

M G UNIVERSITY
B. ARCH COURSE - SIXTH SEMESTER (S6)
2011 AR 601 ARCHITECTURAL DESIGN – V
0-0-10 credits-5

Introduction

Begins as a continuation of Architectural design IV

Objectives

- Design of buildings / built environment of more complex nature in a campus incorporating campus planning principles with detailed site analysis –circulation diagram, function, form, structural system, climate, materials and all services like sanitary and water supply, lighting and ventilation fire fighting, acoustics, lifts escalators etc. also to develop skills for working in a team.
- To emphasize the importance and need of Detailing in Design.
- To create an awareness of Building rules/National Building Code of India /other regulations such as cinemas regulation act, CRZ etc.
- Application of Design brief and check list for all projects. (Systems approach)
- Development of communication skills.

Syllabus

- a) Major Project 1: Design of a CAMPUS including designing the various buildings that constitute the campus. Use of campus planning principles, waste management (solid & liquid), rain water harvesting, use of renewable energy, landscaping swimming pool etc including all services, acoustics incorporating circulation diagram, development of concept of design, building bylaws/codes etc. (individual/ groups of small numbers)

Detailed design of one or two buildings in the campus not done before.

- b) Minor Project 1: Study tour of 5 days duration of campuses within the state or neighboring states. This is conducted to facilitate the design of campuses as directed in the major project and becomes a prelude to it. Preparation of necessary study reports, videos, power point presentations etc.
- c) Minor Project 2: Projects to boost the imagination/innovation and demand of the weaker section of the society- Cost effective housing for EWS

No University examination. Evaluation conducted as per manual

M G UNIVERSITY
B. ARCH COURSE - SIXTH SEMESTER (S6