
Semester	6
Course Code	IMCA 603(a)
Course Title	Android Programming
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

This course is an attempt to provide you with the basic information about Android programming, general structure of the android app. This course teach about the android platform and application life cycle. Also enable students to write a simple android programming, use built in widgets and components, work with the databases to store data locally.

Course Objectives

By the end of this course students will be able to :

1. Understand the purpose different development tools for Android
2. Design a graphical user interface
3. Integrate an applications with pre-existing third party libraries
4. Access location based services
5. Utilize Android Studio to create simple and complex applications
6. Plan, prepare and build an original Android from concept to working program.

Course Outcomes

On successful completion of this course :

CO.No	Course Outcome Description
IMCA603(a).1	Students will be able understand functionality and purpose of different android tools
IMCA603(a).2	Students will learn to design graphical user interface part.
IMCA603(a).3	Students will be able to make decision to solve a problem using package, library and threads.
IMCA603(a).4	Students will be able to apply the concepts to create small application in form of apps.
IMCA603(a).5	Students will be able to design and develop various kinds of apps.

Detailed Syllabus:

Topic	Session	References
Module I INTRODUCTION – Android, Android ecosystem, Android versions, Android activity, features of android, Android architecture, Android environment: operating system, java jdk, android SDK, Android development tools (ADT), Android virtual devices (AVD), Emulators, Dalvik virtual machine (DVM), Difference between JVM and DVM, Create the first android application.	1-8	John Horton, “Android programming for beginners”
Module II Android user interface – Linear layout, Absolute layout, Frame layout, Relative layout, Table layout, Designing your user interface with view – TextView, Button, ImageButton, EditText, CheckBox, ToggleButton, RadioButton and RadioGroup, ProgressBar, Autocomplete TextView, Spinner, ListView, GridView, ImageView, ScrollView, Custom Toast Alert, Time and Date Picker.	9-16	John Horton, “Android programming for beginners”
Module III Real world layouts – Building a real-world UI, Designing a form with relative layout, Android life cycle, life cycle phases. Activity: Introduction, Intent, Intent-filter, Activity life cycle, broadcast life cycle, Service. Multimedia: Android system architecture, Play audio and video, Text to speech.	17-24	John Horton, “Android programming for beginners”
Module IV Animations – Animations in android, Designing animations in XML, Instantiating animations and controlling them with java code, animation features, animation demo app. Paging and Swiping: Building an image gallery app. Capturing images: Capturing images from the camera, capturing images app.	25-28	John Horton, “Android programming for beginners”
Module V SQLite – Introduction, The android SQLite API, Creation and connection of the database, Extracting value from a cursor, Transactions. Integrating Google Maps and GPS locations: Introduction, GPS app, Google Maps app. Publishing apps: Preparing to publish, building the publishable apk file, publishing the app.	29-40	John Horton, “Android programming for beginners”

Recommended Books & Reading List

1. John Horton, “Android programming for beginners”
2. Prasanna Kumar Dixit, “Android”, Vikas Publishing House.
3. Bill Phillips and Brian Hardy, “Android Programming, The Big Nerd Ranch Guide”.
4. Kevin Grant and Chris Haseman, “Beginning Android Programming, Develop and Design.

IMCA603(b) ELECTIVE II REAL TIME OPERATING SYSTEM

Course overview

Program	IMCA
Semester	6
Course Code	IMCA 603(b)
Course Title	Real Time Operating System
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

This course will help students to understand the concepts of Operating systems and also the basics of task management and task scheduling. It also helps to gain the knowledge on RTOS , Memory management, performance metrics and RTOS tools.

Course Objectives

By the end of this course students will be able :

- 1 To acquire knowledge about concepts related to OS such as Scheduling techniques, threads, inter-thread communications, memory management.
- 2 To acquire knowledge about different types of scheduling algorithms
- 3 To study about FreeRTOS
- 4 To understand the various functions of RTOS

Course Outcomes

On successful completion of the course:

CO.No	Course Objective Description
IMCA603(b).1	Students will be able to identify the need to create the special purpose operating system.
IMCA603(b).2	Students will be able to describe the fundamental concepts of RTOS
IMCA603(b).3	Students will be able to apply Scheduling techniques
IMCA603(b).4	Students will be able to develop programs for real time services, firmware and RTOS.
IMCA603(b).5	Students will be able to evaluate the requirement for task synchronization and coordination handled by operating system

Detailed Syllabus

Topic	Session	Reference
MODULE I Real-Time Concepts: Brief history of Real Time Systems, A brief history of Embedded Systems, Real time services, Real time standards, System resources, Resource Analysis, Real-Time Service Utility , Real time operating System.	1-8	Sam Siewert , “Real-Time Embedded Systems And Components”.
MODULE II Preemptive Fixed Priority Scheduling Policy, Rate Monotonic least upper bound, Necessary and Sufficient feasibility, Deadline – Monotonic Policy, Dynamic priority policies, Worst case execution time, Blocking , Deadlock and live lock. Critical Section to protect shared resource.	9- 16	Sam Siewert , “Real-Time Embedded Systems And Components”.
MODULE III Operating System basics, Types of operating system, Task, process and Threads, multi processing and multitasking, Task Scheduling, Task states, Idle Task, Task Communication, Task Synchronization.	19-26	Shibu K V, “Introduction to Embedded System ”
MODULE IV Embedded Firmware Design Approaches, Embedded Operating System based approach, Integrated development environment (IDE), Overview of IDEs for Embedded System Development. Introduction to FreeRTOS, multitasking on an LPC17xx Cortex-M3 Microcontroller, LPC17xx Port of FreeRTOS, Resources Used by FreeRTOS, Task Management, Task Functions, Task Priorities, Idle task and task hook function, Creation and Deletion of tasks.	27-32	Sam Siewert , “Real-Time Embedded Systems And Components”. Shibu K V, “Introduction to Embedded System ”
MODULE V Queue Management, Characteristics of a Queue, Working with Large Data, Interrupt Management, Queues within an Interrupt Service Routine, Critical Sections and Suspending the Scheduler.	33-40	Sam Siewert , “Real-Time Embedded Systems And Components”. Shibu K V, “Introduction to Embedded System ”

Recommended Books and Reading List

1. Sam Siewert , “Real-Time Embedded Systems And Components”.
2. Shibu K V, “Introduction to Embedded System ”.
3. “Using the FreeRTOS Real Time Kernel” From FreeRTOS.
4. Manuals and Technical Documents from the ARM Inc, web site.

IMCA603(c) Elective II DISTRIBUTED PROCESSING

Course Overview

Program	IMCA
Semester	6
Course Code	IMCA603(c)
Course Title	Distributed Processing
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

The course 'Distributed Processing' helps students to understand as a system whose components are located on different networked computers, which communicate and coordinate their actions by passing messages to one another. The components interact with one another in order to achieve a common goal such as solving a large computational problem. The purpose of the distributed system is to coordinate the use of shared resources or provide communication services to the users.

Course Objectives

By the end of this course students will be able to :

1. Understand about distributed systems and give explanation about what are its goals and types. It explains about the various architectures, middleware and its automatic adaptation. It gives an explanation about the importance of multithreading in distributed systems, Virtualization, Clients, Servers, Code Migration
2. Know about RPC, Naming, Synchronization, algorithms and mutual exclusion.
3. Know about consistency, fault tolerance and distributed file systems.
4. Know about cloud architecture and models, its services and solutions.
5. Understand virtualization, types and structures, clusters and resource management, cloud architecture, design challenges, security challenges and risks.

Course Outcomes

On successful completion of the course:

CO.No	Description
IMCA603(c).1	List the basic concepts of distributed processing and their features.
IMCA603(c).2	Explain about the main ideas of distributed processing.
IMCA603(c).3	Apply the various techniques available in distributed processing.
IMCA603(c).4	Differentiate the sub features, explaining its role in distributed processing
IMCA505.5	Evaluate the various technologies available in distributed processing.

Detailed Syllabus:

Topic	Session	References
Module I Introduction to distributed systems – definition, types, goals, Architectures, System architectures, architectures versus middle ware, self-management,	1-10	A.S Tanenbaum and M.V Steen, “Distributed Systems – Principles and Paradigm”, 2nd Edition, PHI Publications
Module II Processes, Threads, Virtualization Clients, Servers, Code Migration, Communication–RPC, Message oriented, Stream oriented.	11-20	A.S Tanenbaum and M.V Steen, “Distributed Systems – Principles and Paradigm”, 2nd Edition, PHI Publications
Module III Naming – flat naming, structured naming, attribute-based naming, Synchronization–Clock synchronization, Logical Clocks. Election Algorithms, Mutual Exclusion	21-28	A.S Tanenbaum and M.V Steen, “Distributed Systems – Principles and Paradigm”, 2nd Edition, PHI Publications
Module IV Consistency and replication – Data centric consistency, client centric consistency, consistency protocols. Fault Tolerance – introduction, process resilience. Reliable client-server communication. Reliable group communication. Distributed commit Recovery	29-36	A.S Tanenbaum and M.V Steen, “Distributed Systems – Principles and Paradigm”, 2nd Edition, PHI Publications
Module V Security: Introduction to security, Secure channels, Access control, Security management	37-42	A.S Tanenbaum and M.V Steen, “Distributed Systems – Principles and Paradigm”, 2nd Edition, PHI Publications

Recommended Books & Reading List

1. A.S Tanenbaum and M.V Steen, “Distributed Systems – Principles and Paradigm”, 2nd Edition, PHI Publications
2. George Coulouris, Jean Dollimore, Tim Kindberg, “Distributed Systems: Concepts and Design”, 4th Edition, Pearson Education 2005.
3. M.L. Liu, “Distributed Computing Principles and Applications”, Pearson Addison Wesley, 2004.
4. Mukesh Singhal, “Advanced Concepts in Operating Systems”, McGraw Hill series in Computer science, 1994.
5. Nancy A. Lynch, “Distributed Algorithms”, The Morgan Kaufmann Series in Data Management System, Morgan Kaufmann Publishers, 2000.

IMCA603(d) ELECTIVE II EMBEDDED SYSTEM DESIGN

Course Overview

Program	IMCA
Semester	6
Course Code	IMCA603(d)
Course Title	Embedded System Design
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

This course helps the students to be aware about the fundamental concepts of the embedded system. It also introduces the execution environment and the platforms used for the development of embedded systems. Various design methodologies and tools for both software and hardware components for distributed computing are also explained.

Course Objectives

By the end of this course students will be able :

1. To understand the basic concepts of embedded systems.
2. To acquire knowledge about the development environments of the systems.
3. To acquire knowledge about the various embedded computing platforms.
4. To be aware about the system design and techniques of embedded system.

Course Outcomes

On successful completion of the course:

CO.No	Description
IMCA603(d).1	Students will be able to explain the fundamentals of embedded system design
IMCA603(d).2	Students will be able to analyze the development and execution environment of embedded systems
IMCA603(d).3	Students will be able to compare different design methodologies and tools applied to embedded systems
IMCA603(d).4	Students will be able to evaluate the requirements of programming Embedded Systems, related software architectures and tool chain for Embedded Systems.

IMCA603(d).5	Students will be able to evaluate the differences between the general computing system and the embedded system, also recognize the classification of embedded systems.
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Detailed Syllabus:

Topic	Session	References
Module I Introduction - Definition of Embedded System, Embedded Systems Vs General Computing Systems, Classification, Major Application Areas, Purpose of Embedded Systems, Embedded computing – characteristics of embedded computing applications – embedded system design challenges – constraint-driven design – IP-based design – hardware and software co-design	1-10	Wayne Wolf, “Computers as Components: Principles of Embedded Computer Systems Design”, Morgan Kaufman Publishers. Jean J.Labrosse, “Embedded system Building blocks: complete and ready-to-use modules in C”.
Module II Development Environment - The Execution Environment - Memory Organization - System Space - Code Space - Data Space - Unpopulated Memory Space - I/O Space - System Start-up - Interrupt Response Cycle - Function Calls and Stack Frames - Run-Time Environment - Object Placement	11-20	Wayne Wolf, “Computers as Components: Principles of Embedded Computer Systems Design”, Morgan Kaufman Publishers. Jean J.Labrosse, “Embedded system Building blocks: complete and ready-to-use modules in C”.
Module III Embedded Computing Platform - CPU bus – memory devices – I/O devices – component interfacing – designing with microprocessors – development and debugging.	21-28	Wayne Wolf, “Computers as Components: Principles of Embedded Computer Systems Design”, Morgan Kaufman Publishers. Jean J.Labrosse, “Embedded system Building blocks: complete and ready-to-use modules in C”.
Module IV Distributed Embedded System Design - Inter-process communication: signals – signals in UML – shared memory communication – accelerated design – network-based design.	29-34	Wayne Wolf, “Computers as Components: Principles of Embedded Computer Systems Design”, Morgan Kaufman Publishers. Jean J.Labrosse, “Embedded system Building blocks: complete and ready-to-use modules in C”.
Module V Design Technique - Design methodologies and tools – designing hardware and software components - requirement analysis and specification – system analysis and architecture design.	35-40	Wayne Wolf, “Computers as Components: Principles of Embedded Computer Systems Design”, Morgan Kaufman Publishers. Jean J.Labrosse, “Embedded system Building blocks: complete and ready-to-use modules in C”.

Recommended Books & Reading List

1. Wayne Wolf, "Computers as Components: Principles of Embedded Computer Systems Design", Morgan Kaufman Publishers.
2. Jean J.Labrosse, "Embedded system Building blocks: complete and ready-to-use modules in C".
3. Arnold S. Berger, "Embedded Systems Design: An Introduction to Processes, Tools and Techniques"
4. Introduction to Embedded Systems , Shibu K.V, Mc Graw Hill
5. Embedded System Design .Frank Vahid, Tony Givargis, John Wiley

IMCA 604 SEMINAR-I

Course Overview

Program	IMCA
Semester	6
Course Code	IMCA 604
Course Title	Seminar
Type of Course	Core
Contact Hours	2 hours per week
Credit	2

Course Description

This course is intended to make IMCA students aware of the Current / Future trends related to Information Technology/ Computer Science/ Computer Application.

As such, a seminar report of not less than 15 pages is to be prepared and submitted for final evaluation.

The Seminar is to be evaluated internally by the College and carries a total Marks of 100 divided as follows:

1. Marks for relevance of topic (20)
2. Marks for literature study (20)
3. Marks for each Presentation (20)– 2 presentations (40)
4. Marks for Seminar Report (20).

The seminar report should be prepared as per the following guidelines:

1. No of pages: Not less than 15 pages.
2. Size A4, One sided.
3. Text Size 12; Title Size 14 Underlined; Line spacing: 1.5 Full Justified
4. Spiral Binding with uniformity in bind cover.

Every student is expected to present a minimum of 2 presentation of the seminar before the evaluation committee and for each presentation marks can be equally apportioned. A three-member committee consisting of qualified TEACHERS with PG in Computer Science / Computer Application from the MCA Department has to be appointed by Head of Department. The Committee duly appointed will evaluate the seminar. At the end of the semester the total marks have to be calculated and send to the University. A Student shall have to score 50 % for getting a pass in the Seminar.

IMCA 605 SOFTWARE DEVELOPMENT PROJECT -1

Course Overview

Program	IMCA
Semester	6
Course Code	IMCA 605
Course Title	Software Development Project-1
Type of Course	Core
Contact Hours	4 hours per week
Credit	6

Course Description

The [IMCA 605] project is designed to help students develop practical ability and knowledge about practical tools/techniques in order to solve real life problems related to the industry, academic institutions and computer science research.

This course is one that involves practical work for understanding and solving problems in the field of computing. Any computer science project usually consists of the following: analysis, design, coding/implementation and testing of some information system or subsystem, such as, a piece of software. In this course we expect a software system or subsystem.

This course will also develop your investigative, research and report writing skills and will provide an opportunity for the candidate, to investigate a chosen topic in considerable depth.

This course provides the opportunity for students to demonstrate the application of their programming and research skills, and to apply their knowledge to complex computing problems.

Project Team

The project team should be organized and determined towards the fulfilment of their projects' objectives and tasks. A maximum of two students should work on a project, however, an individual student can also undertake the project on his/her own.

The main responsibilities of the project team/student are to:

- Ensure that an appropriate amount of time and effort is applied to the project,
- Ensure that they are responsive to the guidance of their counsellor,
- Acknowledge the text, material and ideas of others properly,
- Meet all milestones and regulations related to the work, and

- To communicate any problems that are likely to prejudice the quality or time lines of the work to the counsellor as and when problem arises.

Project Categories

Four broad areas / categories of computer science are given below, the candidate may select any of these category for Mini project.

- Application development
- Networking project
- System software
- Website development.

Semester VII

IMCA 701 LINUX OS AND SHELL PROGRAMMING

Course Overview

Program	IMCA
Semester	7
Course Code	IMCA701
Course Title	Linux OS and Shell Programming
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course Description

Linux operating system which belongs to the open source category is considered to be one of the most reliable, stable operating system and also the most used OS. The course intends to introduce OS concepts, basic Linux commands, shell scripts, user management, administration, networking and communications.

Course Objectives

By the end of the course the students will be able to:

1. To introduce Operating system concepts, file handling, filtering and editing.
2. Writing shell programs.
3. Understanding to Linux administration commands.
4. Carry out tasks related to system performance management, backup restore etc.
5. Use communication commands in Linux

Course Outcomes

On successful completion of the course:

CO.No	Description
IMCA701.1	Students will be able to recall the concepts of operating systems, Linux file handling commands,
IMCA701.2	Students will be able to describe management of Linux administration, concepts of users, groups and super user. Commands for carrying out various OS tasks.
IMCA701.3	Students will be able to write shell scripts to help make administration work simple and efficient. Students will be able to Install software, take backup and restore.

IMCA701.4	Students will be able to analyze performance monitoring of Linux installation.
IMCA701.5	Students will be able to install a Linux OS instance and configure it to meet the requirements.

Detailed Syllabus:

Topic	Session	References
Module I- Introduction to Linux - History, Architecture, Comparison with UNIX, Features and Facilities of Linux, Basic commands in Linux, Files and File Structure - Linux File System, Boot block, Super block, Inode table, Data blocks, Linux standard directories. File naming Conventions, Path, Types of file names and Users, File Commands in Linux, file comparisons, Directory Commands, Text Editors-Functions of a Text Editor, vi Editor, Locating Files, File Access Permissions [FAP], Viewing and Changing FAPs, Redirection, Filters, Pipes.	1-8	Operating System - Linux, NUT Press, PHI Publisher, 2006 Edition Red Hat Linux Bible, Cristopher Negus, Wiley Dreamtech India
Module II- Basics of shell programming, various types of shell available in Linux, comparisons between various shells, shell programming in bash - Conditional and looping statements, Iterations, Command Substitution - expr command, arithmetic expansion, parameter passing and arguments, Shell variables, system shell variables, shell keywords, Creating Shell programs for automating system tasks.	9-20	UNIX Shell Programming by Yeswant Kanetkar, BPB Linux Administration Handbook, EviNemeth, Garth Snyder, Trent KHein -Pearson Education.
Module III- Common administrative tasks, identifying administrative files configuration and log files, Role of system administrator, Managing user accounts-adding & deleting users, changing permissions and ownerships, Creating and managing groups, modifying group attributes, Temporary disabling of users accounts, creating and mounting file system.	21-33	Linux Administration Handbook, EviNemeth, Garth Snyder, Trent KHein -Pearson Education. Red Hat Linux Bible, Cristopher Negus, Wiley Dreamtech India
Module IV- Checking and monitoring system performance - file security & Permissions, becoming super user using su. Getting system information with uname, host name, disk partitions & sizes, users, kernel. Installing and removing packages. Backup, restore and Compress utilities - tar, cpio, dump, rsync and restore utilities	34-39	Linux Administration Handbook, EviNemeth, Garth Snyder, Trent KHein -Pearson Education. Red Hat Linux Bible, Cristopher Negus, Wiley Dreamtech India
Module V- Communication in Linux - mesg, who- T, talk, write, wall, finger, chfn, ping, traceroute utilities, email facilities . Configuration of servers- Telnet, FTP, DHCP, NFS, SSH, Proxy Server(Squid), Web server (Apache), Samba. Daemons- init, crond, atd, xinetd, inetd, the services file. named, sshd, httpd.	34-40	Red Hat Linux Bible, Cristopher Negus, Wiley Dreamtech India

Recommended Books & Reading List

1. Operating System - Linux, NUT Press, PHI Publisher, 2006 Edition
2. Red Hat Linux Bible, Cristopher Negus, Wiley Dreamtech India
3. UNIX Shell Programming by YeswantKanetkar, BPB
4. Linux Administration Handbook, EviNemeth, Garth Snyder, Trent KHein -Pearson Education.
5. Beginning Linux Programming by Neil Mathew & Richard Stones, Wiley Dreamtech India

Online References:

1. www.linuxmanpages.com
2. www.linuxcommand.org
3. www.reallylinux.com
4. www.linux.org
5. www.tuxfiles.org

IMCA 702 ANALYSIS AND DESIGN OF ALGORITHMS

Course Overview

Program	IMCA
Semester	7
Course Code	IMCA702
Course Title	Analysis And Design of Algorithms
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

This course introduces concepts related to the design and analysis of algorithms. Specifically, it discusses recurrence relations, and illustrates their role in asymptotic and probabilistic analysis of algorithms. It covers in detail greedy strategies divide and conquer techniques, dynamic programming and backtracking. It also covers Lower bound theory and NP Hard problem.

Course Objectives

By the end of this course students will be able to :

1. Demonstrate a familiarity with major algorithms and data structures.
2. Analyze the efficiency of algorithms using time and space complexity theory.
3. Apply important algorithmic design paradigms and methods of analysis.
4. Introduce NP Hard and NP complete problems

Course Outcomes

On successful completion of the course:

CO.No	Description
IMCA702.1	Students will be able to define basic concepts in Analysis and Design of algorithm.
IMCA702.2	Students will be able to explain various algorithms and give examples for each category.
IMCA702.3	Students will be able to illustrate NP-Hard and NP-complete problems

IMCA702.4	Students will have the ability to compare the performance of different algorithms algorithm..
IMCA702.5	Students will be able to evaluate the efficiency of algorithms using time and space complexity theory.

Detailed Syllabus:

Topic	Session	References
Module I Introduction – Algorithms - design strategies -concepts in performance analysis – space complexity, time complexity - asymptotic notation-practical complexities,Performance measurement.	1-6	Fundamentals of computer algorithms Ellis Horowitz, SartajSahni, Sanguthevar Rajeshkharan
Module II Divide and conquer method – General method, Finding the maximum and minimum, mergesort, Quick sort, Selection sort, Strassen’s matrix multiplication.	7-16	Fundamentals of computer algorithms Ellis Horowitz, SartajSahni, Sanguthevar Rajeshkharan
Module III Greedy Method and Dynamic programming method –The general method, Knapsack problem, Job sequencing with deadlines, Minimum cost spanning tree -prim’s algorithm and kruskal’s algorithm, optimal storage on tapes. Dynamic programming Genera l method, multistage graphs, All pairs shortest paths, The traveling salesperson problem	17-24	Fundamentals of computer algorithms Ellis Horowitz, SartajSahni, Sanguthevar Rajeshkharan
Module IV Backtracking and branch and bound techniques –The general method, The 8 queens problem, Sum of subsets. Branch and Bound-least cost search, control abstraction for LC search	25-32	Fundamentals of computer algorithms Ellis Horowitz, SartajSahni, Sanguthevar Rajeshkharan
Module V Lower bound theory and NP Hard problem – Comparison trees-searching, sorting And selection. Concepts of NP hard and NP -complete problems, non deterministic algorithms, Classes of NP hard and NP complete. COOK’S theorem	34-40	Fundamentals of computer algorithms Ellis Horowitz, SartajSahni, Sanguthevar Rajeshkharan

Recommended Books & Reading List

1. Fundamentals of computer algorithms -Ellis Horowitz, SartajSahni, SanguthevarRajeshkharan (Galgotia)
2. Fundamentals of algorithms – Gilles Brassard, Paul Bratley (PHI)
3. Introduction to the design and analysis of algorithms AnanyLevitin (Pearson)

4. Computer algorithms –Introduction to design and analysis Sara Baase, Allen VanGelder (Pearson).

IMCA 703 DATA MINING AND WAREHOUSING

Course Overview

Program	IMCA
Semester	7
Course Code	IMCA 703
Course Title	Data Mining And Ware housing
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

This course is an attempt to provide you with the basic information about dataware house and their development. This course also provides the basic conceptual background necessary to design and develop data ware house applications. It gives an introduction to methods and theory for development of data warehouses and data analysis using data mining. Data quality and methods and techniques for preprocessing of data. Modeling and design of data warehouses. Algorithms for classification, clustering and association rule analysis.

Course Objectives

By the end of this course students will be able to :

1. Understanding of the concepts of data warehousing and data mining.
2. Study the dimensional modeling technique for designing a data warehouse.
3. Study data warehouse architectures, OLAP and building a data warehouse.
4. Explain the knowledge discovery process .
5. Describe the data mining tasks and study their well-known techniques.

Course Outcomes

On successful completion of the course:

CO.No	Course Outcome Description
IMCA703.1	Students will be able to understand functionality of the various data mining and data warehousing.

IMCA703.2	Students will learn the strengths and limitations of various data mining and data warehousing models.
IMCA703.3	Students will be able to analyze different techniques of various data clustering .
IMCA703.4	Students will be able to compare different approaches of data ware housing and data mining with various technologies.
IMCA703.5	Students will be able to create research interest towards advances in Data Mining.

Detailed Syllabus:

Topic	Session	References
<u>Module I</u> Introduction to Data mining & Data Warehouse Data mining , Data mining – KDD, Data mining Functionalities , Integration of Data mining systems, Major issues of Data mining, Applications :web mining, Social media, Data Warehouses -Databases, Data warehouses, Data Mart, Databases vs. Data warehouses, Data ware houses vs. Data mart, OLTP OLAP, OLAP operations/functions, OLAP Multi-Dimensional Models- Data cubes, Star, Snow Flakes, Fact constellation	1-7	Data Mining Concepts and Techniques – Jiawei Han and Micheline Kamber, Second Edition, Elsevier, 2006
<u>Module II</u> Data Preprocessing and Rules Data Preprocessing- Data Cleaning, Data Integration and Transformation, Data Reduction, Data discretization and concept hierarchy generation. Association Rules Mining: Basic Concepts, Apriori Algorithm	8-15	Data Mining Concepts and Techniques – Jiawei Han and Micheline Kamber, Second Edition, Elsevier, 2006
<u>Module III</u> Introduction to Classification and Prediction, Issues Regarding Classification and Prediction, Decision Tree Induction: Decision Tree induction, Attribute Selection Measures, Tree Pruning. Bayesian Classification: Bayes' theorem Rule Based Algorithms : Using If - Then rules of Classification, K- Nearest Neighbor Classifiers. Prediction : Linear Regression, Nonlinear Regression	16-26	Data Mining Concepts and Techniques – Jiawei Han and Micheline Kamber, Second Edition, Elsevier, 2006
<u>Module IV</u> Clustering What is Cluster Analysis, Requirements of Cluster Analysis, Types of Data in Cluster Analysis, Categorization of Major Clustering Methods, Density-Based Method: DBSCAN, OPTICS. Partitioning Methods :k-Means and k-Medoids, Hierarchical Method : Agglomerative and Divisive Hierarchical Clustering, BIRCH, Grid Based Methods: STING: Statistical Information Grid, Model based Methods- Expectation-Maximization, Conceptual Clustering	27-33	Data Mining Concepts and Techniques – Jiawei Han and Micheline Kamber, Second Edition, Elsevier, 2006

Module V Advanced Data Mining Techniques: Introduction, Web Mining- Web Content Mining, Web Structure Mining, Web Usage Mining. Text Mining. Graph mining:- Apriori based approach for mining frequent sub graphs.Social Network Analysis: - characteristics of social networks.	34-40	Dunham M H, “Data Mining: Introductory and Advanced Topics”, Pearson Education, New Delhi, 2003.
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Recommended Books & Reading List

1. Data Mining Concepts and Techniques – Jiawei Han and Micheline Kamber, Second Edition, Elsevier, 2006
2. Dunham M H, “Data Mining: Introductory and Advanced Topics”, Pearson Education, New Delhi, 2003.
3. Data Mining – BPB Editorial Board, BPB Publications, First Edition, 2004
4. Data Warehousing, Data Mining, & OLAP – Alex Berson, Stephen Smith, TMHill,2004
5. Data Warehousing, Sinha, Thomson Learning

IMCA704 CRYPTOGRAPHY

Course overview

Program	IMCA
Semester	7
Course Code	IMCA 704
Course Title	Cryptography
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

This course introduces basic concepts in cryptography and computer security, and discusses their theoretical foundations as well as their practical application. Diverse threats, attacks, and countermeasures should be addressed which include cryptosystems, cryptographic protocols, and secure systems / networks. It focuses on how cryptographic algorithms and protocols work and how to use them. Students who complete this course will be able to describe the basic cryptanalytic techniques and examples of practical security solutions are explored to understand how to design and evaluate modern security solutions.

Course Objectives

By the end of this course student will be able to:

1. Identify and mitigate software security vulnerabilities in existing systems
2. Identify computer and network security threats, classify the threats and develop a security model to prevent, detect and recover from the attacks.
3. Perform Encryption and decryption of messages using block ciphers, sign and verify messages using well known signature generation and verification algorithms
4. Learn fundamental concepts of computer security and cryptography and utilize these techniques in computing systems.
5. Understand the applied methods for authentication, access control, intrusion detection and prevention.

Course Outcomes

On successful completion of the course:

CO.No	Course Objective Description
IMCA704.1	Students will be able to understand cryptography and blockchain concepts and application

IMCA704.2	Students will be able to know how to apply security principles to system design
IMCA704.3	
IMCA704.4	students will be able to know Various network security applications, Firewall, IDS, Malicious softwares
IMCA704.5	Students will be in a position to create real time application of the cryptography by consider the symmetric asymmetric method

Detailed Syllabus

Topic	Session	Reference
MODULE I INTRODUCTION TO CRYPTOGRAPHY: Security Attacks, Services and Mechanism, A Model for Network Security, Modular Arithmetic, Basic terminology in cryptography, Concept of block and stream ciphers, concepts of Symmetric and Asymmetric cryptography. CLASSICAL CRYPTOSYSTEMS: - Symmetric cipher model, substitution and transposition, one time pad, Steganography	1-8	William Stallings, "Cryptography and Network security Principles and Practices", Pearson/PHI.
MODULE II MODERN SYMMETRIC ENCRYPTION ALGORITHMS: Feistel cipher structure , Confusion and Diffusion concepts, Data Encryption Structure(DES)-strength of DES, Triple DES, Block cipher mode of operation AES- evaluation criteria of AES, IDEA, BLOWFISH, stream ciphers –RC4, RC5	8-15	William Stallings, "Cryptography and Network security Principles and Practices", Pearson/PHI.
MODULE III INTRODUCTION TO NUMBER THEORY: Prime Numbers, Fermat's and Euler's Theorems, The Chinese Remainder Theorem. PUBLIC- KEY CRYPTOGRAPHY: Principles of Public-Key Cryptosystems, RSA, Key Management, Diffie Hellman Key Exchange, ElGamal Algorithm, Elliptic Curve Cryptography	16-26	William Stallings, "Cryptography and Network security Principles and Practices", Pearson/PHI.
MODULE IV KEY MANAGEMENT AND AUTHENTICATION: Key Distribution, Authentication Requirements, Authentication Functions-Message Encryption, Message Authentication Code, Hash Function, Security of MAC and Hash Function , MD5, SHA-1, RIPEMD-160, HMAC.	27-33	William Stallings, "Cryptography and Network security Principles and Practices", Pearson/PHI.
MODULE V Digital Signature, Authentication protocols, Digital Signature Standard, Intruders, Intrusion Detection techniques. Malicious software Application of cryptography- Digital cash, Cryptocurrency. Block Chain- definition, Generic elements of a blockchain, How blockchain works, Benefits and limitations of	34-40	William Stallings, "Cryptography and Network security Principles and Practices", Pearson/PHI.

blockchain		
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Recommended Books and Reading List

1. Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", 2nd Edition, Pearson Education, 2007.
2. Ali Bahrami, "Object Oriented Systems Development using the unified modeling language", 1stEdition, TMH, 2008
3. Meilir Page-Jones, "Fundamentals of Object Oriented Design in UML", 1stEdition, Pearson Education, 2006.
4. Pascal Roques, "Modeling Software Systems Using UML2", 1stEdition, WILEY Dreamtech, 2007.
5. Atul Kahate, "Object Oriented Analysis & Design", 1stEdition, TMH, 2007.
6. Mark Priestley, "Practical Object-Oriented Design with UML", 2nd Edition, TMH, 2005.
7. Craig Larman, "Applying UML and Patterns: An introduction to Object", Oriented Analysis and Design and Unified Process, 3rd Edition, Pearson Education, 2007.

IMCA 705 COMPUTER NETWORKS

Course Overview

Program	IMCA
Semester	7
Course Code	IMCA705
Course Title	Computer Networks
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

Basic objective of this course is to include learning about computer network organization and its implementation. Students are also introduced to theoretical understanding of computer networks.

Course Objectives

By the end of this course students will be able to :

1. Understand the general principles of Computer Network.
2. Understand how computer networks are organized with the concept of layered approach.
3. Understand how packets in the Internet are delivered

Course Outcomes

On successful completion of this course :

CO.No	Description
IMCA705.1	Students will be able to understand and describe the layered protocol model
IMCA705.2	Students will be able to describe, analyse and evaluate various related technical, administrative and social aspects of specific computer network protocols from standards documents.

IMCA705.3	Students will be able to design, analyse, and evaluate networks and services for homes, data centres, IoT/IoE, LANs and WANs		
IMCA705.4	Students will have the ability to specify and identify deficiencies in existing protocols, and then go onto formulate new and better protocols	Topic	Session
Module I Networking Concepts: Simplified network model.			1-12
Classification of networks: LAN, MAN, WAN and the Internet. Protocols and protocol architecture. The OSI ref. Model, TCP/IP ref. model. Comparison of the OSI and TCP/IP ref. models. A critiques of the OSI model and protocols, A critique of the TCP/IP ref. model, Novel Netware. Data Link Layer: Need for data link control, Frame synchronization - flag fields, bit stuffing, flow control - stop and wait , sliding window protocol, error detection - parity check, CRC, Error control - Stop and wait ARQ, Go back-N ARQ, HDLC protocol, other data link protocols - LAPB, LAPD.	Students will have a working knowledge of datagram and internet socket programming	References	Andrew S Tanenbaum-Computer Networks - Fourth Edition- PHI William Stallings- Data and computer communications- PHI- Seventh Edition.
Module II Local Area Networks: Topologies - Bus, tree, ring and star .LAN protocol architecture (IEEE - 802 reference model)- Logic link control- Medium access control:-Random access- Aloha, CSMA, CSMA/CD, Exponential Back off Connecting Devices -Repeaters, Hubs, Bridges:- filtering, Transparent Bridges, Spanning Tree Algorithm. Two-Layer Switch. Backbone Networks -Bus Backbone- Star Backbone, Connecting Remote LANs			13-22
Module III Wireless LAN Technology :-Overview, Wireless LAN Requirements, Wireless LAN Technology. Infrared LANs - Strengths and Weakness, Transmission Techniques. Spread Spectrum LANs- Configuration, Transmission Issues. Narrowband Microwave LANs. IEEE 802.11 Wireless LAN Standard :- IEEE 802.11 Architecture and Services, Medium Access Control-CSMA/CA, Physical Layer-IEEE-802.11 FHSS, IEEE-802.11, DSSS,IEEE-802.11a OFDM, IEEE-802.11b HR-DSSS, IEEE-802.11g OFDM. IEEE- 802.11 Addressing Mechanism Bluetooth :- Architecture, Bluetooth Layers, Radio Layer, Baseband Layer, L2CAP, Other Upper Layers. VIRTUAL LANS :- VLAN Technology, Membership, Configuration, Communication Between Switches, IEEE Standard, Advantages			23-29
Module IV Network Layer: Services of NW layer, Routing: Characteristics, performance criteria, Routing strategies: fixed routing- flooding-random routing- Adaptive routing, Congestion control, Switched WAN - Virtual Circuit Switching, Addressing, Virtual circuit identifier, Connection Setup:- Permanent Virtual Circuit, Switched Virtual Circuit.			30-33
Module V Frame Relay :- Back ground, Architecture, Frame Relay Layers, Frame Relay frame -LAPF core, LAPF control. ATM :- design goals, Cell Network, Asynchronous TDM, ATM Architecture, Identifiers, ATM Layers:- ATM layer, ATM Adaptation Layer:- AAL1, AAL2, AAL3/4, AAL5. Transport Layer :- Services, elements of transport protocol, simple transport protocol.			34-40
			Andrew S Tanenbaum-Computer Networks - Fourth Edition- PHI

Recommended Books & Reading List

1. Behrouz A. Forouzan - Data Communications and Networking-Fourth Edition- Tata McGraw Hill
2. William Stallings- Data and computer communications- PHI- Seventh Edition.
3. Andrew S Tanenbaum- Computer Networks - Fourth Edition- PHI.
4. William Stallings - Wireless Communications and Networks-Pearson Education.
5. William Stallings- ISDN and BROADBAND ISDN WITH FRAME RELAY AND
6. ATM-Fourth Edition – Pearson Education.
7. Gerd Keiser - Local Area Networks- Second Edition - Tata McGrawHill
- 8.

IMCA 706 PHP PROGRAMMING PRACTICALS

Course Overview

Program	IMCA
Semester	7
Course Code	IMCA706
Course Title	PHP Programming Practicals
Type of Course	Core
Contact Hours	4P+1T/P hour per week
Credit	2

Course Description

Basic objective of this course is to introduce the students to use PHP and MySQL to develop dynamic web sites for user on the Internet with MySQL database, building, connectivity, and maintenance.

Course Objectives

By the end of this course student will be able to:

1. Understand the general concepts of PHP scripting language for the development of Internet websites.
2. Understand the basic functions of MySQL database program.
3. Learn the relationship between the client side and the server side scripts.
4. Develop a basic understanding about software development framework.

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA706.1	Students will be able define the basic fundamentals of PHP
IMCA706.2	Students will be able to differentiate between client-side validation and server-side validation
IMCA706.3	Students will be able to apply OOPS concepts in PHP
IMCA706.4	Students will be able to create database and establish connection using PHP
IMCA706.5	Students will be able to explain sessions and cookies used in PHP

Detailed Syllabus:

Topic	Session	References
Module1 PHP: Variables, echo / print, Strings, Operators , Control structures, Functions, Arrays, Super-global variables .Implementing object-oriented programs using PHP: Creating classes and accessing class members in different php pages, inheritance	1-8	The complete reference PHP, Holzner; 1 st Edition McGraw Hill Education,

Module II PHP Forms: Form handling, form validation, Cookies, Sessions. File Handling in PHP, File Upload, Sending Email.	9-16	The complete reference PHP, Holzner; 1 st Edition McGraw Hill Education, https://github.com/PHPMailer/PHPMailer
Module III PHPMyAdmin: db management in PHPmyadmin (create, drop, rename), table management (create, drop, rename, setting primary key, auto increment, default values, null), import data to the db (CSV/SQL), export data from db (CSV/SQL). Connecting MySql from PHP: mysqli_Connect, mysqli_query (Insert, update, delete, limit data), mysqli_close,	17-23	The complete reference PHP, Holzner; 1 st Edition McGraw Hill Education,
Module IV JavaScript- Variables, Functions, Event Handling, Form Validation using JavaScript. AJAX- submitting a section of a page using AJAX	21-30	The complete reference PHP, Holzner; 1 st Edition McGraw Hill Education,.
Module V Introduction to PHP frameworks- Introduction to MVC architecture, Laravel, Basic features, Creating projects using Laravel, Mini Project.	31-38	https://laravel.com/docs/7.x

Recommended Books & Reading List

Web Programming, Chris Bates, 3rd Edition; Pub: John Wiley & Sons
The complete reference PHP, Holzner; 1st Edition McGraw Hill Education,
<https://github.com/PHPMailer/PHPMailer>
Official Laravel Documentation <https://laravel.com/docs/7.x>
<https://www.phptpoint.com/laravel-tutorial/>
<https://www.tutorialandexample.com/creating-first-laravel-project/>
<http://wifo5-03.informatik.uni-mannheim.de/bizer/rdfapi/tutorial/introductionToRAP.htm>

Lab Record Programs

Demonstrate web page development using any text/HTML editors (Dreamweaver/ Eclipse/ Notepad++ etc). All students are supposed to prepare a lab record (written/printed) with minimum 30 programs including the mini project.

1. Develop programs based on control structures, functions and arrays (8)
2. Develop programs based on classes and inheritance (using functions of classes defined in the same file and in different file) (5)
3. Develop form-based PHP applications with server-side and client-side (JavaScript) validations. (5)
4. Develop programs based on session and cookie (2)
5. Develop programs to demonstrate file handling in PHP.
6. Develop program to upload file (with displaying uploaded file in web page)
7. Develop program to send E-Mail using PHP.
8. Develop programs based on database connectivity using PHP (5)
9. Program to implement AJAX in PHP application

10. Mini project using Laravel framework

IMCA 707 LINUX OS AND SHELL PROGRAMMING PRACTICALS

Course Overview

Program	IMCA
Semester	7
Course Code	IMCA 707
Course Title	Linux OS and Shell Programming Practicals
Type of Course	Core
Contact Hours	4 hours per week
Credit	2

Course Description

The Linux OS and shell programming practical, exposes the students to Installation of Linux, manage users and groups. Use essential commands, manage file permissions, commands related to managing system processes, create shell scripts, administration commands, manage processes and jobs, Install upgrade packages, carry out communication in Linux commands.

Course Objectives

By the end of the course the students will be able to:

1. Familiarize the user with concepts of operating systems
2. Learn basic and advance file handling commands, process management, users and group concepts.
3. Shell scripting
4. Administration, backup, restore and related commands.
5. Communication commands used commonly in Linux

Course Outcomes

On successful completion of this course :

CO.No	Course Outcome Description
IMCA707.1	Students will be able to understand Linux commands and shell script structure
IMCA707.2	Students will be able to describe organization and functioning. Purpose of administration, process management.
IMCA707.3	Students will be able to develop shell script, take backups, restoration configure a Linux installation.
IMCA707.4	Students will learn how Linux can be implemented effectively in comparison with other platforms.

IMCA707.5	Students will learn to create a networked environment using Linux platform.
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Detailed Syllabus:

Topic	Session	Reference
MODULE I Basic Overview of various commands- cal, pwd, cd, ls, mv, cd, cp, rm, mkdir, rmdir, more, less, touch. Creating and viewing files using cat, file comparisons, disk related commands, checking disk free spaces. Batch commands, kill, ps, who, Printing commands, find, sort, touch, file, file processing commands- wc, cut, paste etc . mathematical commands - expr, factor etc.	1-6	Red Hat Linux Bible, Cristopher Negus, Wiley Dreamtech India
MODULE II Filter commands- pr, head, tail, cut, sort, uniq, tr. Filter using regular expression grep, egrep, sed, awk	7-12	Red Hat Linux Bible, Cristopher Negus, Wiley Dreamtech India
MODULE III Shell Programming -Shells, Scripting Rationale Creating a bash Script, bash Start up Files, A Script's Environment, Exporting Variables, Exit Status, Programming the Shell, Parameter Passing, Operators, looping, Input and Output.	13-24	LINUX Shell Programming by YeswantKanetkar, BPB Red Hat Linux Bible, Cristopher Negus, Wiley Dreamtech India
MODULE IV Process Management with Linux, File System management, User Administration, Linux Start up and Shutdown, Software package Management, Network Administration	25-32	Linux Administration Handbook, EviNemeth,Garth Snyder, Trent KHein Pearson Education.
MODULE V Communication in Linux - mesg, who-T, talk, write, wall, finger, chfn, ping, traceroute utilities, email facilities . Configuration of servers- Telnet, FTP, DHCP,NFS, SSH, Proxy Server(Squid), Web server (Apache), Samba.	33-40	Linux Administration Handbook, EviNemeth,Garth Snyder, Trent KHein Pearson Education. Red Hat Linux Bible, Cristopher Negus, Wiley Dreamtech India

Recommended Books & Reading List

1. Red Hat Linux Bible, Cristopher Negus, Wiley Dreamtech India
2. LINUX Shell Programming by YeswantKanetkar, BPB
3. Linux Administration Handbook, EviNemeth,Garth Snyder, Trent KHein Pearson Education.

Online Resources

1. www.linuxmanpages.com
2. www.linuxcommand.org
3. www.reallylinux.com
4. www.linux.org
5. www.tuxfiles.org

Semester VIII

IMCA 801 EMPLOYABILITY SKILLS

Course Overview

Program	IMCA
Semester	8
Course Code	IMCA 801
Course Title	Employability Skills
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

This course enable students to identify their strengths and weaknesses. Measure each student's numerical ability, problem solving and mathematical skills. Enhance aptitude and reasoning ability of students that will make them capable of securing a job with any recruiter. Guide students in Resume making.

Course Objectives

By the end of the course the students will be able to:

1. Enhance aptitude and reasoning ability that will make them capable of securing a job with any recruiter.
2. Write a good Resume.
3. Develop ways to extend and improve interpersonal skills, negotiating skills, leadership skills, creativity and conflict management skills.

Course Outcomes

On successful completion of this course :

CO.No	Description
IMCA801.1	Students will be able to understand all aspects communication and its effect on giving and receiving information.
IMCA801.2	Students will be able to equip students to effectively tackle the interview process, leaving a positive impression with the prospective employer
IMCA801.3	Students will be able to articulate the importance of self-preparation.
IMCA801.4	Students will be able to help students enhance their Technical skills on interview basis.
IMCA801.5	Students will be able to solve Quantitative, Verbal and Logical Reasoning and Comprehension problems in IT recruitment drives and other competitive exams.

Detailed Syllabus:

Topic	Session	References
<p>Module I- Motivation And Goal Setting Motivation, Assertiveness, Career Exploration and Life Planning, Goal Setting, Time Management, Stress Management. Activity: Must Read (<i>Institution option possible</i>) Karmayogi: A Biography of E. Sreedharan by M. S. Ashokan The 7 Habits of Highly Effective People – Stephen R. Covey The Leader Who Had No Title - Robin Sharma</p>	1-2	Karmayogi: A Biography of E. Sreedharan by M. S. Ashokan The 7 Habits of Highly Effective People – Stephen R. Covey The Leader Who Had No Title - Robin Sharma
<p>Module II- Arithmetical And Verbal Reasoning Ability: Problems on Numbers, Problems on Ages, Percentage, Ratio and Proportion, Time and Work, Time and Distance, Problems on Trains, Boats and Streams, Alligation or Mixture, Area, Average, Races and Games of Skill, Calendar, Clocks, Banker's Discount, Decimal Fractions, Heights and Distance, Odd Man Out and Series. Types of verbal reasoning, Analogy, Series Completion, Coding and Decoding, Blood Relation, Puzzle Tests, Direction Sense Test, Venn Diagrams, Logical Sequence of Words, Syllogism, Cause and Effect, Dice, Cube and Cuboid, Seating Arrangement. Activity: Company wise sample Questions, Mock Test on Each Topic. Data Interpretation & Logical Reasoning Tabulation, Bar Graphs, Pie Charts, Line Graphs. Activity: Company wise sample Questions, Mock Test on Each Topic.</p>	3-18	Aggarwal, R. S., <i>Quantitative Aptitude for Competitive Examinations</i> , New Delhi, S. Chand and Company Pvt. Ltd.
<p>Module III- Interpersonal Communication And Leadership Interpersonal Communication, Concept of Leadership, Types, Six Styles of Leadership, Qualities of Leadership, Functioning of Leadership - Goal Setting, Rising to Your Potential, Coordinating, Decision making, Interacting, Negotiating, Time Management, Change Management and Mentoring, Accountability, Public Speaking & Presentation Skills. Activity: Team Game</p>	19-21	Bharathi, T., Hariprasad, M. ed., Prakasam, V., <i>Personality Development and Communicative English</i> , Hyderabad, Neelkamal Publications Pvt. Ltd.,.
<p>Module IV- Group Discussion Nature, Characteristics of Successful GD, Group Discussion Strategies, Techniques for Individual Contribution, Group Interaction Strategies, Practice Case Studies. Activity: Group wise GD Training Individual And Group Interview Characteristics of Interviews, Pre-Interview Preparation Techniques, Projecting a Positive Image, Answering Strategies. Types of Questions, Frequently Asked HR Questions Activity: Sample interview Topics Covering On Technical: C Language, Operating Systems, Data Structures, C++, Microprocessors, DBMS, Networking, Java Basics, Core Java, Advanced Java, PHP, Python, SQL .</p>	22-28	Bharathi, T., Hariprasad, M. ed., Prakasam, V., <i>Personality Development and Communicative English</i> , Hyderabad, Neelkamal Publications Pvt. Ltd.,. Rizvi, Ashraf M., <i>Effective Technical Communication</i> , New Delhi, Tata McGraw Hill Education Private Limited.
<p>Module V-</p>	29-40	Bharathi, T., Hariprasad, M. ed.,

<p>Activity: Group wise GD Training Mock GD Sessions incorporating all Students</p> <p>Activity: Mock Interview Individual & Group Interview Sessions</p>		<p>Prakasam, V., <i>Personality Development and Communicative English</i>, Hyderabad, Neelkamal Publications Pvt. Ltd.,</p> <p>Rizvi, Ashraf M., <i>Effective Technical Communication</i>, New Delhi, Tata McGraw Hill Education Private Limited.</p>
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Recommended Books & Reading List

1. Bharathi, T., Hariprasad, M. ed., Prakasam, V., *Personality Development and Communicative English*, Hyderabad, Neelkamal Publications Pvt. Ltd.,
2. Rizvi, Ashraf M., *Effective Technical Communication*, New Delhi, Tata McGraw Hill Education Private Limited.
3. Aggarwal, R. S., *Quantitative Aptitude for Competitive Examinations*, New Delhi, S. Chand and Company Pvt. Ltd.
4. Aggarwal, R. S., *Modern Approach to Verbal n Nonverbal Reasoning*, New Delhi, S. Chand and Company Pvt. Ltd.
5. <https://www.indiabix.com/interview/>
6. <https://www.campusgate.co.in/>
7. <https://www.sawaal.com/technical-questions-and-answers.html>
8. <https://www.campusgate.co.in/>
9. <http://www.allindiaexams.in/reasoning/verbal-reasoning-questions-answers>
10. <https://www.sawaal.com/aptitude-reasoning-questions-and-answers.html>
11. <https://www.indiabix.com/logical-reasoning/questions-and-answers/>

Evaluation:

	Total Marks: 100
Attendance	10%
Assignments / Seminar	30%
Tests	60%

NOTE:

The course IMCA 801 has only sessional assessment, the Head of the Institution should ensure that the class average does not exceed 80%.

IMC A802 ARTIFICIAL INTELLIGENCE

Course Overview

Program	IMCA
Semester	8
Course Code	IMCA802
Course Title	Artificial Intelligence
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

The course Artificial Intelligence aims to provide basic knowledge in various fields of AI. The course explains the algorithms for problem representation and emphasis on the importance of Machine learning and Expert systems.

Course Objectives

By the end of this course students will be able to :

1. Get insights into basic knowledge of Artificial Intelligence, AI application along with its importance.
2. Be familiar with problem representation in symbolic notation.
3. Understand algorithmic approach in machine learning and automation
4. Analyze the matching techniques for organizing and manipulating knowledge. Predict pattern based on Reasoning.
5. Acquire basic Knowledge in various fields of AI.

Course Outcomes

On successful completion of this course :

CO.No	Description
IMCA802.1	Students will be able to know about the AI techniques and application area and be aware of knowledge representations.
IMCA802.2	Students will be able to understand the basic theory of problem-solving paradigms
IMCA802.3	Students will be able to enumerate the Knowledge representation using Rule based Algorithms and Reasoning
IMCA802.4	Students will be able to create logical instructions using propositional logic.
IMCA802.5	Students will be able to evaluate the possibility of AI applications like Natural language processing, Expert systems in various problem domains of the real world.

Detailed Syllabus:

Topic	Session	References
<p>Module I AI Introduction and History: Defining AI, Acting Humanly (Turing Test Approach), Thinking Humanly(Cognitive Modeling Approach), Thinking Rationally (laws of thought approach), Acting Rationally(Rational Agent Approach); Foundations of Artificial Intelligence. History of AI. AI Problems, Assumptions, Techniques, Level of Model, and Criteria for success.Problems, Problem spaces and Search - Problem Definition, Production systems, Problem characteristics, Production system characteristics</p>	1-9	Stuart Russel and Peter Norvig: Artificial Intelligence – A Modern Approach, 2nd Edition Pearson Education Elaine Rich and Kevin Knight: Artificial Intelligence, Tata McGraw Hill 2nd Ed. N.P. padhy.
<p>Module II Searching Problems: Knowledge Organization and Management . Search and Control Strategies - Examples of search problem, Uniformed or Blind search, Informed search, Searching AND-OR graphs Matching Techniques -Structures used for matching</p>	9-17	Introduction to Artificial intelligence and expert systems by Dan W. Patterson, Prentice Hall India
<p>Module III Knowledge Representation Schemes: Formalized Symbolic Logics - Syntax and Semantics of Propositional and Predicate logic. Properties of WFFS, Inference rules, Resolution. Non- Deductive Inference Method. Inconsistencies and Uncertainties – Non- monotonic reasoning. Truth Maintenance system, Default reasoning and the closed world assumption. Structured Knowledge - Associative Networks.</p>	18-27	Introduction to Artificial intelligence and expert systems by Dan W. Patterson, Prentice Hall India
<p>Module IV Knowledge Acquisition: General Concepts in Knowledge Acquisition - Types of learning, Difficulty in Knowledge Acquisition. General learning model, Performance measures. Early work in Machine Learning – Perceptron, Genetic algorithms, Intelligent editors Analogical and Explanation Based Learning – Analogical Reasoning and learning, Examples, Explanation based learning,</p>	28-36	Introduction to Artificial intelligence and expert systems by Dan W. Patterson, Prentice Hall India
<p>Module V Natural Language Processing - Overview of Linguistics, Grammars and Languages, Basic Parsing Techniques, Semantic Analysis and Representation structures. Natural Language generation, Natural language systems. Experts system Architectures: Rule-based system, Non production system, Dealing with uncertainty.</p>	37-42	Introduction to Artificial intelligence and expert systems by Dan W. Patterson, Prentice Hall India.

Recommended Books & Reading List

1. Stuart Russel and Peter Norvig: Artificial Intelligence – A Modern Approach, 2nd Edition Pearson Education
2. Elaine Rich and Kevin Knight: Artificial Intelligence, Tata McGraw Hill 2nd Ed. N.P. padhy
3. Introduction to Artificial intelligence and expert systems by Dan W. Patterson, Prentice

4. Hall India (All Modules)

IMCA 803 INTERNET TECHNOLOGY AND APPLICATIONS

Course Overview

Program	IMCA
Semester	8
Course Code	IMCA 803
Course Title	Internet Technology And Applications
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course Description

This subject aims to introduce the basic concepts and essential knowledge of the applications and technology of the Internet and World Wide Web. It provides a conceptual framework to understand the operation of the Internet and to understand how computers connect and communicate with each other. This subject also helps to develop students' analytical ability in network technology.

Course Objectives

By the end of this course students will be able to:

1. Provides necessary information in data communications and networking.
2. Focusing on internetworking with TCP/IP protocol suite.
3. Give an insight to Autonomous systems, DNS and Transport layer services in networking

Course Outcomes

On successful completion of this course :

CO.No	Course Outcome Description
IMCA803.1	Students will be able to recall the basic concepts and applications of the Internet and World Wide Web.
IMCA803.2	Students will be able to apply relevant Internet knowledge to enhance their understanding of other networking situations.
IMCA803.3	Students will be able to use current Internet Technology necessary for daily life application.
IMCA803.4	Students will be able to understand the concepts like Email architecture DNS server and Multimedia services.
IMCA803.5	Students will be able to compare various Network Protocols like TCP, UDP,FTP,HTTP.SMTP

Detailed Syllabus:

Topic	Session	References
<p>Module I Introduction-protocols and standards,The OSI model,TCP/IP Protocol suite, Addressing,connecting devices, Switching methods,Internet Protocol(IP), IP addressing: Classful addressing, Classless addressing, Subnetting and Supernetting .</p>	1-8	Behrouz A. Forouzan - TCP/IP Protocol Suite- Fourth Edition-Tata McGraw Hill
<p>Module II Private Networks, Virtual Private Network, Types of VPN, Network Address Translation (NAT)., Other Network layer Protocols:, ARP- working, packet format, RARP-working, packet format ICMP- types of messages, message format, Error reporting, query, debugging tools, IGMP- Group management, IGMP messages, Message format, IGMP operation. Host Configuration Protocols: BOOTP, DHCP.</p>	9-18	Behrouz A. Forouzan - TCP/IP Protocol Suite- Fourth Edition-Tata McGraw Hill.
<p>Module III Autonomous Systems. Unicasting, Unicast Routing Protocols: Interior Gateway Routing Protocol- concepts of Distance vector routing, link state routing, path vector routing. RIP, RIP timers, OSPF, OSPF links. Exterior Gateway Routing Protocol– BGP, BGP session.Multicasting, Multicast applications, Multicast Routing Protocols: MOSPF, DVMRP.</p>	19-26	Behrouz A. Forouzan - TCP/IP Protocol Suite- Fourth Edition-Tata McGraw Hill
<p>Module IV Introduction to transport layer, Transport layer services,UDP-User datagram,Use of UDP,UDP operation,UDP services, and UDP applications. TCP- TCPservices, TCP Features, Segment,TCP connection,Flowcontrol, Error control,Congestion control, TCP timers. DNS-need for DNS, Name Space DNS messages,Types of records. TelnetConcepts. SSH-Components,SSH packet format</p>	27-35	Behrouz A. Forouzan - TCP/IP Protocol Suite- Fourth Edition-Tata McGraw Hill

<p>Module V FTP connection, communication, file transfer, anonymous FTP. TFTP-Messages, Connection, data transfer. WWW- Architecture, web documents. HTTP: - Transactions, Request messages, Response message, Headers Sequencing and scheduling activities. Electronic Mail: Architecture, User agent - Sending Mail, Receiving Mail. Multipurpose Internet Mail Extensions (MIME). Mail transfer agent: SMTP. Mail access protocols: POP and IMAP. Introduction to IPv6- IPv6 addressing, IPv6 protocols.</p>	36-40	Steven Holzner, “Beginning Ruby on Rails”, Wiley Publishing.
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Recommended Books & Reading List

1. Behrouz A. Forouzan - TCP/IP Protocol Suite- Fourth Edition- Tata McGraw Hill
2. Andrew S Tanenbaum- Computer Networks- PHI- Fourth Edition.
3. Behrouz A. Forouzan - Data Communications and Networking- Fourth Edition- Tata McGraw Hill 4. William Stallings- Data and computer communications- PHI- Seventh Edition.
4. Douglas E. Comer- Internetworking with TCP/IP- Volume I- PHI- Third Edition.
5. Comer, Douglas. The Internet Book: Everything you need to know about computer networking and how the Internet works, 4th Ed., 2007

IMCA 804 COMPILER DESIGN

Course overview

Program	IMCA
Semester	8
Course Code	IMCA 804
Course Title	Compiler Design
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course Description

This course will teach students about fundamental concepts and techniques used for developing a simple language compiler. This will include the examination of intermediate code states, machine code optimization techniques and support for advanced language features. At the end of the course, students will understand different considerations and phases of compilation, the impact of language features upon the compilation process, and the practical fundamentals of how a compiler is implemented.

Course Objectives

By the end of this course students will be able:

1. To understand the theory and practice of compiler implementation.
2. To implement Lexical Analyzer using Lex tool
3. To learn finite state machines and lexical scanning.
4. To learn context free grammars, compiler parsing techniques, construction of parse trees, symbol tables
5. To implement intermediate machine representations and actual code generation

Course Outcomes

On successful completion of the course:

CO.No	Course Objective Description
IMCA804.1	Students will be able explain different phases and various techniques used for the implementation of a compiler
IMCA804.2	Students will be able to interpret a scanner, parser, and semantic analyser without the aid of automatic generators
IMCA804.3	Students will be able to differentiate the lexical, syntactic and semantic analysis into meaningful phases for a compiler to undertake language translation
IMCA804.4	Students will be able to design the structures and support required for compiling advanced language features.

Students will be able to evaluate various various techniques used for the implementation of a compiler

Detailed Syllabus

Topic	Session	Reference
MODULE I Introduction: Compilers and Translators, structure of compiler, pass structure of compiler, book keeping, compiler writing tools, bootstrapping of compiler. Lexical Analysis: Role of lexical analyzer, design of lexical analyzer. Transition Diagrams, specification of tokens, recognition of tokens.	1-9	Alfred V Aho , Jeffrey D. Ullman, "Principles of Compiler Design", Narosa Aho, Ullman and Sethi, "Principles of Compiler Design", Addison Wesley
MODULE II Finite Automata: regular expressions, finite automata, construction of NFA from regular expression, finite state machines NFA to DFA, minimizing DFA, language for specifying lexical analyzers (Analyzer Generator: LEX). Syntactic specifications: grammars, context free grammars, parse trees and representation, ambiguity, regular expressions vs. context free grammars, non-context free language constructs.	10- 18	Alfred V Aho , Jeffrey D. Ullman, "Principles of Compiler Design", Narosa Aho, Ullman and Sethi, "Principles of Compiler Design", Addison Wesley
MODULE III Basic Parsing Techniques: Parsers, shift -reduce parsing, handle pruning, stack implementation of shift-reduce parser. Operator precedence parsing, top-down parsing, left recursion, left-factoring, Bottom up parsing, predictive parsers.	19-26	Alfred V Aho , Jeffrey D. Ullman, "Principles of Compiler Design", Narosa Aho, Ullman and Sethi, "Principles of Compiler Design", Addison Wesley
MODULE IV Automatic construction of efficient parsers: LR parsers, canonical collection of LR (0) items, SLR parsing tables, canonical LR parsing table. Semantic Analysis, Symbol table management, Error handling: - sources and reporting.	27-32	Alfred V Aho , Jeffrey D. Ullman, "Principles of Compiler Design", Narosa Aho, Ullman and Sethi, "Principles of Compiler Design", Addison Wesley
MODULE V Intermediate code generation: -postfix notation, syntax tree, three-address code, basic blocks and flow graph, DAG representation of basic blocks. Code optimization: - The principal sources of optimization, optimization of basic blocks, loops in flow graphs, Peephole optimization. Code Generations: - Issues in the design of a code generator, simple code generator methods	33-38	Alfred V Aho , Jeffrey D. Ullman, "Principles of Compiler Design", Narosa Aho, Ullman and Sethi, "Principles of Compiler Design", Addison Wesley

Recommended Books and Reading List

1. Alfred V Aho , Jeffrey D. Ullman, "Principles of Compiler Design", Narosa
2. Aho, Ullman and Sethi, "Principles of Compiler Design", Addison Wesley
3. J. P. Trembley and P. G. Sorensen, "Theory and Practice of Compiler Writing", McGraw Hill.

IMCA 805 (a) Elective III SOCIAL NETWORK ANALYSIS

Course Overview

Program	IMCA
Semester	8
Course Code	IMCA805(a)
Course Title	Social Network Analysis
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

This course introduces students to the basic concepts and analysis techniques in SNA. Students learn how to identify key individuals and groups in social systems, to detect and generate fundamental network structures, and to model growth and diffusion processes in networks. Students will be trained in interpreting the meaning of the aforementioned phenomena and suggesting potential courses of action to reinforce or change the observed trends. After this course, students will be able to design and execute network analysis projects including collecting data and considering ethical and legal implications, to perform systematic and informed analyses of network data for personal, commercial and scholarly use, and to critically review SNA projects conducted by others.

Course Objectives

By the end of the course, the students should be able to

1. To understand the components of the social network.
2. To model and visualize the social network.
3. To mine the users in the social network.
4. To understand the evolution of the social network.
5. To know the applications in real time systems.

Course Outcomes

On successful completion of the course:

CO.No	Description
IMCA805(a).1	Understand how to apply node and group level social network measures.
IMCA805(a).2	Collect network data in different ways while adhering to legal standards and ethics standard.
IMCA805(a).3	Mine the behaviour of the users in the social network
IMCA805(a).4	Predict the possible next outcome of the social network
IMCA805(a).5	Plan and execute network analytical computations.

Detailed Syllabus:

Topic	Session	References
<p>Module I INTRODUCTION Introduction to Semantic Web: Limitations of current Web – Development of Semantic Web – Emergence of the Social Web – Social Network analysis: Development of Social Network Analysis – Key concepts and measures in network analysis – Blogs and online communities – Web-based networks – Applications of Social Network Analysis.</p>	1-8	Peter Mika, “Social Networks and the Semantic Web”, First Edition, Springer 2007. Borko Furht, “Handbook of Social Network Technologies and Applications”, 1st Edition, Springer, 2010.
<p>Module II Ontology and their role in the Semantic Web: Ontology-based knowledge Representation – Ontology languages for the Semantic Web: Resource Description Framework – Web Ontology Language – Ontological representation of social individuals – Ontological representation of social relationships.</p>	9-17	Peter Mika, “Social Networks and the Semantic Web”, First Edition, Springer 2007. Borko Furht, “Handbook of Social Network Technologies and Applications”, 1st Edition, Springer, 2010.
<p>Module III Extracting evolution of Web Community from a Series of Web Archive – Detecting communities in social networks – Definition of community – Evaluating communities – Methods for community detection and mining – Applications of community mining algorithms – Tools for detecting communities social network infrastructures and communities</p>	18-28	Guandong Xu, Yanchun Zhang and Lin Li, “Web Mining and Social Networking – Techniques and applications”, First Edition Springer, 2011.
<p>Module IV Understanding and predicting human behaviour for social communities – User data management – Inference and Distribution – Enabling new human experiences – Reality mining – Context – Awareness – Privacy in online social networks – Trust in online environment – Trust models based on subjective logic – Attack spectrum and countermeasures.</p>	29-36	Guandong Xu, Yanchun Zhang and Lin Li, “Web Mining and Social Networking – Techniques and applications”, First Edition Springer, 2011.
<p>Module V Graph theory – Centrality – Clustering – Node-Edge Diagrams – Matrix representation – Visualizing online social networks, Visualizing social networks with matrix-based representations – Matrix and Node-Link Diagrams – Hybrid representations</p>	37-42	Guandong Xu, Yanchun Zhang and Lin Li, “Web Mining and Social Networking – Techniques and applications”, First Edition Springer, 2011.

Recommended Books & Reading List

1. Peter Mika, "Social Networks and the Semantic Web", First Edition, Springer 2007. BorkoFurht, "Handbook of Social Network Technologies and Applications", 1st Edition, Springer, 2010.
2. GuandongXu ,Yanchun Zhang and Lin Li, "Web Mining and Social Networking – Techniques and applications", First Edition Springer, 2011.
3. Dion Goh and Schubert Foo, "Social information Retrieval Systems: Emerging Technologies and Applications for Searching the Web Effectively", IGI Global Snippet, 2008.
4. John G. Breslin, Alexander Passant and Stefan Decker, "The Social Semantic Web", Springer, 2009.

IMCA 805 (b) Elective III KNOWLEDGE MANAGEMENT AND BUSINESS INTELLIGENCE

Course Overview

Program	IMCA
Semester	8
Course Code	IMCA805(b)
Course Title	Knowledge Management and Business Intelligence
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

This Business intelligence and knowledge management systems course will give you a better understanding of the information tools used to assist decision-makers. Business Intelligence is a set of theories and methodologies that handle large amounts of data and information to assist managers with decision-making. With this course, you will also learn the process known as decision-making including the three steps involved.

Course Objectives

By the end of this course students will be able to :

1. Be familiar with Knowledge Management concepts
2. Define terminology commonly used in Business intelligence
3. Describe different Business Intelligence Techniques.

Course Outcomes

On successful completion of the course:

CO.No	Description
IMCA805(b).1	Students will be able to understand about Knowledge management concepts
IMCA805(b).2	Students will become familiar with different Business intelligence techniques
IMCA805(b).3	Students will be able to justify the use of intelligence Techniques.
IMCA805(b).4	Students will be able to design Business Intelligence systems.

IMCA805(b).5	Students will be able to analyze the different uses of knowledge management systems.
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Detailed Syllabus:

Topic	Session	References
<u>Module I</u> Basics - What is Knowledge Management? - Key Challenges - KM Life Cycle - Understanding Knowledge – Definitions. Cognition and Knowledge Management - Data, Information, and Knowledge - Types of Knowledge - Expert Knowledge	1-5	Elias M. Awad, Hassan M.Ghaziri, "Knowledge Management", Pearson Education, 2004
<u>Module II</u> Knowledge Management System Life Cycle - Challenges in Building KM Systems - Conventional Versus KM System Life Cycle. KM System Life Cycle - System Justification - Role of Rapid Prototyping - Role of Knowledge Developer – User Training	6-12	Elias M. Awad, Hassan M.Ghaziri, "Knowledge Management", Pearson Education, 2004
<u>Module III</u> Knowledge Creation - Nonaka’s Model of Knowledge Creation and Transformation - Knowledge Architecture - Capturing Tacit Knowledge – Evaluating the Expert – Developing a relationship with Expert – Interview as a tool – Brainstorming – Repertory Grid, Nominal Group Techniques (NGT) – Delphi method – Concept mapping Knowledge Codification - Codification Tools and Procedures - Knowledge Developers Skill Set - Knowledge Transfer - Transfer Methods - Portals Basics - Business Challenge - Knowledge Portal Technologies - Ethical and Legal Issues - Knowledge Owners - Legal Issues.	13-22	Elias M. Awad, Hassan M.Ghaziri, "Knowledge Management", Pearson Education, 2004
<u>Module IV</u> Changing Business Environments and Computerized Decision Support - A Framework for Business Intelligence - Intelligence Creation and Use and BI Governance Transaction Processing versus Analytic Processing - Successful BI Implementation - Major Tools and Techniques of Business Intelligence	23-27	Efraim Turban, Ramesh Sharda, Dursun Delen and David King, "Business Intelligence" 2 nd Edition, 2010.
<u>Module V</u> Implementing BI: An Overview - BI and Integration Implementation - Connecting BI Systems to Databases and Other Enterprise Systems - On-Demand BI - Issues of Legality, Privacy, and Ethics - Emerging Topics in BI: An Overview .The Web 2.0 Revolution - Online Social Networking: Basics and Examples - Virtual Worlds - Social Networks and BI: Collaborative Decision Making - RFID and New BI Application Opportunities - Reality Mining.	28-38	Efraim Turban, Ramesh Sharda, Dursun Delen and David King, "Business Intelligence" 2 nd Edition, 2010.

Recommended Books & Reading List

1. Elias M. Awad, Hassan M.Ghaziri,"Knowledge Management", Pearson Education, 2004, (For Units I, II and III).
2. Efraim Turban, Ramesh Sharda, Dursun Delen and David King, "Business Intelligence" 2 nd Edition, 2010. (For Unit IV – Chapter 1, Unit – V -Chapter 6)03

IMCA 805 (c) Elective III FOUNDTION OF CLOUD COMPUTING

Course Overview

Program	IMCA
Semester	8
Course Code	IMCA805(c)
Course Title	Foundation of Cloud Computing
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

This course provides a comprehensive study of basic cloud computing concepts and cloud related technologies. It includes cloud models and services, cloud architecture and virtualization concepts. The course also covers the cloud security model and associated challenges and latest trends and technologies used in the cloud.

Course Objectives

By the end of the course the student will be able to

1. To develop an understanding of the fundamental concepts of cloud computing, including different cloud service models and deployment models.
2. To understand cloud architecture and importance of virtualization.
3. Be familiar with data storage in cloud and different cloud computing services.
4. To understand the importance of security in cloud computing and different cloud computing tools.
5. To gain knowledge about the cloud platforms used in industry, clouds computing applications future directions and trends.

Course Outcomes

On successful completion of the course:

CO.No	Description
IMCA805(c).1	Students will be able to understand and recall the fundamental concepts of cloud computing.
IMCA805(c).2	Students will be able to describe the various cloud related concepts and technologies.
IMCA805(c).3	Students will be able to explore the vast ecosystem of the cloud and discover the importance of cloud related technologies
IMCA805(c).4	Students will have the ability to arrange appropriate tools and applications to suit their requirements.

IMCA805(c).5	Students will be able to compare the different cloud technologies, applications, and tools
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Detailed Syllabus:

Topic	Session	References
Module I Cloud Computing Fundamentals: Introduction to Cloud Computing – History , importance and characteristics of Cloud computing. Move to Cloud Computing – migrating in to the cloud, seven step model. Types of Cloud – Public and Private Cloud, Cloud Infrastructure, Cloud Application Architecture. Working of Cloud Computing- Trends in Computing, Cloud Service Models, Cloud Deployment Models , Pros and Cons of Cloud Computing, Cloud Computing and Services: Pros and Cons	1-7	Cloud Computing – A Practical Approach for Learning and Implementation, A.Srinivasan and J.Suresh, Pearson India Publications, 2014
Module II Cloud Computing Architecture and Virtualization: Cloud Architecture –Cloud System Architecture, Cloud Development Model. Cloud Modelling and Design Virtualisation- types of virtualisation, benefits, and pitfalls of virtualisation, Virtualisation in Grid and Cloud, CPU virtualisation, network and storage virtualisation	8-15	Cloud Computing – A Practical Approach for Learning and Implementation, A.Srinivasan and J.Suresh, Pearson India Publications, 2014
Module III Data Storage and Cloud Computing services: Data Storage - Data Storage Management, File Systems, Cloud Data Stores, Using Grids for Data Storage. Cloud Storage – Data Management for Cloud Storage, Data intensive Technologies for Cloud Computing- Cloud Storage from LANs to WANs. Distributed Data Storage, Applications utilizing Cloud Storage.Cloud Services – software as a service, platform as a Service, infrastructure as a service, other cloud services.	16-24	Cloud Computing – A Practical Approach for Learning and Implementation, A.Srinivasan and J.Suresh, Pearson India Publications, 2014
Module IV Cloud Computing Security and tools: Risks in Cloud Computing – Data Security in Cloud – Cloud Security Services . Cloud Computing Tools- Tools and Technologies for Cloud,Cloud Mashups, Apache Hadoop,Cloud Tools- VMWare, Eucalyptus, CloudSim, OpenNebula, Nimbus.	25-33	Cloud Computing – A Practical Approach for Learning and Implementation, A.Srinivasan and J.Suresh, Pearson India Publications, 2014
Module V Cloud Applications and Future Cloud : Microsoft Cloud Services , Google Cloud Applications , Amazon Cloud Services, Cloud Applications. Future Cloud- Mobile cloud, Autonomic cloud engine, Multimedia Cloud. Energy aware Cloud computing, Jungle Computing.	34-40	Cloud Computing – A Practical Approach for Learning and Implementation, A.Srinivasan and J.Suresh, Pearson India Publications, 2014

Recommended Books & Reading List

1. Cloud Computing – A Practical Approach for Learning and Implementation, A.Srinivasan and J.Suresh, Pearson India Publications, 2014
2. “Cloud Computing – insights into New-Era Infrastructure”, Kumar Saurabh, Wiley India,2011.
3. “Cloud Computing: Implementation, Management, and Security” John W.Rittinghouse and James F.Ransome, , CRC Press, 2010.
4. Cloud Computing Bible, Barrie Sosinsky, Wiley-India, 2010
5. *Cloud Computing: Principles and Paradigms*, Editors: Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, Wile, 2011
6. “*Distributed and Cloud Computing, From Parallel Processing to the Internet of Things*”,Kai Hwang, Geoffrey C Fox, Jack G Dongarra, Morgan Kaufmann Publishers, 2012.
7. “*Cloud Computing, A Practical Approach*” Toby Velte, Anthony Velte, Robert Elsenpeter, TMH, 2009.

IMCA 805(d) Elective III COMPUTER GRAPHICS

Course Overview

Program	IMCA
Semester	8
Course Code	IMCA805(d)
Course Title	Computer Graphics
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

Computer graphics are an intrinsic component of many modern software applications and are often essential to the success of these applications. Course provides the basic principles and techniques for computer graphics on modern graphics hardware. Students will gain experience in interactive computer graphics using C language. The principles and practice of computer graphics are described from their mathematical foundations to the modern applications domains of scientific visualization, and animation.

Course Objectives

By the end of this course students will be able to :

1. This course will introduce students to all aspects of computer graphics including hardware, software and applications.
2. This course will familiarize students with fundamental algorithms and data structures that are used in today's interactive graphics systems.

Course Outcomes

On successful completion of the course:

CO.No	Description
IMCA805(d).1	Students will be able to define the fundamental concepts of computers graphics
IMCA805(d).2	Students will be able to understand the use of the components of a graphics system and become familiar with building approach of graphics system components and algorithms related with them..
IMCA805(d).3	Students will be able to apply computer graphics concepts in various applications
IMCA805(d).4	Students will be able to analyze the fundamentals of computer graphics including animation, underlying technologies, principles, and applications

IMCA805(d).5	Students will be able to evaluate and compare the 2D and 3D concepts while applying to various applications
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Detailed Syllabus:

Topic	Session	References
<u>Module I</u> Introduction: A survey of Computer Graphics, overview of graphics systems-Video display devices-Refresh CRT.Raster-Scan and Random-Scan Displays, Color CRT Monitors, DVST, FlatPanel Displays.Raster Scan systems, Random scan systems, Input devices, Hard copy devices, Graphics software.	1-8	Computer Graphics C Version -Donald D.Hearn & M. Pauline Baker
<u>Module II</u> Output primitives: Line drawing algorithms: DDA algorithm, Bresenham’s line algorithm, Circle generating algorithm-Midpoint circle algorithm.2D geometric Transformations: Basic transformations: Translation, Rotation, Scaling; Other transformations-Reflection and shear, Matrix representation and homogenous coordinates, Composite transformation.	9-16	Computer Graphics C Version -Donald D.Hearn & M. Pauline Baker
<u>Module III</u> Two-dimensional viewing: viewing pipeline, window to viewport transformation.Clipping operations- Point clipping, Line clipping: Cohen Sutherland line clipping, Text Clipping. Interactive Input Devices, Interactive Picture Construction Techniques.	17-24	Computer Graphics C Version -Donald D.Hearn & M. Pauline Baker
<u>Module IV</u> Three-dimensional concepts: Three dimensional display methods.Three dimensional object representations- Polygon surfaces, Sweep representations, octrees and quadrees. 3D viewing- Parallel, Perspective projections.	25-32	Computer Graphics C Version -Donald D.Hearn & M. Pauline Baker
<u>Module V</u> Visible surface detection methods, Color Models – RGB,YIQ, CMY, HSV.Animation: Design of animation sequences, key-frame systems- morphing.	33-40	Computer Graphics C Version -Donald D.Hearn & M. Pauline Baker

Recommended Books & Reading List

1. Donald D.Hearn & M. Pauline Baker, Computer Graphics C Version, Second Edition,, PHI Pvt. Ltd.
2. Newman W M & R F Sproul, Principles of Interactive Computer Graphics, Second Edition Mc- Graw Hill Publishers
3. Plastock R & Xiang Z, Theory and problems of computer Graphics, Second Edition Schaum Series, McGraw Hill Publishers.

IMCA 806 COMPILER DESIGN PRACTICALS

Course Overview

Program	IMCA
Semester	8
Course Code	IMCA806
Course Title	Compiler Design Practicals
Type of Course	Core
Contact Hours	4 hour per week
Credit	2

Course Description

This course will enlighten the student with knowledge base in compiler design and its applications. Students can demonstrate a working understanding of the process of lexical analysis, parsing and other compiler design aspects.

Course Objectives

By the end of this course Students will be able to :

1. Deepen the understanding of compiler design.
2. Develop problem solving ability using programming .
3. Develop ability to design and analyze a compiler.

Course Outcomes

On successful completion of the course:

CO.No	Course Objective Description
IMCA806.1	Students will be able to describe and simulate various lexical analyzers and parsers
IMCA806.2	Students will be able to apply different compiler writing tools to implement the different Phases
IMCA806.3	Students will be able to analyze the data flow and control flow

IMCA806.4	Students will be able to construct the intermediate Code representation
IMCA806.5	Students will be able to learn the implementation of the LEX and YACC tools

Detailed Syllabus:

Topic	Session
Programs to test whether a string is valid identifier, constant, comment etc.	1-6
Simulate lexical analyzer for identifiers, relational operators, if statement, arithmetic expression	7-15
Programs to recognize strings under 'a', 'a*b+', 'abb'.	16-20
Program to check whether a string belongs to the grammar or not	21-22
Write a program to generate a parse tree.	23-24
Program to find leading, trailing terminals.	25-28
Program to compute FIRST and FOLLOW of non-terminals.	29-31
Program to check whether a grammar is left recursive and remove left recursion.	32-34
Program to check whether a grammar is Operator precedent.	35-36
Practice with “LEX” and “YACC” tools of Compiler writing.	37-40

Recommended Books & Reading List

1. Allen I Holub ,Compiler design in C,Prentice Hall of India ,2003.
2. Vinu V .Das,Compiler design using FLEX and YACC,Prentice Hall of India ,2008

IMCA 807 MINI PROJECT -APPLICATION DEVELOPMENT

Course Overview

Program	IMCA
Semester	8
Course Code	IMCA 807
Course Title	Mini Project -Application Development
Type of Course	Core
Contact Hours	4 hours per week
Credit	2

Course Description

The mini project is designed to help students develop practical ability and knowledge about practical tools/techniques in order to solve real life problems related to the industry, academic institutions and computer science research.

Course Objectives

Students will be able to

1. Have practical experience for understanding and solving problems in the field of computing.

Course Outcomes

On successful completion of the course :

CO.No	Course Outcome Description
IMCA807.1	Students will be able to understand and solve problems in the field of computing.
IMCA807.2	Students will be able to investigative, research and improve report writing skills.
IMCA807.3	Students will be able to to investigate a chosen topic in considerable depth.
IMCA807.4	Students have the ability to demonstrate the application of their programming and research skills.
IMCA807.5	Students will be able to apply their knowledge to complex computing problems.

Detailed Syllabus:

The course Mini Project involves practical work for understanding and solving problems in the field of computing. Any computer science project usually consists of the following: **analysis, design, coding/implementation and testing** of some information system or subsystem, such as, a piece of software. In this course we expect a software system or subsystem.

This course will also develop to investigative, research and improve report writing skills and will provide an opportunity for students, to investigate a chosen topic in considerable depth. Mini Project provides the opportunity for students to demonstrate the application of their programming and research skills, and to apply their knowledge to complex computing problems.

Project Team

The project team should be organized and determined towards the fulfilment of their projects' objectives and tasks. A maximum of two students should work on a project, however, an individual student can also undertake the project on his/her own.

The main responsibilities of the project team/student are to:

- Ensure that an appropriate amount of time and effort is applied to the project,
- Ensure that they are responsive to the guidance of their counsellor,
- Acknowledge the text, material and ideas of others properly,
- Meet all milestones and regulations related to the work.
- To communicate any problems that are likely to prejudice the quality or time lines of the work to the counsellor as and when such problems arise.

Project Categories

Four broad areas / categories of computer science are given below, so that you can select any of these category for your Mini project.

- Application development
- Networking project
- System software
- Website development.

Semester IX

IMCA 901 COMPUTATIONAL SUSTAINABILITY

Course Overview

Program	IMCA
Semester	9
Course Code	IMCA901
Course Title	Computational Sustainability
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

To have an increased awareness among students on issues in areas of sustainability. To understand the role of technology within sustainable development. And also to know the methods, tools and incentives for sustainable product-service system development. This course helps students to establish a clear understanding of the role and impact of various aspects of technological decisions on environmental, societal and economic problems

Course Objectives

By the end of the course the students will be able to

1. To have an increased awareness among students on issues in areas of sustainability
2. To understand the role of technology within sustainable development.
3. To know the methods, tools and incentives for sustainable product-service system development
4. To establish a clear understanding of the role and impact of various aspects of technological decisions on environmental, societal and economic problems.

Course Outcomes

On successful completion of the course :

CO.No	Description
IMCA901.1	Students will be able to understand the different types of environmental pollution problems and their sustainable solutions.
IMCA901.2	Students will have a broader perspective in thinking for sustainable practices by utilizing the knowledge and principles gained from this course
IMCA901.3	Students will be able to work in the area of sustainability for research and education
IMCA901.4	Students will be able to create a sustainable environment by implementing the sustainable practices they learned.
IMCA901.5	Students will be able to identify sustainability problems and find solutions

Detailed Syllabus:

Topic	Session	References
<p>Module I- Sustainability: Introduction, Need and Concept of Sustainability Science; Social, Environmental and Economic Sustainability Concepts; Goals of Sustainability; Challenges for Sustainable Development; Nexus between Technology and Sustainable development;] Multilateral Environmental Agreements and Protocols; Clean Development Mechanism (CDM); Environmental legislations in India - Water Act, Air Act</p>	1-5	<p>Dr. Swarnalatha K, Dr. Binu Sara Mathew, “Sustainable Engineering”, Orbit Publishers and Distributors, August, 2015.</p> <p>Shibu Krishnan, “Introduction to Sustainable Engineering”, PKC Books, First Edition, 2015.</p>
<p>Module II- Environmental Issues : Air Pollutions – Sources and Types; Effects of Air Pollution; Control measures to reduce air pollution; Water pollution – Sources, Water Pollutants and its effects; Sustainable wastewater treatment; Solid waste – Sources, Impacts of solid waste; Zero Waste Concept; 3 R Concept of Waste Management . Global environmental issues- Resource Degradation, Climate Change, Global Warming, Ozone Layer Depletion; Regional and Local Environmental Issues; Carbon Credits and Carbon Trading; Carbon foot print.</p>	6-12	<p>Shibu Krishnan, “Introduction to Sustainable Engineering”, PKC Books, First Edition, 2015.</p>
<p>Module III- Environmental Management Tools: Environmental Management System and Standards; ISO 14000 series; Life Cycle Analysis (LCA) – Goal and Scope. Biomimicking; Environment Impact Assessment (EIA) - Procedures of EIA in India.</p>	13-23	<p>Shibu Krishnan, “Introduction to Sustainable Engineering”, PKC Books, First Edition, 2015.</p>
<p>Module IV- Sustainable Engineering: Basic Concepts of sustainable habitat; Green Buildings, Green Materials for building construction, Material Selection for Sustainable design; Green Building Certification; Methods for increasing energy efficiency of buildings; Sustainable Cities; Sustainable Transport; Sustainable Pavements</p>	24-28	<p>David T. Allen, David R. Shonnard, “Sustainable Engineering – Concepts, Design and Case Studies”, Pearson Education, Prentice Hall, First Edition, 2012.</p> <p>Shibu Krishnan, “Introduction to Sustainable Engineering”, PKC Books, First Edition, 2015.</p>
<p>Module V- Energy sources: Basic Concepts; Conventional and Non-Conventional sources of energy - Solar energy, Fuel cells, Wind energy, Hydro- electric power - Small hydro plants, Biofuels, Energy derived from oceans, Geothermal energy; Energy Conservation.</p>	29-40	<p>David T. Allen, David R. Shonnard, “Sustainable Engineering – Concepts, Design and Case Studies”, Pearson Education, Prentice Hall, First Edition, 2012.</p> <p>Shibu Krishnan, “Introduction to Sustainable Engineering”, PKC Books, First Edition, 2015.</p>

Recommended Books & Reading List

1. David T. Allen, David R. Shonnard, “Sustainable Engineering – Concepts, Design and Case Studies”, Pearson Education, Prentice Hall, First Edition, 2012.
2. Dr. Swarnalatha K, Dr. Binu Sara Mathew, “Sustainable Engineering”, Orbit Publishers and Distributors, August, 2015.
3. Shibu Krishnan, “Introduction to Sustainable Engineering”, PKC Books, First Edition, 2015.

IMCA 902 NETWORK SECURITY WITH IPR

Course Overview

Program	IMCA
Semester	9
Course Code	IMCA902
Course Title	Network Security with IPR
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course Description

Network security, which assumes you have a substantial knowledge of computing, helps to explain the intricacies of the continually changing area of network security by studying the main issues involved in achieving a reasonable degree of resilience against attacks. This course discusses different types of malicious attacks and various methods of responding to them. Students learn how to protect computer networks by using security codes. The course also examines malware, web security, privacy and e-mail Security.

Course Objectives

By the end of this course students will be able to :

1. Identify some of the factors driving the need for network security
2. Identify and classify particular examples of attacks
3. Define the terms vulnerability, threat and attack
4. Identify the security in web and email
5. Learn more about the Intrusion and Malicious software in the network
6. Identify different Laws and regulation in networks

Course Outcomes

On successful completion of the course :

CO.No	Description
IMCA902.1	Students can understand the IP security
IMCA902.2	Students can know how to secure the email
IMCA902.3	Students can identify and investigate different Malicious software in networks
IMCA902.4	Students can create real time application of the web Security and Email
IMCA902.5	Students will be able to evaluate malware, web security, privacy and e-mail Security.

Detailed Syllabus:

Topic	Session	References
<u>Module I</u> Network Concepts, Threats in Networks, Network Security Controls. Firewalls – Types, Comparison of Firewall Types, Firewall Configurations.	1-7 1-7	William Stallings, “Cryptography and Network security Principles and Practices”, Pearson/PHI.
<u>Module II</u> Intruders: Intrusion detection, Host-Based Intrusion Detection, Distributed Host-Based Intrusion Detection, Network-Based Intrusion Detection, Intrusion Detection exchange. Malicious software: Virus, Virus Counter.	8-15	William Stallings, “Cryptography and Network security Principles and Practices”, Pearson/PHI.
<u>Module III</u> IP Security: Overview of IP Security (IPsec), IP Security Architecture, Modes of Operation, Security Associations (SA), Authentication Header (AH), Encapsulating Security Payload (ESP), Internet Key Exchange.	16-25	William Stallings, “Cryptography and Network security Principles and Practices”, Pearson/PHI.
<u>Module IV</u> E-Mail security: S/MIME and Pretty Good Privacy (PGP). Web Security: Web Security Requirements, Secure Socket Layer (SSL), Transport Layer Security (TLS), Secure Electronic Transaction (SET). Digital Watermarking.	26-32	William Stallings, “Cryptography and Network security Principles and Practices”, Pearson/PHI.
<u>Module V</u> Intellectual Property: Types of Intellectual Property, Intellectual Property Relevant to Networks, Digital Millennium Copyright Act, Digital Rights Management (DRM), Privacy: Laws and Regulation, Computer Usage Privacy. Privacy and Data Surveillance, Ethics and IS Professionals, code of conduct	33-40	“Computer Security , Principle and Practice” by William Stallings and Lawrie brown, Pearson

Recommended Books & Reading List

1. Wade Trappe, Lawrence C Washington, “Introduction to Cryptography with coding theory”, Pearson.
2. Charles P. Pfleeger, Shari Lawrence Pfleeger – Security in computing – Prentice Hall of India.
3. Network Security Essentials: Applications and Standards, by William Stallings. Prentice Hall

IMCA 903 DATA SCIENCE

Course Overview

Program	IMCA
Semester	9
Course Code	IMCA 903
Course Title	Data Science
Type of Course	Core
Contact Hours	4T+1T/P hours per week
Credit	4

Course Description

The course Data Science provides insights into various disciplines like Statistics, Data Analysis, Data Mining, Machine learning. Course explains about various techniques and methods to extract knowledge. Further it discuss about the applications of Data science.

Course Objectives

By the end of this course students will be able to :

1. Get insights into basic statistical concepts required for analysis.
2. To make the students aware of Probability distributions and its application.
3. Acquire knowledge about data mining techniques
4. Develop the analytical skills in applying machine learning algorithms.
5. Analyse the possibility of applying the techniques of data science.

Course Outcomes

On successful completion of the course :

CO.No	Course Outcome Description
IMCA903.1	Students will be able to know about the basic statistical concepts applied for data science.
IMCA903.2	Students will be able to understand the importance and application of various Probability distribution.
IMCA903.3	Students will be able to apply the appropriate data mining techniques for knowledge acquisition.
IMCA903.4	Students will be able to practically implement the machine learning algorithms.
IMCA903.5	Students will be able to judge the effectiveness of data science techniques in real time application.

Detailed Syllabus:

Topic	Session	References
<p>Module-1: Introduction : Introduction to Data science: Big Data, Statistics, Machine Learning, Data Mining. BIG DATA: What is big data, why big data, convergence of key trends, unstructured data. Web analytics ,Industry examples of big data: big data and marketing , fraud and big data , risk and big data , credit risk management</p> <p>Types of Statistics: Inferential, Descriptive, Prescriptive, Predictive</p> <p>Application and importance of Correlation.</p>	1-9	<p>Getting Started With Data Science: Making Sense Of Data With Analytics by Murtaza Haider and Conrad Chavez, Pearson</p> <p>Michael Minelli, Michelle Chambers, and Ambiga Dhiraj, "Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses", Wiley, 2013</p> <p>Fundamentals of Statistics-S.C.Gupta& V.K Kapoor,Sultan Chand & Sons</p>
<p>Module II</p> <p>Regression: Linear Regression, Logistic Regression</p> <p>Multivariate Data Analysis, Parametric Estimation</p> <p>Probability Distribution: Normal, Binomial, Poisson, Gaussian, Uniform distribution</p> <p>Testing Methods:</p> <p>Testing of Hypothesis: T-test, F-test, Chi square test.</p>	10-19	<p>Fundamentals of Statistics-S.C.Gupta& V.K Kapoor,Sultan Chand & Sons</p> <p>Probability and Statistics-Murray R Spiegel,John J Schiller,R Alu Srinivasan Schaum's Outlines-Third Edition</p> <p>Thomas A. Powell, "HTML & CSS: The Complete Reference", Fifth Edition, McGraw Hill.</p>
<p>Module III</p> <p>Introduction to Machine learning, Difference between Artificial intelligence, Machine Learning, Deep Learning</p> <p>Types of Machine Learning –Supervised learning, Unsupervised, Reinforcement learning.</p> <p>How Machine learning works, examples of machine learning applications</p>	22-28	<p>Introduction to Machine Learning, Ethem Alpaydin,Second Edition</p>
<p>Module IV</p> <p>Introduction to Data Mining</p> <p>Introduction to Clustering and Classification</p> <p>Discriminant functions, Parametric method- Maximum Likelihood estimation</p> <p>K Nearest Neighbour algorithm</p> <p>Support Vector Machine</p>	25-31	<p>Data Mining Concepts and Techniques – Jiawei Han and Micheline Kamber, Second Edition, Elsevier, 2006</p>

<p>Module V: Feature extraction and selection. Entropy minimization feature selection through function approximation, Binary feature selection Dimensionality Reduction: Problems of dimensionality, Principle component Analysis Real time application of Data science- Banking, Finance: Fraud and Risk Detection, Manufacturing, Transportation, Health care, E- Commerce: Targeted Advertising</p>	<p>34-42</p>	<p>Getting Started With Data Science: Making Sense Of Data With Analytics by Murtaza Haider and Conrad Chavez, Pearson Introduction to Machine Learning, Ethem Alpaydin, Second Edition The elements of Statistical Learning, Data Mining, Inference, and Prediction. Trevor Hastie, Robert Tibshirani, Jerome Friedman</p>
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Recommended Books & Reading List

1. Getting Started With Data Science: Making Sense Of Data With Analytics by Murtaza Haider and Conrad Chavez, Pearson
2. Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses, Michael Minelli, Michelle Chambers, and Ambiga Dhiraj, Wiley, 2013.
3. Fundamentals of Statistics-S.C.Gupta& V.K Kapoor,Sultan Chand & Sons
4. Probability and Statistics-Murray R Spiegel,John J Schiller,R Alu Srinivasan Schaum's Outlines-Third Edition
5. Data Mining Concepts and Techniques – Jiawei Han and Micheline Kamber, Second Edition, Elsevier, 2006
6. Soft Computing for Data Mining Applications- [K. R. Venugopal](#), [L. M. Patnaik](#), [K.G Srinivasa](#) · 2009- Springer
7. Introduction to Machine Learning, Ethem Alpaydin, Second Edition
8. The elements of Statistical Learning, Data Mining, Inference, and Prediction. Trevor Hastie, Robert Tibshirani, Jerome Friedman

IMCA904 IT INFRASTRUCTURE MANAGEMENT

Course overview

Program	IMCA
Semester	9
Course Code	IMCA 904
Course Title	IT Infrastructure Management
Type of Course	Core
Contact Hours	4 hours per week
Credit	4

Course Description

Infrastructure management in IT plays very critical role in Managing IT investments. The course intends to introduce the concept of IT infrastructures from a technological and management perspective so as to give the students an exposure in understanding, building and managing efficient, available and cost-effective infrastructures. The importance of using ITIL in the process of designing and building IT infrastructure is covered elaborately in the syllabus and also Service level management using SLA's.

Course Objectives

By the end of the course the students will be able to:

1. Provide the knowledge to enhance the skill and competency of students in managing IT infrastructure to achieve stable, efficient and cost-effective infrastructures.
2. Disseminate knowledge required for developing and implementing infrastructure system management processes that will assure reliability, availability etc. Understand the structure and relevance of SLA's.
3. Understand various processes in infrastructure systems management like Performance Tuning, , Change Management, Incident Management, Storage, Network, and Configuration Management, Capacity Planning, Strategic Security and Disaster Recovery.

Course Outcomes

On successful completion of the course, the students will be able to:

CO.No	Course Objective Description
IMCA904.1	Define and identify various terms related to Infrastructure Management.
IMCA904.2	Learn SLA's, Incident management, concept of building cost-effective infrastructure. Concept behind ITIL
IMCA904.3	Analyze the technology to build and design infrastructures using ITIL for the same.
IMCA904.4	Design a infrastructure plan.
IMCA904.5	Evaluate terms like TCO, security and effectiveness.

Detailed Syllabus

Topic	Session	Reference
MODULE I INFRASTRUCTURE MANAGEMENT OVERVIEW: Definitions, Infrastructure management activities, Evolutions of Systems since 1960s (Mainframes-to-Midrange-to-PCs-to-Client-server computing-to-New age systems) and their management, growth of internet, current business demands and IT systems issues, complexity of today's computing environment, Total cost of complexity issues, Value of Systems management for business.	1-6	Sjaak Laan, IT Infrastructure Architecture- infrastructure building blocks and concept, Lulu Com 2013 Phalguni Gupta, Surya Prakash, Umarani Jayaraman, IT infrastructure and its management
MODULE II PREPARING FOR INFRASTRUCTURE MANAGEMENT: Factors to consider in designing IT organizations and IT infrastructure , Determining customer's Requirements, Identifying System Components to manage, Exist Processes, Data, applications, Tools and their integration, Patterns for IT systems management, Introduction to the design process for information systems, Models, Information Technology Infrastructure Library (ITIL).	7- 15	Sjaak Laan, IT Infrastructure Architecture- infrastructure building blocks and concept, Lulu Com 2013
MODULE III SERVICE DELIVERY PROCESSES: Service-level management, financial management and costing, IT services continuity management, Capacity management, Availability management.	19-26	Sjaak Laan, IT Infrastructure Architecture- infrastructure building blocks and concept, Lulu Com 2013
MODULE IV SERVICE SUPPORT PROCESSES: Configuration Management , Service desk, Incident management, Problem management, Change management, Release management.	27-32	Sjaak Laan, IT Infrastructure Architecture- infrastructure building blocks and concept, Lulu Com 2013
MODULE V STORAGE AND SECURITY MANAGEMENT: Introduction Security, Identity management, Single sign-on, Access Management, Basics of network security, LDAP fundamentals, Intrusion detection, firewall, security information management. Introduction to Storage, Backup & Restore, Archive & Retrieve, Space Management, SAN & NAS, Disaster Recovery, Hierarchical space management, Database & Application protection, Baremachine recovery, Data retention.	34-40	Sjaak Laan, IT Infrastructure Architecture- infrastructure building blocks and concept, Lulu Com 2013 Manoj Kumar Choubey, Saurabh Singhal, IT Infrastructure and Management

Recommended Books and Reading List

1. Sjaak Laan, IT Infrastructure Architecture- infrastructure building blocks and concept, Lulu Com 2013
2. Manish Mahajan, Shikha Gupta, IT infrastructure and management
3. Phalguni Gupta, Surya Prakash, Umarani Jayaraman, IT infrastructure and its management
4. Manoj Kumar Choubey, Saurabh Singhal, IT Infrastructure and Management

IMCA 905 (a) ELECTIVE IV- APPLICATION DEVELOPMENT AND MAINTAINANCE

Course Overview

Program	IMCA505
Semester	9
Course Code	IMCA905(a)
Course Title	Application Development and Maintainance
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

The course introduces pragmatic programming concepts and continuous software delivery of projects. It also makes the students introduce the concept of GIT and able to use it.

Course Objectives

By the end of the course the students will be able to:

1. To impart the practical aspects of Application Development and Maintenance
2. To emphasize the pragmatic and practical aspects of building industry ready applications
3. To understand and adhere to best practices while developing applications
4. To understand the basics of continuous development and focus on industry practices around continuous integration and continuous development

Course Outcomes

On successful completion of the course:

CO.No	Description
IMCA905(a).1	Student will be able to define the basics of software delivery, deployment, testing and development.
IMCA905(a).2	Students will be able to differentiate the best practices of software development.
IMCA905(a).3	Students will be able to apply pragmatic programming concepts
IMCA905(a).4	Students will be able to create applications using all the aspects of pragmatic programming concepts
IMCA905(a).5	Students will be able to explain different concepts of continuous delivery and pragmatic projects.

Detailed Syllabus:

Topic	Session	References
Module I Principles of Software Delivery – Configuration Management – Introduction to Continuous Integration - Implementing a Testing Strategy	1-8	Continuous Delivery: Reliable Software Releases through Build, Test, and Deployment Automation (Part I, Chapters 1, 2, 3,4)
Module II Using Git for version Control – Leveraging Github.com repositories for projects/Assignments – Getting Started with Git – Working with Git- Organizing Your Repository with Branches and Tags – Working in a team – Branches and Merging – Git History - Fixing Commits	9-16	Pragmatic Guide to Git: (Part I, 2, 3,4,5,6,7)
Module III Introduction to the Deployment Pipeline – Different Stages of Deployment Pipeline – Scripting for Deployment stages -Details of Commit Stage	17-23	Continuous Delivery: Reliable Software Releases through Build, Test, and Deployment Automation (Part II, Chapters 5, 6,7)
Module IV Automated Testing – Testing for Non Functional Requirements – Deploying and releasing applications	24-33	Continuous Delivery: Reliable Software Releases through Build, Test, and Deployment Automation (Part II, Chapters 8,9,10)
Module V Best practices for Software Development –Practical Approach in Software development- The Basic Tools	34-38	The Pragmatic Programmer: From Journeyman to Master (Chapter I, 2, 3, 4)

Recommended Books & Reading List

1. Andrew Hunt, David Thomas, “The Pragmatic Programmer: From Journeyman to Master”, Addison-Wesley Professional, 1999
2. Jez Humble, David Farley, “Continuous Delivery: Reliable Software Releases through Build, Test, and Deployment Automation”, Addison-Wesley Professional, 2010
3. Travis Swicegood, “Pragmatic Guide to Git”, Pragmatic Bookshelf, 2010

IMCA 905 (b) ELECTIVE IV- SOFTWARE TESTING

Course Overview

Program	IMCA905
Semester	9
Course Code	IMCA905(b)
Course Title	Software Testing
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

This course will take you through the process of software testing which includes planning, scheduling, test scenarios, error analysis and so on. It includes various types of testing like performance testing, regression testing, text execution, preventive measures, generating test reports.

Course Objectives

By the end of the course the students will be able to:

- 1 Students will learn how to Designing various test cases and understanding the techniques involved
- 2 Skills needed for identifying and preventing defects
- 3 Log defect identification
- 4 To learn the functionality of automated testing tool Selenium.

Course Outcomes

On successful completion of the course:

CO.No	Description
IMCA905(b).1	Students will be able to define various types of testing.
IMCA905(b).2	Students will be able to differentiate Whitebox Testing and Blackbox testing.
IMCA905(b).3	Students will be able to apply various testing techniques for testing a Software.
IMCA905(b).4	Students will be able to Create Test cases for testing a Software.
IMCA905(b).5	Students will be able to explain the importance of test automation tools.

Detailed Syllabus:

Topic	Session	References
Module I Fundamentals of Testing: What is Testing? Testing versus Debugging, Verification and Validation, Root Cause Analysis, Significance of Testing: Cost of Quality, Software Testing Principles, Testing Choices: In-house Testing, Outsourcing, Who does the testing ? Developers as testers, Independent testing team , Buddy testing	1-8	ISTQB Certification Study Guide, Dr. K.V.K.K. Prasad, Wiley-Dreamtech Press, Meyers, G.: The art of Software Testing, Wiley-Inter-Science.
Module II Test Case Design Techniques: Black-box testing techniques: Boundary Value Analysis (BVA) - Equivalence Partitioning (EP)- Decision table testing, State transition testing , Cause Effect graphing, White-box testing techniques: Statement Coverage , Decision Coverage , Branch Coverage , Path Coverage , Control flow testing , Data flow testing	9-17	ISTQB Certification Study Guide, Dr. K.V.K.K. Prasad, Wiley-Dreamtech Press
Module III Levels of Testing: Unit Testing , Module Testing, Integration Testing , System Testing , Acceptance Testing, Testing Approaches: Static Testing vs. Dynamic Testing , Positive Testing vs. Negative Testing, Top-down vs. Bottom-up testing.	18-23	ISTQB Certification Study Guide, Dr. K.V.K.K. Prasad, Wiley-Dreamtech Press,
Module IV Types of Testing: Smoke Testing, Interface testing, Use-case testing, Gorilla Testing, Alpha testing, Load testing Stress testing, Security testing, Maintenance testing , Acceptance testing, Documentation testing. Case study: Write a test case for testing a web application .	29-36	ISTQB Certification Study Guide, Dr. K.V.K.K. Prasad, Wiley-Dreamtech Press
Module V Software test automation – What is Test Automation- skills needed for automation – scope of automation – design and architecture for automation – requirements for a test tool – challenges in automation – Introduction to Automation Tool - Selenium	37-42	Software Testing Principles and Practices by Srinivasan Desikan and Gopaldaswamy Ramesh Selenium 2 Testing Tools: Beginner's Guide

Recommended Books & Reading List

1. ISTQB Certification Study Guide, Dr. K.V.K.K. Prasad, Wiley-Dreamtech Press, ISBN: 9788177227116
2. Meyers, G.: The art of Software Testing, Wiley-Inter-Science.
3. Adithya P. Mathur, “ Foundations of Software Testing - Pearson Education, 2008
4. Introducing Software Testing Louise Tamres
5. Boris Beizer, “ Software Testing Techniques” , Dream Tech Press, 2009

6. Selenium 2 Testing Tools: Beginner's Guide

IMCA 905 (c) ELECTIVE IV- CUSTOMER RELATIONSHIP MANAGEMENT

Course Overview

Program	IMCA505
Semester	9
Course Code	IMCA905(c)
Course Title	Customer Relationship Management
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

This course is focused on the holistic understanding of customer relationship management. It will help the students to understand the role and importance of CRM in customer centric, marketing cum services continuum and designing innovative strategies with technological support for long-term customer retention.

Course Objectives

By the end of the course the students will be able to:

1. Understand the fundamentals of CRM
2. Recognize the basic technological infrastructure and organizations involved in current and emerging CRM practices
3. Appreciate the role and changing face of CRM as an IT enabled function

Course Outcomes

On successful completion of the course students will be able to :

CO.No	Description
IMCA905(c).1	Understand and describe a customer relationship management application,
IMCA905(c).2	Examine the techniques which are required to develop network application/ internet based application.
IMCA905(c).3	Implement how CRM practices and technologies enhance the achievement of marketing, sales and service.
IMCA905(c).4	Critically analyze an organization's relational strategies with stakeholder groups
IMCA905(c).5	Evaluate CRM implementation strategies

Detailed Syllabus:

Topic	Session	References
<p>Module I Introduction Definition of CRM, CRM as a business strategy, elements of CRM, History of CRM, Schools of thoughts on CRM, Relationship Pyramid, Dynamics of Customer Supplier Relationships, Nature and context of CRM.Strategy and Organization of CRM: strategy, The relationship oriented organization: Mission, Culture, Structure, People, Communication & Information Systems.</p>	1-9	Peelan, E. (2005). Customer Relationship Management. Pearson Education. ISBN: 978-0273681779
<p>Module II Customer Knowledge: Value of Customer knowledge, The utilization of data as an asset, From Data to Customer Knowledge, Privacy, Personal Data Protection, Information Policy, Communication & Multi-channels.The Individual Customer Proposition: Customization, Individualization of the product offering, Individualized pricing policy</p>	10-17	Peelan, E. (2005). Customer Relationship Management. Pearson Education. ISBN: 978-0273681779
<p>Module III Introduction to Relationship Policy: Relationship Policy Per Segment, Relationship policy by relationship phase, The Relationship Policy Translating the relationship policy into contact moments. Relationship data management: Customer Identification, Expanding the size of the customer database, Customer profiling.</p>	18-25	Peelan, E. (2005). Customer Relationship Management. Pearson Education. ISBN: 978-0273681779
<p>Module IV Data analyses & Data mining, Segmentation & Selections, Retention cross-selling. Evaluating the effect of marketing activities on the customer value, Lifetime value, Alternatives for lifetime value, Balanced scorecard, Reporting Results.Call centre management, Internet and website, Direct mail, Effective direct mail message. CRM Subsystems: Contact Management, Campaign Management. Sales Force Automation Choosing CRM Tools / Software Package: Short listing prospective CRM vendors, setting evaluation criteria for the appropriate CRM package, selection CRM implementation</p>	26-36	Peelan, E. (2005). Customer Relationship Management. Pearson Education. ISBN: 978-0273681779
<p>Module V CRM systems and Implementation, Implementation of CRM systems Applications in various industries: Applications in manufacturing, banking hospitality and telecom Sectors, Ethical issues in CRM Past, Present and Future of CRM.</p>	37-40	Peelan, E. (2005). Customer Relationship Management. Pearson Education. ISBN: 978-0273681779 Jagdish N Sheth, Parvatiyar Atul, G Shainesh, Customer Relationship Management: Emerging Concepts, Tools and Applications, 1st Edition, Tata McGraw Hill, June 2008

Recommended Books & Reading List

1. Peelan, E. (2005). Customer Relationship Management. Pearson Education. ISBN: 978-0273681779
2. Jagdish N Sheth, Parvatiyar Atul, G Shainesh, Customer Relationship Management: Emerging Concepts, Tools and Applications, 1st Edition, Tata McGraw Hill, June 2008
3. Judith W .Kincaid , Customer Relationship Management Getting it Right, Pearson Education
4. .H.Peeru Mohamed , A Sagadevan, Customer Relationship Management, A Step by Step Approach, Vikas Publishing House
5. Customer Centricity –Focus on right customer for strategic advantage, by Peter Fader, Wharton Digital Press, 2012

IMCA 905 (d) ELECTIVE IV- INFORMATICS AND CYBER ETHICS

Course Overview

Program	IMCA505
Semester	9
Course Code	IMCA905(d)
Course Title	Informatics and Cyber Ethics
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

This course covers ethical and professional issues that arise in designing and using networked information technologies and information resources. It examines frameworks for making ethical decisions, emergent technologies and their ethical implications, and information and computer professionalism.

Course Objectives

The aim of the course is not to tell what to think about ethical issues, but on the proper views in computing ethics .

1. Develop mature stances with regard to issues of professional ethics in general , computing ethics in particular.
2. Present these stances in a manner that is persuasive to your peers, the most important audience for the articulation of your ethical views.

Course Outcomes

On successful completion of the course students will be able to :

CO.No	Description
IMCA905(d).1	Students identify statutory, regulatory, constitutional, and organizational laws that affect the information technology professionally.
IMCA905(d).2	Students locate and apply case law and common law to current legal dilemmas in the technology field.
IMCA905(d).3	Students apply diverse viewpoints to ethical dilemmas in the information technology field and recommend appropriate actions.
IMCA905(d).4	Students distinguish enforceable contracts from non-enforceable contracts.
IMCA905(d).5	Students analyze statutory, regulatory, constitutional, and organizational laws that affect the information technology professionally.

Detailed Syllabus:

Topic	Session	References
Module I The Internet, TCP/IP, IP Addressing, Client Server Communication, Intranet, WWW, Web Browser and Web Server, Hyperlinks, URLs, Electronic mail	1-8	Alan Evans, Kendall Martin, Mary Anne Poatsy - "Technology in Action", Pearson
Module II Internet as a knowledge repository, academic search techniques, creating cyber presence. Academic websites, open access initiatives, opens access publishing models, Introduction to use of IT in teaching and learning -Educational software, Academic services–INFLIBNET, NPTEL, NICNET, BRNET	9-18	Alan Evans, Kendall Martin, Mary Anne Poatsy - "Technology in Action", Pearson
Module III Introduction to purchase of technology, License, Guarantee, Warranty, Basic concepts of IPR, copyrights and patents, plagiarism. IT & development, the free software movement	18-28	Alan Evans, Kendall Martin, Mary Anne Poatsy - "Technology in Action", Pearson
Module IV Cyber space, information overload, cyber ethics, cyber addictions, cybercrimes–categories –person, property, Government–types-stalking, harassment, threats, security & privacy issues	29-36	Barkhs and U. Rama Mohan - HTML Black Book 3. "Cyber Law Crimes", Asia Law House, New Edition
Module V Cyber Addiction, Information Overload, Health Issues, e-Waste and Green computing impact of IT on language & culture-localization issues- Unicode- IT and regional languages e-Governance in India, IT for National Integration, Role of IT.	37-42	Barkhs and U. Rama Mohan - HTML Black Book 3. "Cyber Law Crimes", Asia Law House, New Edition

Recommended Books & Reading List

1. Alan Evans, Kendall Martin, Mary Anne Poatsy - "Technology in Action", Pearson
2. Dinesh Maidasani "Learning Computer Fundamentals, MS Office and Internet &

Web Technology", Firewall Media, Lakshmi Publications.

3. V Rajaraman - "Introduction to Information Technology", Prentice- Hall of India.
4. Barkhs and U. Rama Mohan - HTML Black Book 3. "Cyber Law Crimes", Asia Law

House, New Edition

5. Peter Nortons- Introduction to Computers, Sixth Edition, Published by Tata

McGraw Hill

IMCA 905 (e) ELECTIVE IV- MACHINE LEARNING

Course Overview

Program	IMCA505
Semester	9
Course Code	IMCA905(e)
Course Title	Machine Learning
Type of Course	Elective
Contact Hours	4 hours per week
Credit	4

Course Description

This course provides a broad introduction to machine learning and statistical pattern recognition. Unsupervised learning, learning theory, reinforcement learning and adaptive control. The course will also discuss recent applications of machine learning.

Course Objectives

By the end of the course the students will be able to:

1. To introduce the basic concepts and techniques of Machine Learning.
2. To develop skills for using machine learning algorithms for solving practical problems.
3. To develop skills for using standard machine learning libraries.

Course Outcomes

On successful completion of the course:

CO.No	Description
IMCA905(e).1	Students will be able to introduce the basic concepts and techniques of Machine Learning.
IMCA905(e).2	Students will be able to to develop skills for using machine learning .
IMCA905(e).3	Students will be able to apply algorithms for solving practical problems
IMCA905(e).4	Students will be able to to create skills for using standard machine learning libraries.
IMCA905(e).5	Students will be able to differentiate concepts of machine learning algorithms.

Detailed Syllabus:

Topic	Session	References
Module I Introduction to Machine Learning - How do machines learn - Feature Selection, Understanding data:- numeric variables – mean, median, mode, Measuring spread. Review of distributions: Uniform and normal. Categorical variables. Dimensionality Reduction.	1-8	Brett Lantz, “Machine Learning with R”, Packt Publishing, 2nd Edition.
Module II Lazy Learning - Classification Using k-Nearest Neighbor algorithm. Measuring similarity. Choice of k. Probabilistic Learning - Naive Bays' classifier. Review of probability - Joint probability, Conditional probability and Bay's theorem, Naive Bayes algorithm.	9-18	Brett Lantz, “Machine Learning with R”, Packt Publishing, 2nd Edition. Tom Micheal, “Machine Learning”, Mcgraw Hill (1997)
Module III Classification Using Decision Trees and Rules - Divide and conquer strategy. Decision tree algorithm. Regression Methods - Simple linear regression - Ordinary least squares estimation Correlations - Multiple linear regression	18-28	Brett Lantz, “Machine Learning with R”, Packt Publishing, 2nd Edition. Tom Micheal, “Machine Learning”, Mcgraw Hill (1997)
Module IV Neural Networks: Biological motivation - Perceptron - Activation functions - Network Models. Support Vector Machines - Review of finite dimensional vector spaces - Hyper planes - Support Vector Classifier. Kernel methods .	29-36	Brett Lantz, “Machine Learning with R”, Packt Publishing, 2nd Edition. Tom Micheal, “Machine Learning”, Mcgraw Hill (1997)
Module V Evaluating Model Performance: Precision and recall, Confusion matrix, Cross validation Bootstrap sampling, Improving model performance with ensemble learning, Bagging and Boosting. Introduction to random forest	37-42	Brett Lantz, “Machine Learning with R”, Packt Publishing, 2nd Edition. Tom Micheal, “Machine Learning”, Mcgraw Hill (1997)

Recommended Books & Reading List

1. Brett Lantz, “Machine Learning with R”, Packt Publishing, 2nd Edition.
2. Tom Micheal, “Machine Learning”, Mcgraw Hill (1997)
3. Vinod Chandra S S, Anand Hareendran S., “Artificial Intelligence and Machine Learning”, Prentice Hall (2014)
4. Simon Rogers, Mark Girolami, “A First course in Machine Learning”, CRC Press, First Indian reprint, 2015.
5. N P Padhy, “Artificial Intelligence and Intelligent Systems”, Oxford University Press, 1st Edition.
6. E. Alpayidin, “Introduction to Machine Learning”, Prentice Hall of India (2005)
7. T. Hastie, R. Tibshirani and J. Friedman, “The Elements of Statistical Learning”, Springer 2001
8. Toby Segaran, “Programming Collective Intelligence: Building Smart Web 2.0 Applications”, O'Reilly Media; 1 edition (16 August 2007).
9. Drew Conway, John Myles White, “Machine Learning for Hackers: Case Studies and Algorithms to Get You Started”, O'Reilly Media; 1 edition (13 February 2012)
10. Christopher Bishop, “Pattern Recognition and Machine Learning (Information Science and Statistics)”, Springer 2011 edition (15 February 2010)
11. Machine Learning - Course Materials @ <http://cs229.stanford.edu/materials.html>

IMCA 906 DATA SCIENCE PRACTICALS

Course Overview

Program	IMCA
Semester	9
Course Code	IMCA906
Course Title	Data Science Practicals
Type of Course	Core
Contact Hours	4 hour per week
Credit	2

Course Description

This course provide adequate knowledge in the application of various data science algorithms in the programming languages of R and Python. Students can apply the techniques and tools to solve real time application problems.

Course Objectives

By the end of the course the students will be able to:

1. To provide knowledge of different data preprocessing activities.
2. To impart knowledge about various statistical applications using R.
3. To equip students to understand, utilize and visualize the data by applying the tools of Python.
4. Develop programs for predictive analytics.

Course Outcomes

On successful completion of this course :

CO.No	Course Objective Description
IMCA906.1	Students will be able to understand the methods of data preprocessing.
IMCA906.2	Students will be able to apply different functions of R programming language for computing statistical values computing statistical compiler writing tools to implement the different Phases.
IMCA906.3	Students will be able to analyze the data for retrieving knowledge.
IMCA906.4	Students will be able to implement the machine learning algorithms.
IMCA906.5	Students will be able to evaluate the validity of hypothesis by various testing methods.

Detailed Syllabus:

Topic	Session	References
Module I Handling data in Data Science Introduction to Data Science. Exploring data analysis with Pandas :Accessing and preparing data - Reading a file ,indexing, selecting a subset. Data preprocessing with python:-Dropping columns in a dataframe, Changing the index of a dataframe, Cleaning columns and data, Renaming columns and skipping rows.	1-8	Python Data Science Handbook, Jake Vanderplas
Module II Numerical analysis using NumPy:-Handling arrays and analysing data. Data Visualization and Machine Learning algorithms-Data visualization with Matplotlib :-Understanding the plot, Creating 2-D plots, Multiple plots, Types of plots.	9-17	Python Data Science Handbook, Jake Vanderplas.
Module III Linear Regression: -Simple and Multiple regression using python Machine Learning algorithm implementation with Scikit-learn Implementation of any one Classification & Clustering Algorithm Testing of Hypothesis	19-25	Python Data Science Handbook, Jake Vanderplas
Module IV Preprocessing using R Data frames using R Data visualisation	26-33	R for Data Science Hadley Wickham & Garrett Golemund O'Reilly
Module V Linear and Multiple Regression using R Hypothesis testing Introduction to text Mining	34-40	R for Data Science Hadley Wickham & Garrett Golemund O'Reilly

Recommended Books & Reading List

1. Python Data Science Handbook, Jake Vanderplas
2. R for Data Science ,Hadley Wickham & Garrett Golemund O'Reilly

Lab Record Programs

Develop the following programs using Python tools:

1. Develop program to execute various functionalities of arrays.
2. Develop program to empower data analysis using data frames.
3. Execute various inferential statistical distributions. (preferably Normal, Binomial, Poisson)
4. Compute Correlation Coefficient
5. To apply various hypothesis testing methods(preferably F-test, T test, Chi-square,Z-test)
6. Develop the program to execute any one classification algorithm.
7. Develop a program to apply regression technique for prediction.
8. Presenting the analysis through visualization tools.

Develop the following programs using R :

9. Develop program to execute various functionalities of arrays.
10. Develop program to empower data analysis using data frames.
11. Execute various inferential statistical distributions. (preferably Normal, Binomial, Poisson)
12. Compute Correlation Coefficient
13. To apply various hypothesis testing methods(preferably F-test, T test, Chi-square, Z-test)
14. Develop the program to execute any one classification algorithm.
15. Develop a program to apply regression technique for prediction.
16. Presenting the analysis through visualization tools.

Application Project:

17. Apply the tools and techniques in any one real time application.

IMCA 907 CLOUD COMPUTING PRACTICALS

Course Overview

Program	IMCA
Semester	9
Course Code	IMCA 907
Course Title	Cloud Computing Practicals
Type of Course	Core
Contact Hours	4 hours per week
Credit	2

Course Description

Basic objective of this course is to enable the students to build basic and advanced web applications using various web programming languages. Students need not have prior familiarity with web programming, but they must have the basic knowledge of computer programming in order for this course to be successful.

Course Objectives

By the end of this course students will be able to :

1. To build basic web applications using HTML.
2. To enhance the web applications build using HTML with CSS.
3. To understand XML and performing validation of XML file using DTD and Schemas.
4. To create web applications using javascript.
5. To create web applications using JSP and using MySQL to build database applications.
6. To create web applications using Ruby and understanding its object oriented concepts.
7. To Focus on building Ruby on Rails applications.

Course Outcomes

On successful completion of the course:

CO.No	Course Outcome Description
IMCA907.1	Students will be able to define the web programming concepts.
IMCA907.2	Students will be able to develop and explain web programming.
IMCA907.3	Students will be able to apply programming logic to develop web applications.
IMCA907.4	Students have the ability to examine and test different web technologies.

IMCA907.5	Students will be able to design and construct applications based on different web technologies.
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Detailed Syllabus:

Topic	Session
Create an HTML page to demonstrate lists and tables.	1-2
Create an HTML page using frames.	3-4
Create an image gallery using CSS.	5-6
Create an HTML form and style it using CSS.	7-8
Create an XML file and validate it using XML DTD.	9-10
Create an XML file and validate it using XML Schema.	11-12
Create javascript application using arrays and functions.	13-14
Create javascript application by implementing Date and Math related objects.	15-16
Create a javascript application that demonstrates form validation which includes text field, radio buttons, check boxes, list box and other controls.	17-21
Create a web application using JSP.	22-23
Create a JSP application to demonstrate sessions.	24-25
Create a JSP application to demonstrate cookies.	26-27
Create a database application using JSP and MySQL.	28-30
Create a JSP application to demonstrate java beans.	31-32
Create a ruby program to demonstrate classes and objects.	33
Create a ruby program to demonstrate inheritance.	34-35
Create a ruby program to demonstrate overriding.	36
Create a ruby program to demonstrate modules.	37
Create a ruby program to demonstrate mixins.	38-39
Create a database application using Rails.	40-42

Recommended Books & Reading List

1. Tanweer Alam, "Introduction to Web Technology", Khanna Book Publishing.
2. Xavier. C, "Web Technology and Design", New Age International.
3. Thomas A. Powell, "HTML & CSS: The Complete Reference", Fifth Edition, McGraw Hill.
4. Kris Hadlock, "Ajax for Web Application Developers", SAMS Publishing.
5. Thomas Powell, "Javascript: The Complete Reference", Tata McGraw-Hill.
6. Brad Dayley, "Node.js, MongoDB, and Angular JS Web Development", Addison Wesley.
7. Jason Brittain, Ian F Darwin, "Tomcat The Definitive Guide", O'Reilly.
8. Hans Bergsten, "Java Server Pages", O'Reilly.
9. Phil Hanna, "JSP The Complete Reference", Osborne/McGraw-Hill.
10. Steven Holzner, "Beginning Ruby on Rails", Wiley Publishing.

IMCA 908 MAIN SEMINAR- CURRENT TRENDS

Course Overview

Program	IMCA
Semester	9
Course Code	IMCA 908
Course Title	Main Seminar – Current Trends
Type of Course	Core
Contact Hours	2 hours per week
Credit	2

Course Description

This course is intended to make IMCA students aware of the Current / Future trends related to Information Technology/ Computer Science/ Computer Application.

As such, a seminar report of not less than 15 pages is to be prepared and submitted for final evaluation.

The Seminar is to be evaluated internally by the College and carries a total Marks of 100 divided as follows:

1. Marks for relevance of topic (20)
2. Marks for literature study (20)
3. Marks for each Presentation (20)– 2 presentations (40)
4. Marks for Seminar Report (20).

The seminar report should be prepared as per the following guidelines:

1. No of pages: Not less than 15 pages.
2. Size A4, One sided.
3. Text Size 12; Title Size 14 Underlined; Line spacing: 1.5 Full Justified
4. Spiral Binding with uniformity in bind cover.

Every student is expected to present a minimum of 2 presentation of the seminar before the evaluation committee and for each presentation marks can be equally apportioned. A three-member committee consisting of qualified TEACHERS with PG in Computer Science / Computer Application from the MCA Department has to be appointed by Head of Department. The Committee duly appointed will evaluate the seminar. At the end of the semester the total marks have to be calculated and send to the University. A Student shall have to score 50 % for getting a pass in the Seminar.

Semester X

IMCA X01- MAIN PROJECT-APPLICATION DEVELOPMENT

Course Overview

Program	IMCA
Semester	10
Course Code	IMCAX01
Course Title	Main Project- Application Development
Type of Course	Core
Contact Hours	4 hours per week
Credit	8

Course Description

Guidelines for Project Work- June 2020 Admn. onwards

The Master of Computer Applications (MCA) programme prepares the students to take up positions as Systems Analysts, Systems Designers, Software Engineers, Programmers and Project Managers in any field related to information technology. As part of the curriculum, all students who are into their sixth semester will have to carryout a project preferably in a software industry or any research organization for duration of one full semester. The courses studied and the mini project & the main project handled at final year will give the comprehensive background to work on diverse application domains.

The objective of the MCA project work is to develop quality software solution. During the development of the project, the student should involve in all the stages of the software development life cycle like requirements engineering, systems analysis, systems design, software development, testing strategies and documentation with an overall emphasis on the development of reliable software systems. The primary emphasis of the project work is to understand and gain the knowledge of the principles of software engineering practices, so as to participate and manage a large software engineering projects in future. Students should take this project work **very seriously**, and carry out the same individually. The topics selected should be complex and large enough to justify as an MCA project. The project should be genuine and original in nature and should not be copied from anywhere else.

After the completion of this project work, the student will be able to:

- i. Describe the Systems Development Life Cycle (SDLC).

- ii. Evaluate systems requirements.
- iii. Complete a problem definition and its evaluations.
- iv. Construct and evaluate UML's/Data flow diagrams and Data Dictionaries
- v. Evaluate alternative tools for the analysis process.
- vi. Create and evaluate such alternative graphical tools as systems flow charts and state transition diagrams.
- vii. Plan the systems design phase of the SDLC.
- viii. Distinguish between logical and physical design requirements.
- ix. Design and evaluate system Inputs & outputs and UI.
- x. Decide various data structures.
- xi. Perform coding for the project.
- xii. Documentation requirements and prepare and evaluate systems documentation.
- xiii. Generate various reports.
- xiv. To decide the future scope and further enhancement of the system.
- xv. Develop of the ability to assess the implications of work performed.
- xvi. Get good exposure and command in one or more application areas and on the software
- xvii. Develop of the ability to communicate effectively.

All students are expected to work on a real-life project preferably in some Industry / Research and Development Laboratories / IT-ITES Organisations. The complete project work should be done by the student only. The role of guide should be about guidance wherever any problem encounters during project.

- i) **Not more than one student is permitted to work on a project.**
- ii) Each Student should be involved in each and every phase of Project Development. If it is found that student is not involved in any phase; for example, coding phase, it may lead to the rejection/disqualifying of the project at any stage.
- iii) Title of the project should be kept the same throughout the project.

Guidelines for preparing the Project Dissertation

This document lists the contents required for the academic project report done as part of the MCA Curriculum. Section names have been listed with description. The descriptions have been provided in italics. *Important: This page and the text in italics present throughout this document are to give you guidance. Please do not include them in your project report.*

CONTENTS OF THE ACADEMIC PROJECT REPORT

1. Cover Page as per format

Use the same format given in the project doc

2. Certificate of the Company/Organization

Use the same format given in the project doc

3. Certificate of the Head Of Department as per format

Use the same format given in the project doc

4. Certificate of the Internal project guide as per format

Use the same format given in the project doc

5. Declaration

By student – format given

6. Acknowledgement

Use the same format given in the project doc

7. Revision history

Table with version, date, author, changes done, approval

8. Table of Contents

Please use the MS Word Table of content feature for this and not a manual TOC.

9. Executive Summary

This should describe the problem and the solution given by your project in brief. You should also mention the process model you used for development, methodology and technology. Limit the description to 1-2 pages.

10. Background

UP Phase: Inception

10.1. Existing System

Describe the system that already exists. Please note that the system could be manual or automated or a combination of both. Provide the business flow using an activity diagram.

10.2. Definition of Problem-

Describe the problems/inadequacies of current set up.

10.3 Proposed System

Explain how the proposed system will solve the problems.

Provide the revised business flow involving your system using an activity diagram, if relevant.

11. Project Overview

UP Phase: Inception

11.1. Objective of the Project

Describe the business benefits expected from this project.

11.2. Stakeholders

List the stakeholders, their goals which will be satisfied by this system and the benefits.

11.3. Scope of the Project

Mention in brief the system proposed to meet the objective. Mention clearly if any part of the work is not in your scope – e.g. installation, or some data migration required for implementation of this system, integration with some other system etc.

11.4 Feasibility Analysis

11.4.1. Technical feasibility

Technology and system feasibility - The assessment is based on an outline design of system requirements in terms of Input, Processes, Output, Fields, Programs, and Procedures. This can be quantified in terms of volumes of data, trends, frequency of updating, etc. in order to estimate whether the new system will perform adequately or not

11.4.2. Operational feasibility

Is a measure of how well a proposed system solves the problems, and takes advantages of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development

11.4.3. Schedule feasibility

Schedule feasibility is a measure of how reasonable the project timetable is.

11.5.4. Economic feasibility - Cost - Benefit Analysis

If the company had already done the analysis before deciding on the project, then obtain the information from the company and just mention it here. If this analysis was performed by the student, then

explanation of how the analysis was conducted should be provided. The analysis aims to determine the benefits and savings that are expected from a candidate system and compare them with costs.

12. Overall Project Planning

UP Phase: Inception

12.1. Development environment

Identify and list the technology and tools planned to be used in the development of the project – IDEs, compilers, UML tool, configuration management tool etc.

12.2. Constraints

List the constraints applicable to your project e.g. time constraints, budget constraints, resource constraints, any other constraints set by the customer.

12.3. Deliverables

List all deliverables expected by the customer – e.g. application, configuration files, source code, any 3rd party software packaged along with this, documents – requirements, design, user manual, installation manual, tutorial – as applicable for your project.

12.4. Assumptions and dependencies

List the assumptions and dependencies made while planning the project, eg .there could be an assumption that the required inputs will be given by users or that users will be available to review the documents or that the testing team will be available to test if required etc.

12.5. Risks

List any risks you foresee in the execution of this project and describe the plan to mitigate it.

12.6. Process model

Mention which process model you chose to develop this project and the justification for it.

12.7. Test Strategy

Mention all testing strategies – unit, integration, system, user acceptance testing that have been used.

12.8. Testing environment and tools

The environment for testing should give the specifications of hardware and software used for testing. Tools used for testing if any, should be listed here.

13. Iteration Planning

UP Phase – Each iteration in each phase

13.1. Schedule

Put the schedule here – activities, dependencies, start and end dates.

13.2. Risks

List any risks you foresee in the execution of this iteration and describe the plan to mitigate it.

14. High level system Analysis

UP Phases: Inception

This analysis will be performed completely during inception and will be continued to be revised in the elaboration stage.

14.1. User characteristics

Mention the different types of users or user groups of the proposed system and any special training needs they have in order to use this system.

14.2. Summary of system features/Functional requirements

List the features identified to be part of this system in order to satisfy this goal.

14.3. Non Functional Requirements / Supplementary Specification

List the non functional requirements applicable to your project related to performance, security etc.

14.4. Glossary

Define the business/domain terms specific to the context of this system

14.5. Business Rules

Define the business rules specific to the user's domain/organization that need to be satisfied by this system.

14.6. Use cases

List all the use case names here and a brief description of each use case.

14.7. Use case diagram

15. Domain Model

UP Phases: Inception and Elaboration

The initial model will be identified during elaboration and will be continued to be revised in the elaboration stage. Give the analysis level class diagram, i.e. the domain model here and a brief description of the analysis level classes.

16. Use Case Model

Relevant UP Phases: Inception and Elaboration

To be developed during inception for a critical few use cases and the remaining use cases (majority) will be developed during elaboration for the majority of the use cases.

16.1. Use case text

Write the detailed use case text, in the fully dressed format for each use case. Identify the non functional requirements and rules to be followed specific to the use case being considered. Also identify the user inputs in the form of text and file inputs to system (if any). Develop the format of input which the system will accept, with examples. If it is a file input, format of file and format of data within it (if relevant) have to be provided.

Develop error messages and information texts required as part of this use case. Any external system interface requirements also need to be identified

16.2. System sequence diagram

For each use case under consideration, draw the system sequence diagram(s).

16.3. Operation contracts

For each system sequence diagram under consideration, write up the operation contracts.

16.4. Reports

Develop the format of the reports generated as part of this use case, if any.

Design Model

UP Phases: Elaboration and Construction

Developed completely in elaboration and revised in construction phase.

16.5. Sequence diagrams

Develop the design level sequence diagrams for the use case under consideration.

16.6. Class diagrams

Develop the design level class diagram for the use case under consideration.

16.7. UI design

Develop the screens identified for the use case under consideration and provide snapshots. At this stage, static screens are sufficient.

16.8. Theoretical Background

Theoretical details about the technology, tools and algorithms you have used in this project should be mentioned here in brief.

16.9. Architecture

In this section, show pictorially the logical and deployment architecture of this system. Use package diagrams, component and deployment diagrams for this.

16.10. Database design

This should give a catalogue of the data elements used in the system / sub system developed. The following are the details require for each table and field in the table. Repeat this list as many times there are tables and fields. Write NA if NOT applicable:

16.10.1. Table Name

16.10.1.1. Field Name

16.10.1.2. Length

11.4.1.1 Type CHAR, VARCHAR, NUMBER, DATE etc.

11.4.1.2 Description

17. Testing

UP Phases: Construction and Transition

Developed completely in construction and revised in transition phase.

17.1. Test cases

List each test case – with description, inputs, expected output, pass/fail criteria.

17.2. Test Report

Actual result against the expected results of test cases should be compiled here. A measure of quality like

% of passed test cases should also be provided.

17.3. Sample Code used for testing

Sample code used for unit testing should be provided.

18. Transition

Relevant UP Phase: Transition

18.1. System Implementation

Describe the implementation mechanisms. Describe the method of data conversion and migration for the new system if applicable.

18.2. System Maintenance

Describe the plan for maintenance of the system. Mention the documents and any training provided by the student for future maintenance.

18.3. User/Operational Manual

If there was a user manual expected as deliverable by the customer, provide it here. If there was a demo or training given to users on the system, mention that. If there are any limitations of the system or constraints on inputs like data format, which have to be taken care by users, list it here. Also mention the details required for operation of the system. This should include instructions on how to start and shutdown the system, description of expected folder structure of system related files after installation, list of roles of users required to be created and maintained in the system.

If there are any requirements to do periodic cleaning of data, those have to be mentioned here. If the delivery of scripts or programs for automatic data cleaning is in scope, usage of the scripts should be

described. Configuration management related information, if applicable, should be provided to suggest frequency of backups of files.

19. Annexure :

19.1. Organization profile

Give a brief background of the organization where the student has developed the project

19.2. Document Glossary, Figures, Tables

List of abbreviations should be provided in the document glossary. Each figure and table should be labeled. You should create an index for these like the table of contents.

19.3. References :

Books: Any references you made to books and papers should be listed here with the book name, edition, name of author and publisher.

Websites: Any references you made to websites should be listed here with the URL and date of access.

19.4. User Interview Questionnaires

19.5. Sample Project code / Algorithm if project code is not available.

The format of various certificates to be included in the Project report is appended along with this guidelines.

Format of certificates to be attached in the project report

A Project Report

On

“PROJECT TITLE”

Submitted to the

Department of MCA

In partial fulfillment of the

MASTER OF COMPUTER APPLICATIONS

Under the guidance of

Internal Guide’s Name

Project Done by

NAME OF STUDENT

(Reg No:)

EMBLEM OF COLLEGE

DEPARTMENT OF MCA

NAME AND ADDRESS OF COLLEGE

Month-Year

NAME AND ADDRESS OF COLLEGE

EMBLEM OF COLLEGE

BONAFIDE CERTIFICATE

Certified that the Project Work entitled

“PROJECT TITLE”

is a bonafide work done by

Name of the student

In partial fulfillment of the requirement for the Award of

MASTER OF COMPUTER APPLICATIONS

Degree From

Mahatma Gandhi University, Kottayam

(Period of study)

Head of Department

Project Guide

Submitted for the Viva-Voce Examination held on.....

External Examiner1

External Examiner2

(Name & Signature)

(Name & Signature)

NAME AND ADDRESS OF COLLEGE

EMBLEM OF COLLEGE

CERTIFICATE

This is to certify that the project entitled **“PROJECT TITLE”** has been successfully carried out by *NAME OF STUDENT* (Reg. No:) in partial fulfilment of the Course **Master of Computer Applications.**

INTERNAL GUIDE

Date:

HEAD OF THE DEPARTMENT

NAME AND ADDRESS OF COLLEGE
EMBLEM OF COLLEGE

CERTIFICATE

This is to certify that the project entitled “**PROJECT TITLE**” has been successfully carried out by **NAME OF STUDENT** (Reg no:) in partial fulfilment of the course **Master of Computer Applications** under my guidance .

Date:

Name of Guide

INTERNAL GUIDE

NAME AND ADDRESS OF COLLEGE
EMBLEM OF COLLEGE

DECLARATION

I, **NAME OF STUDENT**, hereby declare that the project work entitled “**NAME OF THE PROJECT**” is an authenticated work carried out by me at **XYZ SOFTWARE PVT. LTD.** under the guidance of **Guide’s Name** for the partial fulfilment of the course **MASTER OF COMPUTER APPLICATIONS**. This work has not been submitted for similar purpose anywhere else except to **NAME OF COLLEGE**.

I understand that detection of any such copying is liable to be punished in any way the school deems fit.

NAME OF STUDENT

Date:

Place:

Signature

IMCA X02 – VIVA VOCE

Course Overview

Program	IMCA
Semester	10
Course Code	IMCAX02
Course Title	Viva-Voce
Type of Course	Core
Contact Hours	2 hours per week
Credit	4

Course Description

The Viva-Voce Examination of Xth Semester is a comprehensive evaluation of what has been learned through the entire MCA programme.

Students will be evaluated through all core subjects of the MCA programme and marks will be awarded on the basis of oral answers given by the student.

There is no internal mark component for the same. The maximum marks for the Viva Voce examination is 100. The evaluation is done by the evaluators duly appointed by the University.

MAHATMA GANDHI UNIVERSITY

KOTTAYAM



SCHEME AND SYLLABUS

FOR

MASTER OF ARCHITECTURE

(FULL TIME- TWO YEARS)

IN

URBAN DESIGN

(FROM 2020 ADMISSION ONWARDS)

MASTER OF ARCHITECTURE: URBAN DESIGN

DURATION: TWO YEARS FULL TIME (Four Semesters)

PART B: SCHEME

1. SCHEME OF THE PROGRAMME

The set of Regulations for Master of Architecture (Full Time: Two Years) stipulated is appended by the Scheme, the clauses of which are also mandatory.

2. PROGRAMME STRUCTURE

2.1. The Programme has been designed in four semesters of equal credits, for duration of two years. The course structure consists of **Studio Courses, Core Courses, Electives, Professional Training, Dissertation and Thesis.**

2.2. All courses of the M. Arch Degree Course in Urban Design as per the Programme Structure, Scheme and Syllabus are grouped into four groups as stated below:

Group I (a): Courses having evaluation through CA and having a Final Jury conducted by a team consisting of an Internal Juror and an External Juror. The External Juror shall be from among the core faculty of any other B.Arch. institution who possess a Post Graduate Degree in Urban Design or a practicing Urban Designer, registered with the Council of Architecture.

Group I (b): Courses having evaluation through CA and having a Final Jury conducted by a team of Internal Jurors.

Group II: Courses having evaluation through CA and University theory Examination

Group III: Research Methodology and Dissertation

Group IV: Urban Design Thesis

2.3. CA marks shall be awarded as per the following norms for each group as given below:

Group I (a):	Assignments	80%
	Attendance	20%
Group I (b):	Assignments	80%
	Attendance	20%
Group II	Assignments	30%
	Written exam (Class Test)	50%
	Attendance	20%
Group III	As per Scheme	
Group IV	As per Scheme	

- 2.4. The CA marks allotted for attendance for any course shall be awarded full only if a student has secured 90% attendance in the course. Proportionate reduction will be made in the case of course(s) in which he/she gets below 90% of the attendance for the course(s).

3. GROUP I(a) COURSES

3.1. Urban Design Studio I,II & III

- 3.1.1. The Evaluation shall be based on Continuous Assessment (CA) and Final Jury as specified in clause Scheme Clauses 2.2. and 2.3.
- 3.1.2. Eligibility for a candidate to appear for the Final Jury is based on attendance and CA marks. (Refer Regulations Clause 11).
- 3.1.3. The Final Jury shall consist of the following three stages of evaluation:
- a. Final Jury portfolio and model evaluation.
 - b. Final Jury Viva voce.
- 3.1.4. Supplementary chances shall be provided for students who have appeared for the Final Jury and have not passed the same as per the Regulations.
- 3.1.5. The marks for the Continuous Assessment shall be awarded by the course in charge as per Scheme clause 2.3.
- 3.1.6. The CA marks and the Attendance obtained by the students shall be officially published twice– mid-semester and at the end of all semesters. The final CA marks shall be published at least one day before the Final Jury.
- 3.1.7. For the conduct of the Final Jury/Make-up Jury, the head of the teaching Institution shall nominate, an External Juror as well as an Internal Juror (avoiding repetition), and release appointment letters to them under intimation to the University. One External Juror and one Internal Juror shall conduct the Final Jury/Make-up Jury, for a batch of 20 or less students.
- 3.1.8. The Internal Juror shall be a member from among the core faculty of the teaching institution other than the faculty member who evaluated the work for awarding the internal marks.
- 3.1.9. The External Juror shall be from among the core faculty of any other B.Arch. teaching institutions or an Architect registered with the Council of Architecture, incorporated under Architect's Act 1972 (in both cases with not less than 5-year experience after the date of COA registration). He/ She shall be an Urban Designer and possess a minimum of five years teaching/practical experience after Post Graduation in same specialization.
- 3.1.10. The Faculty-in-charge of the course shall submit a Pre-Jury Report consisting of the details pertaining to the assignments given and its objectives as well as weightage given to each work to the Head of the Teaching Institution, who shall forward the same to the identified Juror Team at least one week before the commencement of the Final Jury/Make-up Jury.

3.1.11. The overall split up, with a suitable scheme of evaluation, of the Final Jury/Make-up Jury marks shall be as stated below:

For Urban Design Studio I, II & III

- Urban Design Portfolio – 90%
- Viva Voce – 10%

3.1.12. Students shall be physically present during the Final Jury/Supplementary Jury and explain their work done.

3.1.13. The External and Internal Jurors shall have equal weightage in the joint evaluation process.

3.1.14. The Final Jury members shall submit the consolidated marks to the Head of the teaching institution on the last day of Jury.

3.1.15. The Final Jury marks shall be published not later than the next working day.

3.1.16. Any student(s) who appeared for the Final Jury and could not get 50 % aggregate mark (CA marks + Jury) shall be provided a Supplementary chance/s as per University Rules. In the supplementary chance such student(s) shall get an opportunity to present his/her improved portfolio and physical models along with the original ones already presented in the Final Jury and get them revaluated by another panel of Jurors comprising of a different External Juror and a different Internal Juror. The student(s) concerned shall submit all the materials to be evaluated in the Supplementary Jury before 4 pm on the previous working day of the Supplementary Jury date. The maximum mark a student can score during the Make-up Jury shall be just enough to make him/her get a pass for the course i.e. not more than 50%.

4. GROUP I(b) COURSES

4.1. Remote Sensing, Land Information Systems and GIS; Site Planning and Ecology; Urban Form Lab; Elective I – Workshop (Sustainable Settlement Planning, Urban Conservation, Disaster Mitigation and Management)

4.1.1. The Evaluation shall be based on Continuous Assessment (CA) and Final Jury as specified in clause Scheme Clauses 2.2. and 2.3.

4.1.2. Eligibility for a candidate to appear for the Final Jury is based on attendance and CA marks. (Refer Regulations Clause 11).

4.1.3. The marks for the Continuous Assessment shall be awarded by the course in charge as per Scheme clause 2.3.

- 4.1.4. For every batch of 20 or less students, the Head of the teaching institution shall nominate a two-member Jury panel from the faculty (other than the faculty member who evaluated the work for awarding the CA marks) of the teaching institution.
- 4.1.5. Students shall submit the portfolio consisting of the assignments done for the course during the course period, with the approval of the faculty-in-charge of the course on the previous working day of the commencement of the Jury (not later than 3pm).
- 4.1.6. The faculty-in-charge of the course shall submit a report consisting of the details of assignments given and its objectives and weightage given to each work to the Head of the Teaching Institution, who in turn will forward it to the Jury Panel. The Jurors will evaluate the portfolio and other relevant materials on the basis of the report.
- 4.1.7. The Internal Jurors shall have equal weightage in the joint evaluation process.
- 4.1.8. Students shall be physically present and explain their work to the Jury members at the time of evaluating their work.
- 4.1.9. The split up of the evaluation shall be as stated below:
- Portfolio/Test – 80%
 - Viva Voce – 20% (related to the various projects/work done during the particular semester).
- 4.1.10. Students who could not score a minimum of 50% for the course shall repeat the Jury as a supplementary chance along with the next odd/even batch(es) of students with an improved portfolio.
- 4.1.11. The Jury members shall submit the consolidated marks to the Head of the teaching institution on the last day of Final Jury Evaluation.
- 4.1.12. The Jury marks shall be published on the next working day.

4.2. Professional Training

- 4.2.1. Professional Training under a practicing Urban Designer/Urban /Town Planner or as a Research Associate with an Urban Design Faculty, with the same specialization, is a necessary component of the Programme, which equips the student with the practical aspects/ research base, offering the required exposure to the realm of the profession and research, before he/she takes up the Thesis.
- 4.2.2. The training shall be under an Urban Designer/Urban Planner/ Town Planner and approved by the Head of the Teaching Institution. The student shall select an Urban Designer/Urban Planner / Town Planner with good experience and reputation in the field of Urban Design / Town Planning practice for practical training and the same should be approved by the head

- of the Teaching Institution in advance before the commencement of the II semester university examination.
- 4.2.3. The Architect/ Town Planner /Research Associate shall possess a valid COA Registration, and shall have minimum five years of experience in the Urban Design/Urban Planning/ Town Planning after Post Graduation. He/She should not be an architect employed in the public sector or a regular faculty member of the Teaching Institution or immediate relative of any regular faculty member of the Teaching Institution. The Architect shall not be a relative of the trainee also. Further the training firm shall in no way be associated with the Teaching Institution.
- 4.2.4. Students may also select internationally recognized Architects practicing outside India, with the approval of the teaching Institution.
- 4.2.5. Type of works to be carried out during training period. The students are expected to get exposure in the following aspects:
- Site visits, survey and mapping.
 - Involvement in the land use mapping / generation and related planning schemes.
 - Discussion with user groups of the site and other consultants.
 - Formulation of DPR or related reports.
 - Planning / Design proposals and drawings.
- 4.2.6. Work report: The students shall obtain a report of the work done to the course-in charge of Professional Training of the Teaching Institution. The report shall be duly signed by the Urban Designer/ Urban Planner/ Town Planner or an authorized officer supervising the work in the format prescribed by the teaching institution.
- 4.2.7. The Evaluation shall be based on Continuous Assessment (CA) and Final Jury as specified in clause Scheme Clauses 2.2. and 2.3.
- 4.2.8. Eligibility for a candidate to appear for the Final Jury is based on attendance and CA marks. (Refer Regulations Clause 11).
- 4.2.9. The marks for the Continuous Assessment shall be awarded by the course in charge as per Scheme clause 2.3.
- 4.2.10. The assignments shall include Work Dairy, Work Report and Portfolio.
- 4.2.11. The Final Jury evaluation of the Professional Practice shall be conducted at the end of III semester.
- 4.2.12. At the end of the Professional training period, the students shall submit to the Teaching Institution a portfolio as specified by the institution. This shall consist of the complete report of their work done during the entire training period illustrated with sketches, prints and

other documents related to the projects on which he/she has involved both in office and at site, a work diary, original of the work report, a certificate regarding their conduct and performance of work done during the training period and regarding the successful completion of training under the approved Architect/Firm. In the absence of the above documents students shall not be permitted to appear for the final evaluation.

4.2.13. The split up of the evaluation shall be as stated below:

- Portfolio, Work Diary, work report– 80%
- Viva Voce – 20% (related to the various projects/work done during the particular semester).

4.2.14. For every batch of 20 or less students, the Head of the teaching institution shall nominate a two-member Jury panel from the faculty (other than the faculty member who evaluated the work for awarding the CA marks) of the teaching institution.

4.2.15. The Jurors shall evaluate the portfolio and other relevant materials to check the qualitative achievement of the student during the Professional training period.

4.2.16. The Internal Jurors shall have equal weightage in the joint evaluation process.

4.2.17. Students shall be physically present and explain their work to the Jury members at the time of evaluating their work.

4.2.18. Students who could not score a minimum of 50% for the course shall repeat the Professional training and appear for the Jury along with the next batch(es) of students with an improved portfolio.

4.2.19. The Jury members shall submit the consolidated marks to the Head of the teaching institution on the last day of Final Jury Evaluation.

4.2.20. The Jury marks shall be published on the next working day.

5. GROUP II COURSES

5.1.1. The Group II Courses Include:

- Semester I: History of Urban Form and Space; Reading the City - I; Urban System Management; Urban Planning Techniques and Systems.
- Semester II: Reading The City - II; Urban Housing; Planning Legislation and Development Management; Infrastructure, Traffic and Transportation Planning.
- Semester III: Reading The City - III; Urban Sociology; Development Management and Finance; Elective II -Theory (Environmental Planning and Development, Planning for Tourism, Real Estate Development).

- 5.1.2. The Evaluation shall be based on Continuous Assessment (CA) and University Examination (UE) as specified in clause Scheme Clauses 2.2. and 2.3.
- 5.1.3. Eligibility for a candidate to appear for the University Examination (UE) is based on attendance and CA marks. (Refer Regulations Clause 11).
- 5.1.4. The marks for the Continuous Assessment shall be awarded by the course in charge as per Scheme clause 2.3.
- 5.1.5. Conduct and valuation of the University Examination shall be carried out as mentioned in the Regulation Clause 12 and 13.

6. GROUP III : RESEARCH METHODOLOGY AND DISSERTATION

- 6.1. In the third semester, the students shall choose a topic of interest for dissertation and shall carry out an independent research on a focused research question/ hypothesis, under the guidance of a faculty member, assigned by the Head of the Department/ Teaching Institution. Students have to register for the Dissertation and select a topic in consultation with the guide. A detailed synopsis on the topic of the dissertation is to be prepared in the prescribed format given by the Teaching Institution.
- 6.2. Continuous Assessment shall be done by the Guide and the Course in Charge as prescribed in the Course Plan.
- 6.3. Eligibility for a candidate to appear for the Final Jury is based on attendance and CA marks. (Refer Regulations Clause 11).
- 6.4. The Final Jury shall be done as jury that is planned twice during the semester; An Interim Evaluation in the middle of the semester and the Final Evaluation at the end.
- 6.5. The Evaluation of the Final Jury shall be based on the dissertation presentation, dissertation report and technical paper.
- 6.6. For the conduct of the Interim Jury and Final Jury/Supplementary Jury, the head of the teaching Institution shall nominate, an External Juror as well as an Internal Juror (avoiding repetition), and release appointment letters to them under intimation to the University. One External Juror and one Internal Juror shall conduct the Final Jury/Make-up Jury, for a batch of 20 or less students.
- 6.7. The External and Internal Jurors shall have equal weightage in the joint evaluation process.
- 6.8. The Internal Juror shall be a member from among the core faculty of the teaching institution other than the faculty member who evaluated the work for awarding the internal marks.
- 6.9. The External Juror shall be from among the core faculty of any other B.Arch. teaching institutions or an Architect registered with the Council of Architecture, incorporated under Architect's Act 1972 (in both cases with not less than 5-year experience after the date of COA

registration).He/ She shall be an Urban Designer and possess a minimum of five years teaching/practical experience after Post Graduation in same specialization.

6.10.The Faculty-in-charge of the course shall submit a Pre-Jury Report consisting of the details pertaining to the assignments given and its objectives as well as weightage given to each work to the Head of the Teaching Institution, who shall forward the same to the identified Juror Team at least one week before the commencement of the Final Jury/Make-up Jury.

6.11. The overall split up, with a suitable scheme of evaluation, of the Final Jury/Make-up Jury marks shall be as stated below:

- Dissertation Presentation – 30%
- Dissertation Report – 40%
- Technical Paper-30%

6.12. Students shall be physically present during the Final Jury/Supplementary Jury and explain their work done.

6.13. Supplementary chances shall be provided for students who have appeared for the Final Jury and have not passed the same as per the Regulations.

6.14. The CA marks and the Attendance obtained by the students shall be officially published twice – mid-semester and at the end of the semester. The final CA marks shall be published at least one day before the Final Jury.

6.15. The Final Jury members shall submit the consolidated marks to the Head of the teaching institution on the last day of Jury.

6.16. The Final Jury marks shall be published not later than the next working day.

6.17. Every student shall get their paper reviewed and send the same, for publication in a journal or for presentation in a conference.

7. GROUP IV: URBAN DESIGN THESIS

7.1.In the fourth semester, the students shall chose a topic of interest for Thesis, preferably related to the dissertation work done in the third semester, in consultation with the guide.

7.2.The Head of the Teaching Institution shall allot a guide for each student considering the nature of the work and specialization of the faculty member at the beginning of III semester.

7.3.As far as possible student's preference may also be considered before allotting the guide. Students admitted to the III semester shall submit their choices of their thesis project within a month after the commencement of the IIIrd semester classes in consultation with the guide.

7.4.Students shall obtain approval for the project of Urban Design Thesis from Teaching Institution.

- 7.5. Final evaluation of the thesis shall be taken up only if the student has earned all course credits listed in the first two semesters and earned a minimum of 45% marks in the Continuous Assessment.
- 7.6. The duration of the Urban Design Thesis will be six months from the date of commencement of the IV Semester M. Arch Degree Course.
- 7.7. The thesis shall be an **original work** and the same could be design centric or planning centric or research centric with some design component but the focus can vary as per the scale and type of the project.
- 7.8. Students are required to maintain a work diary of the thesis work.
- 7.9. All students are required to schedule their thesis work, get it approved by the guide, at the beginning of the IV semester and submit a copy of the same to the thesis coordinator nominated by the Head of the Teaching Institution.
- 7.10. Internal evaluation of the thesis work is to be evaluated during the fourth semester, at least THRICE, by a two member committee consisting of an internal faculty other than the Guide and an external expert constituted by the Head of the Department/ Teaching Institution.
- 7.11. The External expert shall be an Urban Designer who possess a valid COA Registration, and shall have a minimum of eight years of experience after Post graduation in Urban Design.
- 7.12. The progress shall be assessed by the Jury periodically through a minimum of three stages of reviews, the dates of which will be published by the Teaching Institution before the commencement of the IV semester.
- 7.13. Each review shall be graphical (including models) and oral presentation.
- 7.14. Students have to obtain a total of 50% marks combining all the stages of reviews to become eligible for the external Jury. Those who do not become eligible to appear for the External Jury shall have to repeat the course fully with the next batch(es) of students.
- 7.15. Split up of marks for internal evaluation shall be done as specified in the course plan.
- 7.16. The following Documents shall be submitted for the External evaluation Final Jury:
 - Two copies of the Data Collection in the preliminary design stage (up to the design and including the case studies) shall be compiled and presented along with the final submission in A3 size format.
 - Two copies of the Final Report (including the Design sheets) in A3 size format shall be submitted on the date and time announced by the Teaching Institution.
 - Soft Copy of the report and the Design sheets as specified by the teaching institution.
- 7.17. The total sheets submitted shall not exceed 30 (thirty) of suitable size. These shall be submitted as per the schedules published by the University.

- 7.18. Physical Models shall be submitted on the date of Viva Voce examination, at least by 8 am.
- 7.19. The format and other instructions regarding the schedule of reviews, preparation of the bound volumes of Data Collection, Final Report, Final Sheets, Model, etc. will be announced by the Teaching Institution.
- 7.20. For the conduct of Final evaluation, the University shall appoint a Chairman from among the Heads/Senior most Professors in Architecture of the Teaching Institutions, on a rotation basis. The Chairman shall prepare a provisional list of External and Internal Jurors from the same stream, one each for every 10 students, for the conduct of External Jury, and submit to the University for Ratification and release of appointment letters. The External Juror shall have a minimum of 10 years practical/teaching experience after registration with COA and minimum of eight years teaching/practical experience in the particular stream after Post Graduation. The External Jury consisting of one External Juror and one Internal Juror appointed by the University shall conduct the Thesis and Viva Voce Examination, as per the University declared Schedule.
- 7.21. The Chairman shall visit the venues of External evaluation in all the centres and carry out a random verification of the evaluation being carried out by the other Jury members. The Jury members (excluding the chairman) shall submit the consolidated marks to the Chairman on the last day of Viva Voce and the Chairman should submit the mark sheet directly to the University.
- 7.22. Students shall secure 40% of marks in the external Jury and 50% aggregate (Internal +for successfully completing the thesis and Viva voce.
- 7.23. Supplementary chances shall be given to the students who failed in the final Jury as per University Norms.

CURRICULUM/ PROGRAMME STRUCTURE

FOR

MASTERS OF ARCHITECTURE

(FULL TIME-TWO YEARS)

IN

URBAN DESIGN

SYLLABUS: SEMESTER I									
Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD01001	Urban Design Studio – I	0	0	10	10	150	150	0	300
20UD01002	Site Planning and Ecology	0	0	5	5	100	100	0	200
20UD01003	History of Urban Form and Space	2	0	0	2	50	0	100	150
20UD01004	Reading the City – I	2	0	0	2	50	0	100	150
20UD01005	Urban System Management	2	0	0	2	50	0	100	150
20UD01006	Urban Planning Techniques and Systems	2	0	0	2	50	0	100	150
20UD01007	Remote Sensing, Land Information Systems and GIS	0	4	0	2	50	50	0	100
	Library/ DA/TA	3							
		30			25	500	300	400	1200
SYLLABUS: SEMESTER II									
Course Code	Course	T	W/L	S	Credits	Marks			Total
						CA	UE		
		Jury	Written						
20UD02001	Urban Design Studio – II	0	0	10	10	150	150	0	300
20UD02002	Urban Form Lab	0	2	4	5	100	100	0	200
20UD02003	Reading the City – II	2	0	0	2	50	0	100	150
20UD02004	Urban Housing	2	0	0	2	50	0	100	150
20UD02005	Planning Legislation and Development Management	2	0	0	2	50	0	100	150

20UD02006	Infrastructure, Traffic and Transportation Planning	2	0	0	2	50	0	100	150
20UD02007	Elective I (Workshop): 1. Sustainable Settlement Planning 2. Urban Conservation 3. Disaster Mitigation and Management	1	2	0	2	50	50	0	100
	Library/ DA/TA	3							
		30			25	500	300	400	1200

SYLLABUS: SEMESTER III

Course Code	Course	T	W/L	S	Credits	Marks			Total
						CA	UE		
							Jury	Written	
20UD03001	Urban Design Studio III	0	0	10	10	150	150	0	300
20UD03002	Research Methodology and Dissertation	2	0	3	5	100	100	0	200
20UD03003	Professional Training	0	4	0	2	50	50	0	100
20UD03004	Reading the City – III	2	0	0	2	50	0	100	150
20UD03005	Urban Sociology	2	0	0	2	50	0	100	150
20UD03006	Development Management and Finance	2	0	0	2	50	0	100	150
20UD03007	Elective II (Theory): 1. Environmental Planning and Development 2. Planning for Tourism 3. Real Estate Development	2	0	0	2	50	0	100	150
	Library/ DA/TA	3							
		30			25	500	300	400	1200

SYLLABUS: SEMESTER IV

Course Code	Course	T	W/L	S	Credits	Marks			Total
						CA	UE		
							Jury	Written	
20UD04001	Urban Design Thesis	0	0	25	25	300	300	0	600
					25	300	300	0	600

T- Theory W/L- Workshop/Lab S- Studio
CA- Continuous Assessment UE- University Examination

Assignment of credits

For calculation of credits,

- 1 credit for 1 theory hour
- 1 credit for 2 workshop/lab hours
- 1 credit for 1 studio hour

SYLLABUS
SEMESTER I

SEMESTER I

20UD01001: URBAN DESIGN STUDIO - I

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD01001	Urban Design Studio - I	0	0	10	10	150	150	0	300

COURSE OVERVIEW

The studio is the introduction of the student to the realm of urban design. The objective is to expose them to the complexities of the design process. To create an understanding of the role of various physical, social, economic and infrastructural components and decision making processes; the contribution of related disciplines associated with the production of the city. The studio will also familiarize the student with urban design terminologies, methods of surveys and site analysis.

COURSE OUTCOME

Students will be able to appreciate, understand and analyse real site conditions in an urban area, learn survey and documentation techniques, assessing needs and programming for design intervention.

COURSE CONTENTS

Major Project:

- Reading a precinct/neighbourhood through different layers – History, landuse, Ecology, Morphology, Infrastructure and Transportation, Demography, Socio economic, ownership, use cycles.
- Analysing and Identification of problems, issues and opportunities.
- Compiling the documentation as specified drawings, model and report.
- Conceptual Design Scheme.
- Strategies and guidelines formulation.

Minor Project:

Project can be any one stated below:

- Detailing of any designed public space / sector/ streetscape in the precinct taken as the studio project.
- Tactical urbanism exercise – Implementation – Place making of any designed proposal mentioned in the precinct.

Note: The project done in a group/ individual. Submission of the project showing planning and design process as specified drawings and model.

REFERENCES

1. Christopher Alexander et al., A Pattern Language, Oxford University Press, 1977
2. Rafael Cuesta, Christine Sarris, Paola Signoretta , J.C Moughtin , Urban Design: Methods and Techniques, Routledge, 2003
3. Bally Meeda, Neil Parkyn, David Stuart Walton -Graphics for Urban Design, ICE Publishing (8 Jan. 2007)
4. Cliff Moughtin ,Urban Design Methods and Techniques, Elsevier, 2003
5. Alexander R. Cuthbert, Understanding Cities: Method in Urban Design, Routledge, 2011

SEMESTER I

20UD01002: SITE PLANNING AND ECOLOGY

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD01002	Site Planning and Ecology	0	0	5	5	100	100	0	200

COURSE OVERVIEW

To develop skills that enables an urban designer to deal with large sites in a comprehensive manner from ecological considerations to the design of support systems like services and related infrastructure.

COURSE OUTCOME

Students will be able to deal with varying site-based natural and ecological systems with reference to urban design projects and the city at large.

For this subject students will be assessed based on their process/es of documentation, methods of analysis and the judicious understanding of the site planning process along with the content.

The project can be a campus design / brownfield – waterfront / park / any similar project of relatable scale.

Minimum Assignment/s submissions towards Sessional Work & Oral Examinations shall include:

Site planning portfolio showing planning & design decision process and conceptual design done by students in groups / individual.

COURSE CONTENTS

Module I

Introduction to Site planning & Ecology, Site planning goals and objectives. Ecological planning processes, theories and approaches.

- a) Ecological factors in site evaluation
- b) Site resource systems
 - i. Physiographic
 - ii. Geology and soils
 - iii. Hydrology
 - iv. Micro-climate
 - v. Vegetation
 - vi. Wild life, terrestrial and aquatic
- c) Urban vegetation, planning & maintenance

Module II

Ecological planning processes, theories and approaches. Road layout and parking. Site grading and drainage. Surveys and overlays.

Module III

The studio will choose a suitable site where the students will map, evaluate and analyse the site from the knowledge imparted in the theory classes and will produce a site plan for an appropriate design programme having multiple activity/functional zones.

REFERENCES

1. Kevin Lynch, Good City form, MIT Press, Cambridge
2. Kevin Lynch and Gary Hack, Site Planning, MIT Press, Cambridge
3. Peter Jacobs and Douglas Way, Visual Analysis of Landscape Development, Harvard press
4. Gary O. Robinette (Ed), Landscape Planning and Energy Conservation, Van-Nostrand Reinhold
5. Design with Nature, Ian Mc Cargh, MIT Press.

SEMESTER I

20UD01003: HISTORY OF URBAN FORM AND SPACE

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD01003	History of Urban Form and Space	2	0	0	2	50	0	100	150

COURSE OVERVIEW

- To acquaint students of the historical background of urban design and to know how cities evolved, various forces that played crucial role in the evolution of cities.
- To critically examine the processes involved in Urban Design.
- To understand the issues of Urban Design in the present day context of globalised city.

COURSE OUTCOME

Students will be exposed to the historical evolution of urban form and space, the morphological dimensions of public spaces.

COURSE CONTENTS

Module I

Introduction to urban design – ideology/theory and the various concerns of the field. Urban Design terminologies and definitions, Principles of urban design. The idea of urban, urbanization and urbanism.

Module II

Brief historical overview of urban form and space - ancient cities types and forms– Greece –Rome- medieval cities- renaissance and baroque – ideal cities, Industrial revolution- modern concepts, Haussmanisation of Paris, Eixample district Barcelona, Urban Design Machines, City beautiful movement, Parks movement, Garden City concept and aftermath on rise of modern cities- skyscrapers- New York city.

Module III

Urban renewal and post-war reconstruction, the picturesque city. The role of Geddes, Mumford and Jane Jacobs. Indian cases - Indian historical developments- principles of city and town planning- Nine square plan of Jaipur-colonial cities- Chennai- Mumbai-Calcutta. Temple Towns – Madurai. Planned and Unplanned cities - Chandigarh.

REFERENCES

1. Ron Kasprisin - URBAN DESIGN the composition of complexity.
2. Edmund Bacon - Design of Cities.
3. Uma Sankar - Urban Design in the Indian Context: A case study of Bombay.
3. Roger Trancik - Finding Lost Space: Theories of Urban Design (New York: Van Nostrand Reinhold), (1986)
4. N. Ellin - Postmodern Urbanism
5. Spiro Kostof - Cities shaped.
6. Paul D Spreiregen – Urban Design: The Architecture of Towns and Cities, 1965

SEMESTER I

20UD01004: READING THE CITY - I

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD01004	Reading The City - I	2	0	0	2	50	0	100	150

COURSE OVERVIEW

This is a core subject that enable the students to explore the range nuances and methods to understand the morphology of the city drawn broadly from disciplines of urbanism, planning mechanisms and to further investigate into theories of place making.

COURSE OUTCOME

The students will be exposed to theoretical discourses related to Morphology, Typology, urban form, City Space, city imagery and understanding methods of reading a city through different media. They will be able to come up with term papers or do seminars on contemporary reading on the subject matter.

COURSE CONTENTS

Module I

Introduction to morphology - definition. Determinants of urban form and structure. Urban form and types. Urban pattern. Size, shape and form of cities. Elements of urban form. Meaning and morphology- Symbolism, icons and other meaning markers. Open space and urban space, urban spaces and their characteristics, scale, enclosure, urban square / plaza. Concepts of place and space - social construction of space, an overview. Methods of urban design surveys, documentation and representation. Urban form at different spatial levels. Concept of typologies. Architectural expression.

Module II

The study of building typology in relation to the city- Concepts of Aldo Ross- City as a visual matter, philosophy of perception, comprehension of the environment through visual examination, serial vision, place, content, etc based on the concepts of Gorden Cullen- Perception of movement and clarity/ legibility in the cityscapes, Lynch's ideas of good city form, imageability and memory, concepts of Kevin Lynch-Lattice and the underlying principles expressed in an abstract pattern- Edmund Bacon's work on city design based on the movement system. Urban Design and Art, Influence of street art and sculpture.

Module III

Reading a city/ imagining a city through literature, visual art and movies – Understanding city imagery as represented in visual and performing arts – public art, fine arts, design, cartoon and animation, photography, theatre, dance, music, etc of selected international / national notable examples.

REFERENCES

1. James E. Vance - The continuing city: urban morphology in Western civilization.
2. Michael R. G. Conzen, Michael P. Conzen - Thinking About Urban Form: Papers on Urban Morphology, 1932-1998.
3. Balmiki Bhattacharya - Study of an Urban Morphology: Jaisalmer, India.
4. Roger Trancik - Finding Lost Space: Theories of Urban Design (New York: Van Nostrand Reinhold), (1986)
5. Denis Scott Brown, Robert Venturi and Steven Izenour – Learning from Las Vegas, MIT Press, 1972

SEMESTER I

20UD01005: URBAN SYSTEM MANAGEMENT

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD01005	Urban System Management	2	0	0	2	50	0	100	150

COURSE OVERVIEW

This course attempts to provide an exposure to issues of urban system management. The thrust of the course would be to assess the impact of rapid development on these systems and to understand the implications in urban design.

COURSE OUTCOME

The students will be able to

- Understanding Urban systems in detail and the way each function and its inter relations as class room discussions.
- Seminars and discussions on urbanisation its impact on the city and techniques of management

COURSE CONTENTS

Module I

Urban Systems - Introduction- Classifying urban settlements: Size, Economic status and location. Urbanization Trends- Economic profile of cities- Low income and middle income cities-Rapidly growing middle income cities-High income cities.

Module II

Transportation networks within and outside urban areas – communication networks – water systems – Synergetic effects between infrastructure- cities as self-organizing innovative complex.

Module III

Condition and Trends of Urban systems and Ecosystems – Globalization- Urban Systems and ecosystem Services-Urban systems as habitat for humans-interrelation with surrounding regions- Creation of global ecosystem pressures-Responding to the environmental and ecological pressure. – Urban Resilience

REFERENCES

1. 'Albeverio, S.; Andrey, D.; Giordano, P.; Vancheri, A. (Eds.)', "Dynamics of Complex Urban Systems An interdisciplinary approach"; "Springer Books".
2. "International Handbook of Urban Systems: Studies of Urbanization and Migration in Advanced and Developing Countries, Edited By; 'H S Geyer"
3. "R Ramachandran"; "Urbanization and urban systems in India"
4. "John Urquhart Marshall"; "The structure of urban systems"
5. Challenges of slums. Global report on Human settlements-UN Habitat 2003.
6. National trends in housing-Production practices- Amitab Kundu - UN Habitat
7. Financing urban shelter: Global report on human settlements 2005.

SEMESTER I

20UD01006: URBAN PLANNING TECHNIQUES AND SYSTEMS

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD01006	Urban Planning Techniques and Systems	2	0	0	2	50	0	100	150

COURSE OVERVIEW

An overview of statistical and survey techniques used to in the preparation of a planning and urban design programmes explaining the basic definitions and informing the student of the various methods, techniques and processes of planning, focusing on the latest methods of assessing and gathering information.

COURSE OUTCOME

Students are equipped with necessary information on town planning theories, principles, techniques and methodologies. The aim of the course is to expose the student to the principles of planning and critically evaluate different planning processes prevalent in India and abroad.

COURSE CONTENTS

Module I

Concepts and theories of planning and their applications as master plans, development plans, structure plans etc. Acts and development norms, concepts of zonal plans, area development plans, development schemes, urban renewal, redevelopment, city development plans, planned unit development etc. concept of land use zoning regulations, mixed use developments, special economic zones, URDPFI etc.

Module II

Planning tools, planning standards, planning models, planning surveys and sampling, evaluation of planning requirements from first principles - master plan, work studies, town planning schemes etc. overview of legal framework and statutory aspects of planning: town planning acts, land acquisition act and process, other land management techniques, economic planning theories and public participation in planning process.

Module III

Preparation of regional development plans, various approaches to comprehensive planning, GIS and land information systems, ariel photography, photogrammetry and photo interpretation, remote sensing techniques, applications of these techniques in the planning process.

REFERENCES

1. Zhenjiang Shen - Geospatial Techniques in Urban Planning.
2. Richard E. Klosterman - Community Analysis Plan.
3. Douglass B. Lee - Models and techniques for Urban Planning.
4. Thomas Telford - Design: Urban Design in the Planning System.

SEMESTER I

20UD01007: REMOTE SENSING, LAND INFORMATION SYSTEMS AND GIS

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD01007	Remote Sensing, Land Information Systems and GIS	0	4	0	2	50	50	0	100

COURSE OVERVIEW

To introduce the basic concepts of remote sensing and GIS software for spatial analysis.

COURSE OUTCOMES

Upon completion of the course, the students will understand the techniques of Map preparation and analysis using maps and application of GIS in Urban Design.

COURSE CONTENTS

Module I

Spatial relationships among elements / activities, fundamentals of topological relationship, spatial data and their representation in maps, raster and vector based system to representing spatial objects. Geographical Information System – GIS software in general - over view of GIS map components.

Module II

Basics of GIS maps preparation, digitization of spatial data, concept of point, line and polygon features. Fundamental of coordinate system, map layers and geo-referencing, displaying spatial features, adding attribute values to the features, preparing and displaying thematic layers and maps, selecting and editing spatial features and attribute data, preparing Grid surfaces form point, line and polygon features.

Spatial Analysis using GIS spatial joining, concept of geo processing – union, intersect, clip and merge, features to raster, preparing surfaces, creating TIN surfaces and contours, surface analysis, spatial joining of geographic features, understanding generation of layers including buildings and roads.

Module III

Overlaying features and analyzing using overlay function, feature selection, buffering, table joining and analysis, manipulating attribute data, classification and reclassifications, GIS modelling, 3D display. Introduction to urban design GIS model, Case problem on urban design analysis, suitability analysis using GIS, preparing land-use maps, urban design impact analysis using GIS, urban design suitability analysis.

REFERENCES:

1. Introductory Digital Image Processing: A Remote Sensing Perspective, John R. Jensen
2. Land use Planning And Remote Sensing, David T. Lindgren
3. Remote Sensing And Interpretation By Thomas M Lillesand And Kiefer

SYLLABUS
SEMESTER II

SEMESTER II

20UD02001: URBAN DESIGN STUDIO - II

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD02001	Urban Design Studio - II	0	0	10	10	150	150	0	300

COURSE OVERVIEW

- To introduce critical concepts, strategies and technical skills associated with current thinking on urbanism.
- To speculate on the designer's role in analysing and shaping complex metropolitan systems.

COURSE OUTCOME

The studio intends to familiarize the students with the process and tools of analysis of complex urban system and to establish an open dialogue between larger design motivations and actions through first-hand experience of a city. The studio will also take into account the current development pattern in the selected city and also include various stakeholders to make interventions meaningful and contextual.

The project selection criteria shall be based on the multiplicity of the urban components and how they are connected to each other. Cities with temporal layering such as historical and modern shall serve as appropriate choice for the studio. Various factors like historicity, socio-political patterns, economic dynamism, polarization of groups, ecological and environmental and global influences can be taken as determinants for selecting the city.

COURSE CONTENTS

- Understanding and analysing the complex urban system through various analytical research techniques.
- To critically explore and appropriate environmental and ecological factors at the urban scale.
- To rethink the role of housing, landscape and infrastructure as significant building blocks in the creation of new urban systems and in the reconfiguration of existing systems.
- To establish an open dialogue between larger design motivations and actions, and how they might be tested and explored through specific design hypotheses at multiple scales. (Structure Plan & Detailed Design.

REFERENCES

1. McHarg, Ian. Design with Nature, Wiley, 1995
2. Rossi, Aldo. The Architecture of the City, The MIT Press, 1984
3. Hilberseimer, Ludwig. The Nature of Cities, Chicago, P Theobald, 1955
4. Banham, Reyner. Megastructure: Urban Futures of the Recent Past, Harper & Row (December 1976)
5. Cullen, Gordon. The Concise Townscape, Architectural press, 1995
6. Koolhaas, Rem. The Generic City, The Monacelli Press, 1995
7. Rowe, Colin; Koetter, Fred. Collage City, The MIT Press, 1984
8. Sadler, Simon. The Situationist City, The MIT Press, 1998
9. Smithson, Alison Margaret; Smithson, Peter. The Charged Void: Urbanism, The Monacelli Press (May 21, 2001)
10. Robert Venturi, Denise Scott Brown, and Steven Izenour, Learning from Las Vegas, The MIT Press, 1977
11. Tange, Kenzō. A Plan for Tokyo, 1960: Toward a Structural Reorganization, Shikenchikusha, 1961
12. Wright, Frank Lloyd. The Living City, Horizon Press (June 1958)

SEMESTER II

20UD02002: URBAN FORM LAB

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD02002	Urban Form Lab	0	2	4	5	100	100	0	200

COURSE OVERVIEW

To develop skills that enables an urban designer to deal with different cases on the quality of urban form and space.

COURSE OUTCOME

Introduction to urban form - macro to micro - through workshop / seminars. Students will be able to deal with urban forms in varying contexts. To analyse and experiment on the existing urban form of a small precinct / neighbourhood level / streetscape.

- Introduction
- Site visits
- Group presentations – sheets and models
- Spatial Analysis, Structure Plan, Massing.

The project can be small precinct / neighbourhood level / streetscape – the study area taken can be within 2500 sq.m

Minimum Assignment/s submissions towards Sessional Work & Oral Examinations shall include:

Urban Form Lab portfolio showing planning & design decision process and conceptual design and massing done by students in groups / individual.

SEMESTER II

20UD02003: READING THE CITY - II

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD02003	Reading The City - II	2	0	0	2	50	0	100	150

COURSE OVERVIEW

This is a core subject that enable the students to explore the city- making as a social process and the role of economics and politics in shaping cities.

COURSE OUTCOME

The students will be exposed to theoretical discourses related to the Social, Economic and Political roles in Urban Design using current practices and knowledge. They will be able to come up with term papers or do seminars on contemporary reading on the subject matter.

COURSE CONTENTS

Module I

Social life in the public realm - Michel de Certeau (Everyday life in the city); Fredrick Law Olmsted (The civilizing effect of park space in cities); Richard Sennet (Fall of the Public Man); Wilson & Kelling (Broken Windows Theory); Carr et al. (The Nature of Public Life); Mike Davis (The Fortress LA: The Militarization of Public Space); William Whyte (Social life in small urban public spaces), Jane Jacobs (eyes on the street; sidewalk ballet).

Module II

Theories of development, debates on development vs growth. Culture and Society - Overview of cross-cultural influences in city development, City as a human network - The social life of urban form – social structure and urban form – function of city. Social access – territoriality, exclusion and inclusion, segregation and diversity, defensible spaces, memory and violence, minority groups and the disadvantaged, children and the geographies of disability. Overview of social and economic change in India

Module III

Role of Economics and Politics in shaping cities. Political and economic forces in a society with reference to works of Henri Lefebvre; Michael Storper and David Walker; Manuel Castells; David Harvey; Logan and Molotch (City as Growth Machine); Saskia Sassen (Global City); John Friedmann (World City

Hypothesis); Michael Dear (Los Angeles School/ Chicago School). An overview on the influence of politics and economics in India.

REFERENCES

1. Jacobs, Jane. *The Death and Life of Great American Cities* (Vintage), 1961.
2. Barnett, Jonathan. *Urban Design as Public Policy*, 1974.
3. Tonkiss, Fran. *Cities by Design - The Social Life of Urban Form*.
4. Sassen, Saskia. *The Global City*, 1991
5. Whyte, William. *The Social Life in Small Urban Spaces*, 1980
6. Sabikhi, Ranjit. *A Sense of Space: The crisis of Urban Design in India*, 2019

SEMESTER II

20UD02004: URBAN HOUSING

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD02004	Urban Housing	2	0	0	2	50	0	100	150

COURSE OVERVIEW

The students will gain in depth knowledge regarding developments in housing layout and patterns across place and time. The course aims to throw light on the impact of mass housing on the existing urban environment and life of people.

COURSE OUTCOME

To develop an understanding of Housing as an effective planning strategy.

COURSE CONTENTS

Module I

Introduction to Housing and its relationship to neighbourhood and city planning. National Housing Policy in India and its evolution. Comparison of housing policies in developing and developed nations. Overview of housing scenario in India, types of housing, demand and shortage. Socio economic factors influencing housing affordability. Equity in housing development. Slum up gradation and community participation.

Module II

Housing standards-URDPFI. Guidelines, standards and regulations. Design guidelines for factors in housing design like House extensions, neighbourhood streets, trees and public spaces, Residential open spaces, Magnitude and hierarchy of space, Utilisation rate, Socio cultural preferences.

Module III

Social housing scenario and the role of the State Governments & NGO's. Slums and squatter settlements, schemes for rehabilitation and improvement. Social impact of planned housing. Case studies - Company Township, Group housing design, high density housing, Built form and development control, Design issues in public private partnership projects.

REFERENCES

1. Annual report 2010-2011, Ministry of Housing and Urban Poverty Alleviation, Government of India

2. UNCHS, National experience with shelter delivery for the poorest group UNCHS Nairobi 1994
3. Housing and Urban Environment a guide to housing design, renewal and urban planning, Blackwell science-Barry good child 1997
4. URDPFI Guidelines
5. Challenges of slums. Global report on Human settlements-UN Habitat 2003.
6. National trends in housing-Production practices- Amitab Kundu - UN Habitat
7. Financing urban shelter: Global report on human settlements 2005.

SEMESTER II

20UD02005: PLANNING LEGISLATION AND DEVELOPMENT MANAGEMENT

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD02005	Planning Legislation and Development Management	2	0	0	2	50	0	100	150

COURSE OVERVIEW

The subject will make the students aware of the concept of legislation as the back-bone of any planned development and create awareness about the critical laws used in India and their salient features.

COURSE OUTCOME

The students will have acquired knowledge about the process of planning and governance in India and the critical laws that influence them.

COURSE CONTENTS

Module I

Meaning, significance and objectives of planning legislation, evolution of planning legislation in India, constitutional basis and provisions relating to land its development and its use, statutory powers and responsibilities of Central Government, State Government and Union Territories, Local Bodies and Local Authorities with respect to urban development and their legal structure, overview of legal tools for urban planning and development (town and country planning, improvement trust, development authorities etc.).

Module II

Town Planning Act of India and their implementation strategies, objectives, contents, and procedures for preparation and implementation of regional plans, development plans, town planning schemes, area plans etc. overview of development control regulations – zoning, sub division regulations, building regulations and bye-laws, legislation for land acquisition and land ownerships including rural and urban land ceiling act and their implications on development, legislation on conservation of natural and manmade resources including coastal zone regulations, air and water (prevention and control) of pollution act, mining and forestry act, conservation and management of ancient monuments and archaeological sites and remains act etc.

Module III

73rd and 74th constitutional amendment and their effect on development management, critical appraisal of legislation for public-private partnerships in urban development and infrastructure projects, land management tools like TDR, accommodation reservation, land pooling, plot reconstitution etc.,

REFERENCES

1. Ministry of Health, Government of India - Report of the Committee on Model Planning Legislation.
2. Mohammad Naseem - Environmental Law in India.
3. A. Joshi - Town Planning Regeneration of Cities.

SEMESTER II

20UD02006: INFRASTRUCTURE, TRAFFIC AND TRANSPORTATION PLANNING

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD02006	Planning Legislation and Development Management	2	0	0	2	50	0	100	150

COURSE OVERVIEW

The course aims at imparting knowledge on understanding of urban infrastructure and transportation problems in planners' perspective, definition of the problem, setting clear goals and objectives to serve as guiding factors in the planning process, identification of the causal factors influencing the demand for urban travel and development of relationship between the factors and the travel demand.

COURSE OUTCOME

The students will have acquired knowledge about infrastructure and transportation planning and its role towards improving the liveability in cities.

COURSE CONTENTS

Module I

Elements of Infrastructure (Physical, Social, Utilities and services); Basic definitions, concepts, significance and importance; Components - Social infrastructure- - Education, Health, Civic Types, hierarchical distribution of facilities, Access to facilities, provision and location criteria, Norms and standards etc. Physical Infrastructure – water, sanitation, storm water, waste, power - qualitative and quantitative techniques of assessing requirements. Planning Amenities and institutions- Public and private sector role in resource mobilization and infrastructure development and related issues.

Module II

Introduction: Role and importance of traffic & transportation planning in national development, features of urban forms and network patterns. Transport and Socioeconomic Activities, Freight Transportation, Future Developments. Transport Modes in Cities – from pedestrian and NMV, IPT to public transport options – BRT, MRTS, LRTs, etc. Issues of public vs. private modes of travel. Environmental and Social Sustainability in Transport. Design for transit – T.O.D, Last mile connectivity, Walkability and Pedestrian environments. Mobility systems and ITC interfaces – smart transportation.

Module III

Transportation process: Trip generation, Trip distribution – Trip assignment – Model split and evaluation Geometric design of roads and intersections, road traffic safety – traffic signals, street lighting, and

parking – Urban traffic problems – road capacity – Hierarchy of roads – Design of road layouts – traffic and travel characteristics – segregation of pedestrian and vehicular traffic. Transportation Surveys: Traffic surveys – land use, speed, and journey time and delay surveys – Traffic volume surveys – O.D. Survey – parking survey – Transportation survey etc.

REFERENCES:

1. Adjo A. Amekudzi, Sue McNeil, "Infrastructure Reporting and Asset Management: Best Practices and Opportunities", American Society of Civil Engineers, 01-Jan-2008.
2. AK Jain, "Urban Transport: Planning and Management", Aph Publishing Corporation (2008)
3. India Infrastructure Reports.
4. Jay M. Stein "Public Infrastructure Planning and Management", Sage Publications (1988).
5. Kadiyali L.R. "Traffic Engineering and Transport Planning", Khanna Publishers, New Delhi, 1991
6. Peter Schübeler "Participation and Partnership in Urban Infrastructure Management," World Bank Publications, 01-Jan-1996.
7. Piyush Kansal, "Reading material on Advanced Transportation Planning", ITPI, 1998
8. Proceedings of two parallel conferences, "Infrastructure planning and management", Jonathan Lewis Gifford, D. R. Uzarski, Sue McNeil, American Society of Civil Engineers. Committee on Facility Management, American Society of Civil Engineers. Committee on Urban Transportation Economics, June 21-23, 1993, Denver, Colorado.
9. URDPFI Guidelines Vol 1.
10. William W. Hay, "An Introduction to Transportation Engineering", John Wiley & Sons Inc.; NY.

SEMESTER II

20UD02007: ELECTIVE I (WORKSHOP)

Course Code	Course	T	W/L	S	Credits	Marks			Total
						CA	UE		
							Jury	Written	
20UD02007	Elective I (Workshop): 1. Sustainable Settlement Planning 2. Urban Conservation 3. Disaster Mitigation and Management	1	2	0	2	50	50	0	100

Note: Students shall make a report after studying the cases taken which will be evaluated. The report may end with suitable design strategies. The course- in charge shall describe the methodology to be undertaken for the workshop/case studies in the course-plan.

1. SUSTAINABLE SETTLEMENT PLANNING

COURSE OVERVIEW

This course attempts to throw light on sustainability issues related to planning. The outcome would be to make the learner aware of sustainability issues in planning.

COURSE OUTCOME

Students will be able to:

- Identify the issues in planning related to sustainability
- Suggest appropriate planning measures for sustainable development

COURSE CONTENTS

Module I

Sustainable Development and Planning- Introduction Concept of Sustainability- Energy use and Climate change- The concept of Sustainable Planning and its relevance. Eco villages - Villages, neighborhood and community – Historical background of village – Influence of modernity and changes in locality based village forms

Module II

Sustainable settlement planning - Unsustainable settlements – Centralization and concentration of activities – Its problems –Sustainable settlement planning. Eco neighbourhood Case studies –

Sustainable City Programme (SCP) of UNCHS –HABITAT & UNEP – The concepts and case studies – Environmental policies for sustainable city..

Module III

Community and sustainability Community and sustainability – Changing nature of community – Community based initiation for sustainable development. Community governance - Community basis shelter technology -energy consumption in settlements.

REFERENCES:

1. Hugh Barton – Sustainable Communities – The potential for Eco neighbourhoods –Earthscan Publications London, 2000. UNCHS, UNEP – Publications on SCP
2. Dr. R.K. Wishwakarma – Social Formation and Change – ITPI Reader.
3. B.C.Bose, “Integrated approach to sustainable Development”, Rajat Publications, Delhi
4. Caring A.Langston, Grace K.C.Ding, “Sustainable practices in built environment”, second edition, Butterworth-Heinmann Linacre House Jordanhill Oxford

2. URBAN CONSERVATION

COURSE OVERVIEW

To understand urban conservation as a tool/ method for urban revitalization/ renewal of the sociocultural and morphological aspects of the built environment.

COURSE OUTCOME

The students will be exposed to the role and importance of Urban Conservation in Urban Design and to sensitize students to design in context.

COURSE CONTENTS

Module I

Understanding Heritage – Built and Cultural Heritage – Heritage conservation – need and purpose – Conservation and Preservation, ethics and principles involved – Distinction between Architectural and Urban Conservation – History of Architectural Conservation in International and Indian context. Conservation in India – the role of Archaeological Survey of India – NGOs involved.

Module II

Understanding the character and issues of historic cities – Selected case studies of various urban historic settlements like temple towns, administrative capitals, etc. – Historic districts and heritage precincts in modern urban context. Implementation framework for urban conservation and Adaptive Reuse Projects- Renewal - brown field projects, urban renewal and development strategies for regeneration of inner cities areas. Conservation practice – Listing of monuments, documentation of historic structures – Assessing architectural character – Guidelines for preservation, rehabilitation and adaptive reuse of historic structures.

Module III

International (ICCROM , UNESCO etc.) and National agencies (INTACH, ASI, Urban Arts Commission etc.) involved in Urban Conservation. Conservation as an urban planning tool – financial incentives and planning tools such as TDR (Transferable Development Right) – Urban conservation and heritage tourism, case studies such as Pondicherry French town and Mattancherry.

REFERENCES

1. Mumford, L. (1996). The City in History: its origins, its transformations and its prospects. Harmondsworth, Penguin in association with Secker & Warburg.
2. Worthing, D. and S. Bond (2008). Managing Built Heritage: The Role of Cultural Significance. Oxford, Blackwell
3. Pickard, R.D. (1996). Conservation in the built environment, Longman

3. DISASTER MITIGATION AND MANAGEMENT

COURSE OVERVIEW

To understand the tools for hazard and vulnerability assessment at various levels, preparedness and focuses on techniques for preparing effective disaster management plan.

COURSE OUTCOME

The students will be provided enhanced understanding of community based approaches to disaster management covering mitigation, preparedness, response, rehabilitation and reconstruction

COURSE CONTENTS

Module I

Disaster Management; Types of Natural and Non-Natural Disasters, Causes and Impact; Distinction between an Emergency and a Disaster Situation; Distinction between Hazard and Disaster. Overview on the impact of manmade hazards in Idukki, Wayanad - hilly area, Chennai flood, Ernakulam flood - Coastal area – CRZ. Hazard and Vulnerability Assessment, Concepts, Tools and Techniques. Pre-Disaster Mitigation and Protection of Lifelines and Critical Facilities against Natural Hazards, Disaster Management Act

Module II

Disaster Management Plan, Emergency Planning, Preparedness and Response At The City Level. Principles and Methods Of Community Based Approaches for Urban Disaster Management; Community Based Disaster Management Practice; Emergency Planning Resilience: Disaster risk reduction; Risk preparation; Adaptation. Role of landscape and architecture in making Cities resilient - flood, hurricane, earthquake.

Module III

Disaster recovery at the national, state, city, and neighborhood/community levels. New Orleans (hurricane and levee breach) recovery cases. Cases from Aceh (tsunami), Haiti (earthquake), Chile (earthquake and tsunami), Japan (tsunami), Christchurch, New Zealand (earthquake), and Boston (Marathon terrorist bombing), are incorporated to broaden the discussion of how recovery varies by place, political system, economic system, type of disaster, and extent of damage.

REFERENCES

1. National disaster management guidelines: Preparation of state disaster management plans, National disaster management authority, Government of India
2. Disaster Management, G.K. Ghosh, A.P.H. Publishing Corporation
3. Disaster Management, R.B. Singh, Rawat Publications
4. Disaster Management: Through the New Millennium, Ayaz Ahmad, Anmol Publications
5. Emergency Medical Services and Disaster Management: A Holistic Approach, P.K. Dave, Jaypee Brothers Medical Publishers (P) Ltd.

6. Disaster Management, B Narayan, A.P.H. Publishing Corporation
7. Modern Encyclopedia of Disaster and Hazard Management, B C Bose, Rajat Publications
8. Disaster Management, Nikuj Kumar, Alfa Publications
9. Disaster Management - Recent Approaches, Arvind Kumar, Anmol Publications
10. Disaster Management: Future Challenges and Opportunities, Jagbir Singh, I. K. International 12.
Town Planning Guidelines for Disaster Management Vol-I & Vol-II, TCPO, India

SYLLABUS
SEMESTER III

SEMESTER III

20UD03001: URBAN DESIGN STUDIO - III

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD03001	Urban Design Studio - III	0	0	10	10	150	150	0	300

COURSE OVERVIEW

- The project definition, program development, design and development process, and implementation framework to form integral part of the project structuring.
- Direct involvement of user groups and decision making agencies as part of the project to target appropriate development strategies.
- Feedback and interactive sessions to achieve workable economic and environmental; regeneration objectives. – Local Area Planning
- Finally to diagnose implications of suggested interventions on the larger urban fabric to re-examine values in terms of social, physical, and the progressive nature of change. Deal with **significant urban area** that has strong potential for urban development.
- The studio should end up in complete design proposals including urban structure, control, guidelines and design detailing.

COURSE OUTCOME

The studio exercise will focus on inner city regeneration examining issues related to critical programme development, urban conservation, economic and environmental considerations, and infrastructure development, social and political forces. The involvement of user groups and decision making agencies as a part of the project formulation and appraisal should be encouraged. Green field sites where the design projects may include planning of township / housing / villa projects /administrative capital / educational / ecological – tourist hub / commercial hub / related projects according to the vision generated. Brown field sites may also be chosen for the exercise.

COURSE CONTENTS

- Introduction to the concepts of urban conservation, economic and environmental considerations, and infrastructure development, social and political forces.
- Understanding engagement of user groups and decision making agencies in the process.
- Creation and framing of strategies and urban systems with the consideration of conservation, economy and environment.
- Formulation of design principles, critical debate on the design hypotheses formulated at various scales (Structure plan and detailed design).

REFERENCES

1. Downtown, Inc. How America Rebuilds Cities ,Lynne B. Sagalyn
2. Good city form ,Kevin Lynch
3. Site planning Kevin Lynch and Garry Hack
4. Design thinking, Petr G Rowe Practitioner
5. Encouraging Participatory Planning Processes, John F. Forester

SEMESTER III

20UD03002: RESEARCH METHODOLOGY AND DISSERTATION

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD03002	Research Methodology and Dissertation	2	0	3	5	100	100	0	200

COURSE OVERVIEW

- To introduce the various paradigms of research.
- To familiarise various research methods, analyses employed, and methods of interpretation of results.
- To introduce statistical methods of sampling and analysis.
- To familiarise ways of research reporting.

COURSE OUTCOME

Upon completion of the course,

- Expertise in collecting, processing and presenting relevant information and the art of oral and written expression.
- Findings that can be taken forward for further studies/ design/research.

COURSE CONTENTS

Module I

Introduction- Basic research issues and concepts- orientation to research process- types of research: historical, qualitative, co-relational, experimental, simulation and modelling, logical argumentation, case study and mixed methods- illustration using research samples. Research Process- Elements of Research process: finding a topic- writing an introduction- stating a purpose of study- identifying key research questions and hypotheses- reviewing literature- using theory- defining, delimiting and stating the significance of the study, advanced methods and procedures for data collection and analysis- illustration using research samples

Module II

Researching And Data Collection- Library and archives- Internet: New information and the role of internet; finding and evaluating sources- misuse- test for reliability- ethics. Methods of data collection- From primary sources: observation and recording, interviews structured and unstructured, questionnaire, open ended and close ended questions and the advantages, sampling. Research Design, Features of a good design, Qualitative and quantitative research designs.

Module III

Report Writing- Research writing in general- Components: referencing- writing the bibliography developing the outline- presentation; etc. Case Studies- Case studies illustrating how good research can be used from project inception to completion- review of research publications. Examples of research designs in relevant fields- Architecture, Planning, Housing and Urban Design. Testing of Hypothesis, Statistical errors in Hypothesis testing.

DISSERTATION:

The course deals with selecting an appropriate topic. The topic for the research could be selected in a such way that it could help to develop an appropriate methodology and research approach related to the Urban Design Project taken up in semester-IV from the field of Urban Design or allied disciplines, for its theoretical exploration.

REFERENCES

1. Creswell John W. (1994) Research Design: Qualitative Approaches, Sage publications.
2. Creswell John W. (2003) Research Design: Qualitative, Quantitative and Mixed Methods Approaches, Sage publications.
3. Denzin, Norman K.; and Lincoln, Yvonna S.; (Eds.). (1994). Handbook of Qualitative Research Sage Publications, London, New Delhi
4. Dwivedi, R.S.(1997) Research Methods in Behavioral Sciences Macmillan India Limited
5. De Vaus D.A (2002) Surveys In Social Research Rawat Publications Jaipur and New Delhi
6. Nachmias, Chava Frankfort & Nachmias, David Research Methods in the Social Sciences St. Martin's Press, New York
7. C.R Kothari, Research Methodology, Sultan Chand & Sons, New Delhi, 1990.
8. Panneerselvam, "Research Methodology", Prentice Hall of India, New Delhi, 2012.
9. Leedy P D, "Practical Research: Planning and Design", MacMillan Publishing Co.
10. Manna, Chakraborti, "Values and Ethics in Business Profession", Prentice Hall of India, New Delhi, 2012.
11. Day R A, "How to Write and Publish a Scientific Paper", Cambridge University Press, 1989.

SEMESTER III

20UD03003: PROFESSIONAL TRAINING

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD03003	Professional Training	0	4	0	2	50	50	0	100

COURSE OVERVIEW

- To give an opportunity to work in an office and give the student an exposure to real time challenges and situations of the profession.

COURSE OUTCOME

- Practical exposure to real time challenges and situations and the process of arriving at design solutions for the same.
- Exposure to technical drawings

COURSE CONTENTS

- Professional training to be conducted efficiently for a period of 25 full working days with concerned office at any time after second semester as decided by the institution offering the course.

SEMESTER III

20UD03004: READING THE CITY - III

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD03004	Reading The City - III	2	0	0	2	50	0	100	150

COURSE OVERVIEW

This explores the evolution and critical appraisal of ideas and theories of Urban Design.

COURSE OUTCOME

Students are equipped to study and understand the urban spaces critically in terms of their production processes and their performances as social and public spaces.

Students should prepare a seminar on the critical analysis of the cases taken.

COURSE CONTENTS

Module I

Evolution of ideas and theories of Urban Design. Introduction to theories of urban design- Figure ground theory, Place theory and linkage theory. Timeline and cases of New Urbanism, Tactical, Post Industrial, Post-modern urbanism, Landscape Urbanism, Smart City. Privacy, Territoriality and Proxemic theory, Defensible spaces.

Module II

Techniques and tools of criticism. A critical understanding of changing attitudes towards urbanism and urban spaces. A critical examination of current trends in contemporary architecture and planning in India.

Module III

Historical, theoretical and critical lines of arguments by examining urban places and spaces in their making, use and change, ranging from early civilizations to the present.

REFERENCES

1. Spiro Kostof , The City Assembled , Thames and Hudson.
2. Spiro Kostof , The City Shaped, Thames and Hudson.
3. Jon Lang , Urban Design Typology and procedures, Architectural Press
4. A.E.J. Morris , History of Urban Form, Longman Scientific and Technical.

5. Kevin Lynch , Good City Form, MIT Press.
6. Edmund Bacon, Design of Cities.
7. Geoffrey Broadbent, Emerging Concepts of urban Design

SEMESTER III

20UD03005: URBAN SOCIOLOGY

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD03005	Urban Sociology	2	0	0	2	50	0	100	150

COURSE OVERVIEW

This course is to introduce urban sociology and urban studies.

COURSE OUTCOME

Students would be able to appreciate the role of society in the making of cities. They would understand the city as a collection of social processes rather than just a collection of buildings and infrastructure.

COURSE CONTENTS

Module I

Introduction, basic concepts: Culture, Norms, Values, Status, Role, Social Stratification, Race, Ethnicity, Gender, Caste, Class, Religion, Deviance, Social Control, Social Change, Urbanization. Types of Cities, Theories of Urbanization. Historical development of urban form in relation to society, politics and culture; Preindustrial city, Industrial cities and suburbs, Post Industrial Era, Indian cities, Globalization.

Module II

Urbanism: Urban culture and urban society, Models of social geography, European Perspectives, Chicago School of Sociology. Social Area Analysis, Factorial Ecology, Gentrification, Suburbanization, Race, Class, Religion and Caste and Spatial Segregation, Inequality and Polarization.

Module III

Community in Urban settings: Identity, Difference, Inequality and polarization, Crime, Fear of crime, Apartheid, Urban Anomie Theory, Urban eco criticism, Eco Feminism. Social Psychology: Image of the city, mental maps, the production of space, geography of gender in the city.

REFERENCES

1. Alex Thio, *Sociology A Brief Introduction*, Pearson, 2008
2. Jayapalan, N, *Urban Sociology*, Atlantic Publishers, 2002.

3. M. Haralambos, R. M. Heald (1980) Sociology Themes And Perspectives, Oxford University Press
4. Joel M. Charon (Ed.) (1999) The Meaning Of Sociology A Reader Prentice Hall, New Jersey
5. John J. Macionis, Vincent N. Parillo, (1998) Cities and Urban Life Prentice Hall, New Jersey
6. Josef Gugler (Ed.) (1997), Cities In The Developing World; Issues, Theory And Policy, Oxford University Press
7. Narendra K. Singhi (Ed.) (1996) Theory And Ideology In Indian Sociology, Rewat Publication , Jaipur and New Delhi
8. William G. Flanagan, Contemporary Urban Sociology, Cambridge University Press, 1993

SEMESTER III

20UD03006: DEVELOPMENT MANAGEMENT AND FINANCE

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD03006	Development Management and Finance	2	0	0	2	50	0	100	150

COURSE OVERVIEW

To familiarise the students with the administration and financing of urban/rural housing and other infrastructure development and management strategies adopted for their implementation and monitoring and to familiarise the concept of Public finance.

Understand aspects of development administration, good governance and their influence in development planning.

Familiarise powers and responsibilities of ULBs. Revenue and expenditure management, Innovative means of financial resource mobilisation for local bodies, best practices.

COURSE OUTCOME

The student must have acquired knowledge about the process of management of urban planning and infrastructure projects and identify the means of financing, monitoring and implementing them. Students should have acquired the knowledge to identify the strategies and methods of resource mobilisation that can be adopted for various development projects.

COURSE CONTENTS

Module I

Development management concepts, definition, characteristics, objectives, scope and its relevance to the planning sector. Basic elements of management planning, national goals and management strategies for Urban planning projects. Development goals and processes, effect of political – economic system on development management. Key issues in development management of urban/rural settlements, task force, committees and recommendations on development management. Development administration: Municipal administration system, rural administration system, urban development authorities, urban management agencies etc.

Development administration in India, national, state and local level organisations, role of housing boards, development authorities, improvement trusts and boards, cooperatives, agencies, private sector, NGO's etc in housing / development management.

Module II

Development strategies: land management techniques for urban planning, housing and infrastructure development. Organizational techniques for development management. Management, monitoring and evaluation techniques for development projects, participatory management processes, managing joint ventures, Practice of PPP in Urban Infrastructure projects, post occupancy management of housing and other development projects.

Alternative development management strategies: persuasive strategies, non persuasive strategies, measures of inducements and promotion of development etc. Public finance: Government structure under which public financing works - National financial Commission in India. Role of State finance Commissions.

Public finance evaluation tools – Fiscal Impact Analysis. Cost-benefit Analysis. Traditional and innovative methods of public finance including property tax, User fee, Impact fee, Tax increment financing, Use of special districts. Estimating infrastructure needs.

Module III

Development financing: resource mobilisation and intergovernmental fiscal relations, state grants and shared taxes of local bodies, municipal finance, property tax, institutional approaches, capital investments and other new initiatives for financing development Using land as a resource to finance urban development projects. Development financing tools – development improvement financing, value capture financing etc. Innovative methods and best practices in India and abroad.

Role of good governance in development management, Best practices. Development finance and local bodies: Powers and functional responsibilities of ULBs, Constitutional amendments on local functions and finances. Budgeting process, Link between budgeting and planning. Expenditure and revenue.

Existing state of Municipal finance. Municipal financial resource mobilisation – status, issues and concerns. New and innovative fiscal tools, best practices in financial resource mobilisation at local level.

REFERENCES

1. Prof. N S Saini, Reading Material on Development Management.
2. Maljotra D D Management of Urban Development.
3. Panandiker, V A P, Development Administration in India.
4. Oberman J, Planning and Managing the Economy of the City.
5. Sharma K S R N, Financing Urban Development in India.
6. TCPO: Perspectives on Management of Urban Development – Financing Urban Services.
7. Bamberger M & Hewitt E, Monitoring and Evaluation of Urban development Programs.
8. Jain D K, Project Planning and Appraisal in Planned Economy in India.
9. Mundanthura Balakrishnan – Environmental Problems and Prospects in India – Oxford & IBH.
10. Aresh Kumar Maitra, 'Urban Environment in Crisis', New Age International (P) Limited, Publishers, New Delhi.

11. Avijit Gupta and Mukul G. Asher, 'Environment and the Developing World', John Wiley & Sons, New York, USA.
12. Rao P.K (2001), 'Sustainable Development', Blackwell Publishers, Massachusetts, USA.
13. Rao P.S.N. et.al., Municipal Finance in India – Role of 12th Finance Commission
14. Ahluwalia, Isher Judge, et.al., Urbanisation in India – Challenges, Opportunities and the Way Forward.
15. Mohanty , P.K., Cities and Public Policy – An Urban Agenda for India

SEMESTER III

20UD03007: ELECTIVE I (THEORY)

Course Code	Course	T	W/L	S	Credits	Marks			Total
						CA	UE		
							Jury	Written	
20UD03007	Elective II (Theory): 1. Environmental Planning and Development 2. Planning for Tourism 3. Real Estate Development	2	0	0	2	50	0	100	150

1. ENVIRONMENTAL PLANNING AND DEVELOPMENT

COURSE OVERVIEW

- To introduce students to the discipline of planning and planning history
- To expose students to planning theory and practice
- To make students aware of the institutional mechanism involved in planning and implementation process

COURSE OUTCOME

Students will be able to

- Understand the various factors of development and its effect on the environment.
- The students are exposed to different facets of environmental planning, development control, impact assessment methods, eco cities development, environmental improvement etc.
- The students are enabled to incorporate environmental consideration in spatial planning backed by theoretical understanding.

COURSE CONTENTS

Module I

Introduction to Environmental planning - Concept of environmental planning, Settlement structure and form in response to environmental challenges, Urban ecosystem. Environmental zones and their development Environmental zones, (Hill, Coastal, Arid) Characteristics, resources, settlement pattern, problems and potentials, regulating mechanisms for development.

Module II

Environmental resource management - Management of land, water bodies and water channels, forests and wildlife, minerals, Management of urban areas, Management of sensitive areas, Management of sensitive areas – hills, coast, arid wetlands etc; Management of watersheds.

Role of organisations in environmental protection Role of government and non-government organisations in environmental protection, Environmental management of Indian metropolis.

Module III

Environmental Impact Assessment Role of EIA in the planning and decision making process, Methods of EIA; advantages and limitations, Assessment of impacts on resources – air, water, flora and fauna, Assessment of impacts on land use, Assessment of social and health impacts, Public participation in EIA. Emerging environmental concepts Ecological footprints, Ecotourism, Environmental disaster, Environmental information systems and models, Environmental security, urban ecology, energy planning in urban settlements etc.

REFERENCES:

1. Aresh Kumar Maitra, 'Urban Environment in Crisis', New Age International (P) Limited, Publishers, New Delhi
2. Avijit Gupta and Mukul G. Asher, 'Environment and the Developing World', John Wiley & Sons, New York, USA
3. Larry W. Canter, 'Environmental Impact Assessment', McGraw-Hill, Inc., New York, 1996
4. Randolph J 'Environmental Landuse Planning and Management' Covelo CA, Island Press, 2012
5. Rao P.K (2001), 'Sustainable Development', Blackwell Publishers, Massachusetts, USA.

2. PLANNING FOR TOURISM

COURSE OVERVIEW

This course is to make students aware of the impact of tourism, methods and aspects of preparation of tourism plan and managing environmentally sensitive areas.

COURSE OUTCOME

Students will be able to

- Relate to the planning process, theory and practice in planning for tourism development
- Relate to the institutional mechanisms involved in tourism planning
- Develop capacity to identify multiple and often conflicting factors in tourism planning for an area and propose solutions

COURSE CONTENTS

Module I

Introduction to tourism - Definition, concepts, sectors, and perspectives. Purpose of tourism planning- planning view, scale and development. Types of Tourism: Cultural Tourism, EcoTourism, Heritage Tourism, Adventure Tourism, Religious Tourism, Leisure Destination Tourism; Characteristics of Each and Planning Implications. Tourism and social problems. Economics of Tourism – Tourism as an industry, regional and urban economic development.

Module II

Planning for tourism - Concepts related to tourism planning- urban and regional planning concepts. Destination Planning concepts- places, issues, and guides. Nature and scope of a tourism plan- key issues and stages, data requirements, surveys, role of key players / stake holders in tourism policy and planning, sustainable tourism development planning; community planning and tourism; capacity building and carrying capacity planning for tourism; Tourist Site Planning – processes and sustainability. Nature, scope and issues related to preparation of Tourism Plan. Sustainable tourism planning. Tourism Planning Methods and Analysis. Transport and other Infrastructure planning and tourism development. Urban and Rural based tourism.

Module III

Tourism infra-structure -Tourism Infrastructure- Definition and Classification; Tourism as a burden on Local Infrastructure Accommodation, tourism services – projections. Best practices in tourism. Government and tourism policy and priorities. Role of local community and Tourism promotion. Private sector and tourism development. Information technology and tourism management. Tourism as local, regional, national and global perspectives.

REFERENCES:

1. Glare A. Gunn, Tourism Planning-Basics, Concepts, Cases, Taylor & Francis, London, 1994

2. Goeldner, J. R. & Brent Ritchie, *Tourism: Principles, Practices, Philosophies*, John Wiley & Sons, 2009
3. J Mitchell, Caroline Ashley, *Tourism and Poverty Reduction: Pathways to Prosperity*, Routledge, 2009
4. Manoj Sharma, *Tourism Infrastructure Development: Sustainable Approach*, Kanishka Publishers, New Delhi, 2010

3. REAL ESTATE DEVELOPMENT

COURSE OVERVIEW

This course is to understand land as a resource and to provide an insight into the financial aspects of Real estate.

COURSE OUTCOME

Students will be able to

- Interpret the basic concepts of real estate development
- Appreciate land as a resource
- Understand the institutional mechanisms involved in real estate development

COURSE CONTENTS

Module I

Introduction to Real Estate Development - Definition, Fundamental concepts and techniques involved in real estate development process. Events and Pre project studies - Modeling Sequential events in real estate development process, site evaluation, land procurement, development team assembly, market study. Transfer of Property - Possessions, rules related to transfer of property, co-ownership of land, rights, lease, mortgage.

Module II

Laws relating to land and Development Controls - Controls on land use – land use regulations, ordinances, principles and procedure on Land acquisition and land ceiling act. Town and country planning Act, municipalities and local bodies' act, Acts relating to environmental quality and infrastructure development. Real estate regulations, Land information systems

Module III

Real Estate Project Formulation - Real estate project formulation and development process, asset management, property insurance, taxation and fiscal incentives, public-private partnerships and JV'S, rating, risk assessment. Real estate finance - Fundamental concepts, methods and tools useful for making investment and finance decisions. Role of NRIs and PIOs in the investment market.

REFERENCES

1. David Falk; "The fundamentals of Real estate finance", (2005).USA
2. Fillmore W Galaty, "Modern Real estate practice" (2002); Dearborn Trade Publishing, New York, U.S.A.
3. Gerald R Cortesi, "Mastering Real estate principles" (2001); Dearborn Trade Publishing, NewYork, U.S.A.
4. Ratcliff, John, et.al. "Urban Planning and Real estate development", Routledge
5. Weimer, Arthur and Hoyt. "Principles of real estate" The Ronald press Co

SYLLABUS
SEMESTER IV

SEMESTER IV

20UD04001: URBAN DESIGN THESIS

Course Code	Course	Hrs Per Week			Credits	Marks			Total
		T	W/L	S		CA	UE		
							Jury	Written	
20UD04001	Urban Design Thesis	0	0	25	25	300	300	100	600

COURSE OVERVIEW

To enable a student to independently conceptualize and develop an Urban Design project with a policy and/ design level proposal for the same.

COURSE CONTENTS

- Each student is required to select an independent study, with reference to a special topic in Urban Design, before the end of third semester in consultation with the faculty members.
- Identification of the project with its significance, scope and limitations
- Programming research related to the project and evolving the project brief
- Preparing a project proposal and presenting it in graphical and textual format.

REFERENCES

All books/ Journals/ Magazines/ unpublished/published research/websites related to the topic selected by the individual student.

CERTIFICATE IN DIGITAL MARKETING

	Semester 1	Credit
1	Introduction to Digital marketing and search engine optimization	3
2	Social Media Marketing	3
3	Mobile marketing and Digital Advertisement platforms	3
4	Marketing strategy, analytics and operations	3
5	Digital marketing (Practical)	3
6	Internship/On the job training	15
	Total	30

Syllabus

CERTIFICATE IN DIGITAL MARKETING

Course 1: Introduction to Digital marketing and search engine optimization

Unit 1: Digital marketing introduction

Unit 2: Consumer behavior, Copywriting, Lead generation for Business

Unit 3: Basics of websites & Search Engine Optimization

Unit 4: On-page content and technical optimization

Unit 5: Off- page optimization, Optimization of Key words and meta- tags

Course 2: Social Media Marketing

Unit 1: Introduction to Social media management

Unit 2: Social media usage analytics and operation strategy

Unit 3: Marketing through Face book, Twitter, Google +, pinterest, Quora, You tube, Instagram etc.

Unit 4: Video marketing and Blogs

Unit 5: Pay per click

Course 3: Mobile marketing and Digital Advertisement platforms

Unit 1: Mobile marketing, Introduction, strategies and policies

Unit 2: Mobile websites and App marketing

Unit 3: SMS and E. Mail Marketing

Unit 4: Digital advertising and Marketing platforms

Unit 5: Google AdWords Ads

Course 4: Marketing strategy, analytics and operations

Unit 1: Introduction and Basics of data analytics

Unit 2: Digital marketing Strategy, Planning and Operations

Unit 3: Google Analytics and other online tools for analytics

Unit 4: Social media, Mobile and E- commerce analytics

BOOKS AND REFERENCES

- Digital Marketing: Cases from India by Rajendra Nargundkar and Romi Sainy, Notion Press, Inc
- Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation by Damian Ryan, Kogan Page Publisher
- Marketing 4.0: Moving from Traditional to Digital by Philip Kotler, Publisher Wiley
- Digital Marketing by Seema Gupta, McGraw Hill Education
- Fundamentals of Digital Marketing by Punit Singh Bhatia, Pearson
- The Art of Digital Marketing: The Definitive Guide to Creating Strategic, Targeted, and Measurable Online Campaigns by Ian Dodson, Wiley Publisher

മലയാളം
DIRECTORATE FOR APPLIED SHORT-TERM PROGRAMMES

Diploma in Bakery and Confectionary

	Semester 1	Credits
1.	Bakery Theory Basic	3
2.	Confectionary Theory Basic	3
3.	Nutrition & Hygiene	3
4.	Equipment & Maintenance	3
5.	Bakery & Confectionary Practical	11
6	On the Job Training	7
	Total Credits	30
	Semester 2	
1	Bakery Theory Advance	3
2	Confectionary Theory Advance	3
3	Costing	3
4	Communicative English	3
5	Bakery & Confectionary practical Advance	11
6	On the Job Training	7
	Total Credits	30

2020/2021
DIRECTORATE FOR APPLIED SHOPS

Syllabus

Course 1: Bakery Theory Basic

Unit - 1

An overview of baking industry, Aims and objectives of baking, Organisational structure of baking, Bakery trade terms, Wheat growing countries and type of wheat , North American wheat, South American wheat, Pacific wheat, Indian wheat, Structure of wheat grain

Unit -2

Yeast, Structure of yeast, Quality of yeast, Storage of yeast, Function of yeast, Budding of yeast, Functions of ingredients of bread making, Flour, Sugar, Yeast, Salt, Water, Fat

Unit -3

Methods of preparations of bread, Straight dough method, 70% sponge method, Bread making operation, Bread faults and its causes, Over fermentation of bread Under fermentation of bread

Unit -4

Bread diseases, Rope, mold, Staling of bread, Precautions to be taken for spoilage of bread, Equipment and small tools used in bakery

Practicals (Demonstration and student practice)

Bread - White bread, Brown bread, Soya fortified bread, Ragi fortified bread, Bread roll, Fancy bread, Cheese bread, Milk bread, Sweet bread,

Coconut buns, Hamburgur buns, Hotdog buns, Pizza, Picnic buns, Doughnut, Fruit bread, French bread , Garlic bread

References

- Philip T.E. (1981) Modern Cookery for teaching and the trade Vol.-1
Orient Long Mane Ltd Mumbai
- Bakery Materials and Methods by Albert Daniel by Maclaren &
Sons London
- Philip T.E. (1981) Modern Cookery for teaching and the trade Vol- 2
Orient Long Mane Ltd Mumbai

Course 2: Confectionary Theory Basic

Unit-1

Functions of ingredients in confectionery- Flour, Sugar, Fat, Baking powder, Essence, Colours

Structure of egg uses and functions in confectionery

Unit-2

Milk-Functions of milk, Uses of milk in confectionery, Cream-Functions and uses, Sweetening agents used in confectionery

Unit-3

Basic methods of preparation of cake, Creaming method, sponge method, Precautions to be taken while preparing cake. Characteristic of a good cake

Unit-4

Raising agents used in confectionery, Baking powder, Soda bi carbonate, Amonium bi carbonate, Natural raising agent, Faults in cake making, External qualities of a good cake, Internal qualities of a good cake

Practical

Pastry, Choux pastry-4variations, Puff pastry-4variations, Flaky pastry -4variations, Short crust pastry-4variations, Cold sweet, Fruit salad, D[plommat pudding, Trifle, Chocolate mousse, Caramal custard, Toffee, Chocolate toffee, Milk toffee, Tart, Jam tart, Apple tart, Pie, Mix fruit pie, Mango pie,

Cake, Sponge cake, Fruit cake, Lemon cake, SWISS ROLL, Eggless cake, Pineapple upside down cake, Madeira cake, Pound cake, Black forest cake, Tea fancy, Plum cake, Date and walnut cake, Christmas cake, Banana bread,

Icing, Butter icing, Feather icing, Royal icing, Glace icing, Ganache, Cake decorations, Birthday cake, Fancy cake

References

- Practical baking by W J Sultan by A V I publication house Westport.
- Bakery technology & Engineering by Matz Samuel , A V I publication house Westport.
- Pastry Work & Confectionary handbook Bastford Academic & educational London.

Course 03: Hygiene and Nutrition

Unit-1

Definition of hygiene- application to everyday life, Personel hygiene, Care of skin,hair,hand,teeth and feet, Use of cosmetic and jewellery.

Defenition of Health- Nutrition, Classification of nutrient, Macro nutrients,

Carbohydrate- definition, classification, Dietary source, function

Unit-2

Storage of food, Correct handling of food, Techniques of correct storage temperature in which Bacteria is killed or retarded

Classification of protein- Definition, Classification, Dietary source, Function, Method of improving quality of proteins in baked food(special emphasis on soya protein)

Unit-3

Fat and its importance in bakery-Classification of fat, Dietary source, Functions

Classification of minerals, Definition, Dietary source and functions, Methods of improving quality of minerals in baked foods(special emphasis with ragi flour), Importance of vitamins , Definition, Dietary source and functions

Unit-4

Safe and correct disposal of garbage, Importance of garbage disposal, Rodent and insect control Hygiene management in bakery as well as selling points and in counter, Food safety measures and regulations, F.S.S.A.I. rules and regulations.

References

- Nutritive value of Indian food by C Gopalen, National institute, I C M R hydrabad
- Basic principles of Nutrition by Seema Yadav, Anmol publication Pvt.Ltd New Delhi
- Food hygiene for food handlers, second edition 1997 by Jill Trickett, by Mac Millann press Ltd.

Course 04: Equipment and maintenance

Unit-1

Elementary study of services with particular reference to economy and safety in their use

Unit-2

Routine maintenance of equipment, Care and cleaning of all fixed and movable equipments, Refrigerator, Mixture, Peelers, Autoclaves, Mincer

Unit-3

Types of fuels, Solid, Liquid, Gas, Electricity comparison, Cost and efficiency

Unit-4

Fire precaution, Different type of fire extinguishers and common fire hazards

References

- Clawson A (1951) Equipment Maintenance Manuel ,Andrews publishing Co. New York.
- Kiton .R & Caserni V (1974) The Theory of catering , Edward Arnold, London
- Woodropkr.A. (1950) Gas In The House The English Universities press, Ltd. London.

Course 05: Bakery Theory Advance

Unit-1

Milling of wheat grain, Stone milling-advantages and disadvantages, Roller milling, Methods of cleaning of wheat, Break milling, Reduction milling, Types of flour, Composition of flour

Unit-2

Simple flour test, Pekar test, Gluten test, Baking test, Fermentation of Bread, Faults in Bread making

Unit-3

Characteristic of good bread, Fortification of bread, Effecton fortification of bread with soya flour, Effect on fortification of bread with Ragi flour

Unit-4

Bread improovers, Bread deseases-Rope, mold, Staling, International bread

Practical

Bread, Bread roll, Sweet buns, Cinnamon rolls, Dinner rolls, Doughnuts, Garlic breads, Khara buns, Fruit bread, Coconut buns, Pizza, Fortified bread, French bread, Fancy bread, Sweet bread

References

- Practical baking by W J Sultan by A V I publication house Westport.
- Bakery technology & Engineering by Matz Samuel , A V I publication house Westport.
- Pastry Work & Confectionary handbook Bastford Academic & educational London

Course 06: Confectionary Theory Advance

Unit-1

Leavening agent, Types of leavening agent, Mechanical, Biological
Water vapour

Chemical-Baking powder, Soda bi carbonate, Ammonium bi carbonate
Shortening agent, Role of shortening agent, Varities of shortening agent

Unit-2

Flavoring agent, Various essences and their functions, Sugar-Types of sugar and uses of sugar

Pastry-Short crust pastry ,puffpastry, flakypatry, chouxpastry, Danish pastry
Recipe and method of preparations.

Unit-3

Colours, Uses and functions of edible colours in confectionery, Precautions while making laminated pastry, Verities of fruits in confectionery

Unit-4

Icing- Buttericing, Feather icing, Royal icing, Dressing, Gum paste, Almond paste, Cake decoration, Important points to be observed while cake decoration. Wedding cake, Different designs and materials used for wedding cake decoration, Whipping cream.

Practical (Confectionery)

Bread butter pudding, Caramel custard, Queen of pudding, Jaleby, Shahitukda, Gajarhalwa
Butter icing, Royal icing, Feather icing, Gum paste, Almond paste, Cookies, Peanut butter cookies, Cashew cookies, Melting moments, Nankhatai, Ragi cookies, Vanilla biscuit, Fruit biscuit, Ajwain biscuit, Chocolate cream finger, Ginger biscuit, Honey biscuit, Birthday cakes

Wedding cakes, Ornamental cakes, Black forest cake, White forest cake

References

- Practical baking by W J Sultan by A V I publication house Westport.
- Bakery technology & Engineering by Matz Samuel , A V I publication house Westport.
- Pastry Work & Confectionary handbook Bastford Academic & educational London.

Course 07: Costing

Unit-1

Importance of costing, Cost control, Method of costing, Costing methodology in catering business, Emphasis on batch costing.

Unit-2

Control of labor, Cost and overheads, Periodical percentage Analysis
Calculation of overheads allocation rates.

Unit-3

Material costing use of standard recipes, Material cost control with basic operating activities like purchasing and receiving.

Unit-4

Cost control on storage, issuing, Production, Sales, Accounting yield analysis from time to time

Documents required for getting license to start a bakery unit

References

- Bhar B.K. (1977) cost Accounting ,Academic Publisher , Culcutta
- Matz A Curry O and Frank G.W.(1970) Cost Accounting Taraporewals Sons & Co. Pvt.Ltd. Bombay
- Prasad N.K. (1979) Principles and practices of Cost Accounting Book , Syndicate Pvt. Ltd. Culcutta
- Introduction to Accountancy T S Grebal , S Chand & company New Delhi

Course 08: Communication skills

Unit-1

French terms used in bakery and confectionery

Unit-2

General manners when dealing with customers in upselling products

Unit-3

Communication skills required for promotion of sales,salesmanship

Unit-4

Skill required to control the staff , Attitudes and knowledge required for training the staff and the trainees

References

- Worsdall, V. (1972) Special English for Hotel Personnel book
- Restaurant Employees, Collier Macmillan publishers, London
- Communication skills for professionals by Konar N second edition

Bakery & Confectionary practical Advance

On the Job Training

Post Graduate Diploma in Data and Business Analytics (PGDDBA)

	Semester-1	Credits
1.	Data Base Management System	3
2.	Exploratory Data Analysis	3
3.	Data Visualization and Reporting	3
4.	Data Mining	3
5.	Practical/Internship	18
	Total	30
Semester-2		
1	R Programming	3
2	Business Forecasting	3
3	Big Data Technologies	3
4	Practical & Project Work	6
5	On the Job Training	15
	Total	30

Syllabus

POST GRADUATE DIPLOMA IN DATA AND BUSINESS ANALYTICS (PGDDBA)

PGDDBA-101 Data Base Management System

Principles, Tools and Platforms / (Database Management Systems): Database concepts, Basic components of DBMS, sources of data, logging, cleaning data, data representation, data models – (hierarchical, network, XML), and Stores, NoSQL database, design for performance / quality parameters, documents and information retrieval related tools – (Postgres, OLTP, OLAP, Hadoop, Mapreduce).

PGDDBA-102 Exploratory Data Analysis:

Mathematics for Data Analytics: Basic probability theory, distributions and their properties, Simple and multiple regression analysis, hypothesis testing and sampling, estimation theory,

least square methods. Descriptive statistics – uni-variate and bi-variate, residual analysis, confidence and prediction intervals regression, associations, sequencing, introduction to forecasting, design of experiments and performing basic statistical analysis of data experiments (both field and laboratory) to investigate business issues, tools for conducting basic statistics (Excel, R, SPSS)

PGDDBA-103 Data Visualization and Reporting:

Purpose of visualization, Multidimensional visualization, tree visualization, graph visualization and time series data visualization techniques, visual perception, cognitive issues, evaluation as well as other theory and design principles behind information visualization, understanding analytics output and their usage, basic interaction techniques such as selection and distortion, evaluation, examples of information visualization applications and systems, user tasks and analysis

PGDDBA-104 Data Mining:

Clustering, Association rules, factor analysis, scale development, survival analysis, data reduction using PCA, scoring new data and model implementation, improving predictive models, association and market basket analysis, advanced regression models: concepts and applications, conjoint and discrete choice analysis, design and analysis of experiment.

PGDDBA-105 R Programming

History and overview of R, Install and configuration of R programming environment, Basic language elements and data structures, R+Knitr+Markdown+GitHub, Data input/output, Data storage formats, Subsetting objects, Vectorization, Control structures, Functions, Scoping Rules, Loop functions, Graphics and visualization, Grammar of data manipulation (dplyr and related tools), Debugging/profiling, Statistical simulation.

PDDBA-106 Business Forecasting :

The Importance of Forecasting-Time Series Data-Component Factors of the Time-Series Model Trend Analysis-Seasonal and Cyclical Behaviour-Smoothing of Annual Time Series: Moving averages, Exponential smoothing -Least-Squares Trend Fitting and Forecasting: Linear, quadratic and exponential models, Autocorrelation and Auto regression-Autoregressive Models - ARIMA time-series Model Time-Series Forecasting of Monthly or Quarterly Data-Accuracy Statistics and Forecast Model Selection-Families of Forecasting

Models –Hierarchical Forecasting-Adjustments to Statistical Forecasts, Event Variables-
Outlier Variables and Other Model Inputs-Using Event Variables, Based on Calendar Effects-
Combined Model Forecasts-Honest Assessment

PDDBA-107. Big Data Technologies:

Big data definition, enterprise / structured data, social / unstructured data, unstructured data needs for analytics, Big data programming (Hadoop / HDFS, Map-reduce, event stream processing, complex event processing), evolution, purpose and use, application data stores, (NSQL databases, in-memory databases), data computing appliance (DCA) and OLAP, massive parallel processing, in-memory computing / analytics, data science, enterprise / external search, HDFS – Overview and concepts, data flow (read and write), interface to HDFS (HTTP, CLI and Java API), high availability and Name Node federation, Map Reduce developing and deploying programs, optimization techniques, Map Reduce Anatomy, Data flow framework programming Map Reduce best practices and debugging.

PDDBA-108. Practical & Project Work

A business Analytics solution to the issues of typical company has to be identified and have to be implemented using Tools studied. A project report has to be submitted at the end of the programme.

Books Recommended:

1. Vignesh Prajapati, “*Big Data Analytics with R and Hadoop*”, 1st Edition, Shroff / Packt Publications
3. Chuck Lam, “*Hadoop in Action*”, Dreamtech Press Publisher.
4. Michele Chambers, Michael Minelli, Ambiga Dhiraj., “*Big Data BigAnalytics, Emerging Business Intelligence and Analytic Trends for Today's Businesses*” , 1st Edition, Wiley Publications
5. Gert H. N. Laursen, Jesper Thorlund, “*Business Analytics for Managers*” Taking Business Intelligence Beyond Reporting, Wiley Publications.

6. Damodar Gujarati & Dawn Porter, Sangeetha Gunasekar, “*Basic Econometrics*”, 5th Edition McGraw

Hill Education (India) Private Limited

7 Levine, Stephan, Krehbiel and Berenson., “*Statistics for Managers using Microsoft excel*”, PHI

Learning Private Limited, 2010.

8 . Data Base Management, Navathe , PHI Publications.

മുഖ്യമന്ത്രിയുടെ ഓഫീസ്,
DIRECTORATE FOR APPLIED SHORT-TERM PROGRAMMES

Post Graduate Diploma in Food Processing and Quality Assurance

	Semester 1	Credits
SL.NO	SEMESTER-1	CREDITS
1	Food Microbiology and Food Chemistry	3
2	Food Processing and Packaging Technologies	3
3	Fruits and vegetables Processing Technology	3
4	Milk and Milk Product Processing Technology	3
5	Food Microbiology and Food Chemistry (Practicals)	3
6	Training/Internship on Milk and Milk Product Processing	15
	Total Credits	30
	SEMESTER-2	
1	Food Additives and Food Adulteration	3
2	Food Microbiology and Food Quality Assurance	3
3	Food Safety and Quality Auditing	3
4	Food Laws and Standards	3
5	Chemical and Microbiological analysis of food quality & Food safety (Practical)	3
6	Training/Internship on Food Safety and Quality Auditing	15
	Total Credits	30

DIRECTORATE FOR APPLIED

Post Graduate Diploma in Food Processing and Quality Assurance

SEMESTER 1

Course 1: FOOD MICROBIOLOGY AND FOOD CHEMISTRY

Objectives

- ❖ To acquire an elementary knowledge about the aspects of interaction between micro-organisms, food borne illness and food fermentation
- ❖ To acquaint various functional chemical constituents of food.
- ❖ To build a relationship between the dynamic forces of food and the dynamic forces of digestion and growth

(3+0: Theory Course)

Unit 1. Fundamentals of Food Microbiology

Introduction to Food Microbiology, Sources of microorganisms in food, perishable, semi perishable and non- perishable foods, intrinsic and extrinsic parameters influencing microbial content of food

Unit 2. Spoilage of food and food Borne Diseases

Food borne pathogens and their control. Spoilage organisms in food and food products. Types of organisms in meat and meat products, sea foods, fruits and vegetables, milk and dairy products. Microbial infection and intoxication. Food intoxication- Staphylococcal intoxication, botulism. Food infection- *Salmonellosis*, *Clostridium perfringens*, *Bacillus cereus* gastroenteritis, *E. coli* infection and others

Unit 3. Microbiological Safety of Foods

Collection of food samples – sampling, collection, transport and storage. Enumeration of microorganisms. Direct count, Total aerobic count, Selective media. Identification of pathogenic microorganisms – Selective media, PCR based identification, ELISA. Isolation and identification of virulent *E. coli* from foods. Detection of microbial metabolites- HPTLC, HPLC, ELISA; Bacterial toxins: Ceralides, *E coli* toxins, Mycotoxins, Aflatoxins, Trichotheenes.

Unit 4: Introduction to chemistry of foods

Composition and factors affecting foods, chemistry of water, water activity, moisture determination. Carbohydrates -Properties and classification, starch, cellulose, pectic substances; Fat –rancidity, types, fatty acids, Hydrogenation. Proteins-Denaturation, Nontraditional protein, Textured vegetable protein; Enzymes and its use in foods, gel formation and starch degradation, dextrinization, Browning reactions – Enzymatic & Non-enzymatic browning.

Unit 5: Chemical composition of food:

Carbohydrates, lipids, proteins, fibre, vitamins, and minerals – characteristics, sources, physiological and biochemical functions, daily requirement, digestion and absorption. Biological value of proteins (BV), Energy value of foods, Balanced diet formulation.

Text books:

1. Campbell, M K and Farrell, S O-Biochemistry 5th edition-international student, 2006
2. Damodaran,S., Parkin , K L.,Fennema, O R., Fennema's Food Chemistry- 4th edition, CRC press Taylor and Francis Group, New York 2008.
3. Fennema, O R. -Food Chemistry 3rd edition, Marcel Dekker Inc, New York., 1996.
4. Manay, N.S, Shadaksharaswamy, M., Foods- Facts and Principles, New Age International Publishers, New Delhi, 2004.
5. Meyer, L H-Food Chemistry. CBS publishers & distributors, New Delhi. 2002 6. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000. 7. Srilakshmi, B. Food Science (3rd edition), New Age International (P) Limited Publishers, New Delhi, 2003

Course 2: FOOD PROCESSING AND PACKAGING TECHNOLOGIES

Objectives:

- ❖ To understand the processing techniques of agro products.
- ❖ To know the use of agro processing equipments.
- ❖ To be familiar with different methods and materials used for packaging
- ❖ To understand the technology behind packaging

(3+0: Theory Course)

Unit I - Agro processing

Introduction to Agro processing industry. - Scope and importance of Agro processed products. - Processing equipments – Floor mill, mini grain mill pulverizers, Hammer mill, Floor separator, Dal mill, Packing and Sealing machine, Balance - Different

grains suitable for agro processing. - Primary and secondary processing of wheat and corn. Types of corn. Methods of Cleaning, grading, milling. Standards for the wheat flour. Adulteration in flour

Unit – II- Pulses and Legumes processing

Classification of pulses. Pre milling treatments of pulses, pulse milling and recent developments. Principle of dal milling. Pulses suitable for milling. Different Methods of dal milling Working and principle of dal mill. By-products utilization. Adulteration in pulse

Unit III . Introduction to packaging technology

Need and importance of storage and packaging methods. Selection of packaging materials based on chemical and physical properties of foods. Classification of packaging -Primary, secondary and tertiary packaging of foods. Types of packaging materials e.g. paper, glass, metal, plastic. Coated papers and their requirements, Shear strength and compression properties of corrugated cartons, Transportation tests and stacking tests

Unit IV . Packaging techniques

Special properties required for plastic materials for packaging foods, paper and metal laminations used in packing of foods, Microwave oven safe packaging (suseptron). Aseptic packaging of foods and the developing technology. MAP and CAP packaging. Biodegradable packaging materials, their advantages and disadvantages.

Unit v. Food packaging Laws & Specifications

Quality standards for packed processed products. Packaging evaluation WVTR, GTR, Bursting strength, tensile strength, tearing strength, drop. Transportation hazards and testing. • Oxygen interactions, moisture interchanges and aroma permeability

Reference books

1. Cruess, W.V. Commercial Fruit & Vegetable Products. Allied Scientific Publishers, New Delhi. 2003
2. Davis, E.G. Evaluation of tin & plastic containers for foods. CBS Publishers, New Delhi. 2004
3. Gopal T.K.S. Seafood packaging, CIFT, Matsyapuri Cochin,2007
4. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000.

5. Sacharow, S., Griffin, R.C. Food Packaging. AVI Publishing Company, West Port, Connecticut. 2000
6. Srilakshmi, B. Food Science. New Age International Publishers, New Delhi, 2003

Course 3: FRUITS AND VEGETABLES PROCESSING TECHNOLOGY

Objectives

- ❖ To acquire knowledge about the selection of fruits for processing and value addition
- ❖ To introduce the latest technologies , manufacturing processes and tools for effective
- ❖ control of safety and quality during processing

(3+0: Theory Course)

Unit I. Introduction

Ripening and quality of fruits, harvesting and transportation, cold storage of fruits, selection and preparation of fruits for processing, deskinning, enzyme inactivation, packing and processing. Various fruit products- frozen whole fruits, slices, cubes, canned fruits, dehydrated fruits, fruit preserves, candied fruits.

Unit II Canning of Fruits and Vegetables

Preparation of fruits and vegetables for canning. – Washing, peeling, grating, slicing dicing, deseeding, blanching - Importance of Blanching operations - Batch and Continuous Blanching.- Hot water and Steam Blanching.- Canning operations – precautions in canning operations, Spoilage of canned foods. Common machinery for operations like Peeling, Slicing/Dicing, Pulping, Grating and canning process.

Unit-III Value addition of fruits and vegetables

Processing technology for manufacturing of fruit juices, pulp, RTS beverage, nectars, squash, syrups, cordials, Carbonated.

Processing of Tomato: paste, ketchup, sauce, puree, soup, chutney etc. Drying and dehydration technology of fruits and vegetables: preparation of raisins, anardana, dried fig, dried leafy vegetables, juice powders, flakes, wafers, chips etc. Fermented fruits and vegetables products like sauerkraut, pickles, wines etc. Utilization of By-products and wastes from fruits and vegetables processing industry

Unit IV Aseptic and other methods of processing

Aseptic processing and Bulk packing of Fruit juice concentrates, Pulp and Puree - Brief information on Asepticity and how it is strictly maintained in the plant - Aseptic heat exchangers for sterilizing and concentrating the product - Aseptic fillers. Different system of filling practiced. Tetra pack for small quantities - Dole system and Scholle system for bulk storage in Bag & Boxes and Bag & Drums. - Storage of Aseptically packed products. Minimal Processing and packaging of vegetables, Brief study of Hurdle technology as applied to Vegetable and Fruit processing.

Reference books

1. Post Harvest Physiology, Handling and Utilization of Tropical and Subtropical Fruits and Vegetable- E. B. Pantastico, AVI Publishing Company, INC.
2. Post Harvest: An Introduction to the Physiology and Handling of Fruits and Vegetables- R.B. Wills, M.B. Mc Glasson, D. Graham, T.L. Lee and E.G. Hall.
3. Post Harvest Technology of Fruits and Vegetables: Handling, Processing, Fermentation and Waste Management Vol. I and II- Verma L. R. and Joshi V.K.
4. Fruit and Vegetable Preservation Principles and Practices -Srivastava R.P. and Sanjeev Kumar
5. Preservation of Fruits and Vegetables-Khader
6. Fruit and Vegetable Preservation -Bhutani R.C.
7. Principles of Fruit Preservation- Morris, Thomas Norman,.

Course 4. MILK AND MILK PRODUCT PROCESSING TECHNOLOGY

Objectives

- ❖ To know the importance of milk as an agricultural commodity.
- ❖ To be innovative in exploring various traditional and nontraditional milk products.

(3+0: Theory Course)

Unit 1- Introduction

Definition, different sources of milk and their composition, factors affecting composition of milk. Physio-chemical properties of milk constituents. Microbiology of milk, Collection and transportation of milk. Grading of milk.

Unit 2- Milk Processing

Pasteurized milk, Sterilized milk, Homogenized milk, Flavored milk, frozen concentrated milk, Fermented milk, Reconstituted milk, Recombined milk, Toned and double toned milk, Vitaminised/ Irradiated milk, milk powder. Butter and cream, composition and nutritive value, method of manufacture, packaging & storage. Uses of butter and its defects.

Unit 3 Cheese, Ice cream and condensed milk Cheese:

Definition, classification, composition and nutritive value, Manufacture of cheddar cheese and cottage cheese, defects in cheese, their causes and prevention, uses of cheese. Ice-cream: Definition, composition and nutritive value, role of constituents, method of manufacture & storage. Uses of ice-cream, defects in ice-cream Condensed& Evaporated milk- processing.

Unit 4- Indigenous Dairy Products

Fat rich products- Ghee, Makkan and Malai. Concentrated Products- Khoa, Rabri and Basundi. Coagulated Products- Chhana and Paneer. Fermented Products- Dahi , Chakka, Shrikhand and Lassi. Frozen Products- Kulfi and Kulfa. Sweet dairy products - Gulab Jamun and Rasagulla

FOOD MICROBIOLOGY AND FOOD CHEMISTRY (PRACTIALS)

(0+3: Practical Course)

- ❖ Chemical analysis: Estimation of Starch, Estimation of Crude fibre, Estimation of sugar by Phenol Sulphuric acid method, Estimation of sugar, Water Hardness, Paper Chromatography, Saponification Value of oils/fats, Acid value of oils/fats, Estimation of ascorbic acid
- ❖ Microbiology: Cultivation and Sub-culturing of Microbes, Staining Techniques, Standards Plate Count Method Experiment, Direct Microscopic Examination of Foods Experiment, Enumeration of Fungi (Yeasts and Molds), Assessment of Surface Sterilization using Swab and Rinse Method, Detection of Coliforms and Indicator Organisms (1) Most Probable Number Experiment, Detection of Coliforms and Indicator Organisms (2) Confirmed and Completed Tests, Membrane Filter Techniques Experiment, Interpretation of Microbiological Data and its Inferences

SECOND SEMESTER

Course 5. FOOD ADDITIVES AND FOOD ADULTERATION

Objectives

- ❖ To attain knowledge regarding the use of additives in the food industry, laws related to food additives and to prevent the involuntary infringement of analytical procedures.

(3+0: Theory Course)

Unit 1. Introduction

Functionality of food additives, Regulatory and legal aspects. Objectives of additives. Functional classification of additives. Natural and synthetic additives. Health and safety aspects of food additives. Generally Recognized As Safe (GRAS) and Acceptable Daily Intake

Unit 2. Food additive

Additive numbering system; Permitted food colours- natural and artificial. Food flavours – natural and artificial. Sweeteners- natural and artificial. Antimicrobials, Aerating agents, Antistaling agents, Bodying agents, Clouding agents, Curing agents, Clarifiers, Dietary supplements, Dietary fibre, Emulsifiers, Enzymes, Fat replacers, Gelling agents, Leavening agents, Stabilizers, Surfactants, Tenderizers, Texturizers, Thickeners, Vitamins, Nutraceuticals, Viscosity modifiers, Whipping agents , antioxidants , chelating agents.

Food additives, antioxidants, sequestrants, preservatives, nutrient supplement, emulsifiers, stabilizers and thickening agents, bleaching and maturing agent, sweeteners, humectants and anti-caking agents coloring and flavoring substance. Analytical techniques used in detection of adulteration of food. Permitted level of food additives, present status of various food additives, controversial food additives, GRAS.

Unit 3 Minor Food Additives

Aerating agents, Antistaling agents, Bodying agents, Clouding agents, Curing agents, Clarifiers, Dietary supplements, Dietary fibre, Emulsifiers, Enzymes, Fat replacers, Leavening agents, Surfactants, Tenderizers, Texturizers, Thickeners, Viscosity modifiers, Whipping agents

Unit 4. Food adulteration

Types of adulterants- intentional and incidental adulterants, methods for detection of common adulteration, contamination and pesticide. Oils and Fats - Iodine value and saponification value

Reference Books

1. Manay, N.S, Shadaksharaswamy, M., Foods- Facts and Principles, New Age International Publishers, New Delhi, 2004.
2. Meyer, L H-Food Chemistry. CBS publishers & distributors, New Delhi. 2002.
3. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000.
4. Srilakshmi, B. Food Science (3rd edition), New Age International (P) Limited Publishers, New Delhi, 2003.

Course 6. FOOD MICROBIOLOGY AND FOOD QUALITY ASSURANCE

Objectives

- ❖ To introduce importance of microorganisms in production of various food materials
- ❖ To introduce food quality assessment methods

(3+0: Theory Course)

Unit 1. Microbiology of Foods

Microbes associated with food, Probiotics, Prebiotics, Synbiotics, Health benefit and mechanism of action of probiotics, SCP, Edible mushrooms, Food preservation and preservatives, Physical and chemical methods of preservation, natural food preservation

Unit 2. Role of microorganisms in the preparation of food

Dairy products, Microbiology of cultured dairy products, Yogurt manufacture, cultured butter milk, Sour cream, Kefir and microbiology of kefir grains, cheese, vegetable fermentation, Microbial succession during production of fermented vegetables, Manufacture of sauerkraut, kimchi, cucumber fermentation, Soy sauce production, Tempeh fermentation

Unit 3. Food Safety and Quality Management Systems

Introduction to Food Safety, Food Safety System, Total Quality Management, Project Management, Risk Analysis, An Introduction to Risk Analysis, Risk Management, Risk Assessment, Risk Communication, Philosophy of Good Manufacturing Practices

(GMP), current good manufacturing practices (cGMP), Good Laboratory Practices (GLP), ISO 22000 FSMS

Unit 4. Quality Control & Standard Tests for Quality Assessment.

Definition, Statistical Quality Control: Definition, How to determine the need for SQC and the Control chart – definition, uses, process control. Standard tests for quality assessment, Microanalytical tests, Microbiological tests, Histological tests, Standard test methods

Course 7. FOOD SAFETY AND QUALITY AUDITING

Objectives

- ❖ To attain knowledge regarding standard operating procedures in food industry
- ❖ To introduce food quality auditing procedures

(3+0: Theory Course)

Unit 1 Standard Operating Procedures

Preparing scope, quality policy and quality objectives of food processing company, Defining Standard operating procedure – purpose- Format - developing and implementing, effective writing. SOP for purchasing raw materials, receiving raw materials, storage, cleaning, holding, cooling, freezing, thawing, reheating, personal hygiene, facility and equipments. Systems in laboratory accreditation

Unit 2. Audit Check List

Preparation of HACCP based SOP checklist - personal hygiene, food preparation, hot holding, cold holding, refrigerator, freezer and milk cooler, food storage and dry storage, cleaning and sanitizing, utensils and equipments, large equipments, garbage storage and disposal and pest control.

Unit 3. Good Manufacturing Practices

Pre-requisite Program -Good Manufacturing Practices - Personal hygiene – occupational health and safety specification, Food Plant Sanitation Management - Plant facilities construction and maintenance - exterior of the building- interior of the building- equipments. Storage, transportation, traceability, recalling procedures, training.

Unit 4. HACCP principle

Conduct a hazard analysis, CCP identification, establish critical limits for each CCP, establish CCP monitoring procedures, establish corrective actions procedures, establish procedures for HACCP verification and validation, documenting the HACCP Program.

Unit 5. Food quality auditing

Implementation of HACCP and conducting audit --HACCP for jam, biscuit, bread, dairy, meat, fish and egg industries. Conducting of open meeting and close meeting in auditing, preparation of audit reports for different department- audit exercise

References books

1. Gazette of Food Safety and Standards Act, (2006) Food Safety regulations and food safety management. Food Safety and Standards Authority of India. New Delhi
2. The training manual for Food Safety Regulators. (2011) Vol.III, Food Safety regulations and food safety management. Food Safety and Standards Authority of India. New Delhi.

Course 8. FOOD LAWS AND STANDARDS

(3+0: Theory Course)

Unit 1. General principles for food safety regulation at national/regional level

The Structure of Food Law, Food Regulation What Should be Regulated?, Laws and Regulations to Prevent Adulteration and Cross Contamination, Microbial Contamination, Hygienic Practice, Chemical and Environmental Contamination, Food Additives, Labeling, Food Laws and Regulations at the International Level for Harmonization

Unit 2. Food laws

FDA regulations, USDA regulations, EPA regulations, Codex Alimentarius, Food Safety and Standards regulations, The Prevention of Food Adulteration Act, Export & Import Laws and Regulations, Export (Quality Control and Inspection) Act, 1963., etc. Packaging and labeling Laws, regulations

Unit 3. Quality Standards

Legal Standards, Voluntary Label Standards, Industry Standards, Grade standards. Methods for determining quality: objective and subjective methods. Definition and organization of the quality control function in the food industry. Preparation of specifications. In-plant Quality Control and end product inspection. Instrumental and

sensory methods for evaluation. Statistical process control (SPC). Regulations and standards for raw and finished products.

Unit 4. National standards

Food Safety and Standard Authority of India regulations, FSSAI (2006) - Agricultural and Processed food Export Development Authority - Marine Product Export Development Authority - Export Inspection council and Export Inspection Agency. International food standards., Trends in Food Standardization, An Overview and structure of 9001:2000/2008, Clause wise Interpretation of ISO 9001:2000, Case Studies, An overview and Structure of 22000:2005, Clause wise Interpretation of ISO 22000:2005, Case Studies.

Unit 5. International bodies dealing in standardization

International Standardization Organization (ISO), Joint FAO/WHO Food Standards Program. Codex Alimentarius Commission (CAC), Other International Organizations Active in Food Standard Harmonization. Advantages of Utilizing International Standards. Rapid Alert system. European Committee for Standardization (CEN), PAN American Standards Commission (COPANT), Euro-Asian Council for Standardization, FDA, EPA, EU, ASEAN, EFSA (European Food Safety Authority)

References

1. The training manual for Food Safety Regulators. Vol.II- Food Safety regulations and food safety management. (2011) Food safety and Standards Authority of India. New Delhi
2. Mortimore, S., and Wallace, C., (2005) HACCP: A practical approach, 2nd Ed, Aspen Publication
3. Surak, J.G., and Wilson, S. (2007) American Society for Quality, 2nd Ed., Quality Press
4. Gazette of Food Safety and Standards Act, (2006) Food Safety regulations and food safety management. Food Safety and Standards Authority of India. New Delhi

CHEMICAL AND MICROBIOLOGICAL ANALYSIS OF FOOD QUALITY & FOOD SAFETY (PRACTICAL)

(0+3: Practical Course)

A. Practical exercises-Microbiology

1. Microbiology of Milk
 - a) Quantitative analysis of milk by SPC(standard Plate Count Method)
 - b) Enzymatic test of milk by MBRT(Methylene Blue Reductase Test)
 - c) Determination of phosphatase activity of milk
 - d) Detection of mastitis through milk test
 - e) Detection of calcium and phosphorous in milk
2. Microbiological Analysis of Meat, Fish and Egg
3. Microbiology of Bread (Yeast & mold)
4. Microbiology of fruits and vegetables
5. Biochemical Testing

B. Practical exercises-Chemistry

1. Estimation of proximates from food samples
2. Estimation of vitamins from food samples
3. Estimation of minerals from food samples
4. Estimation of trace elements from food samples
5. Estimation of mycotoxins from food samples
6. Detection of adulteration in various foods: Jam, Tea, Coffee, Wheat Flour, Butter, Milk powder, Jelly, Cocoa powder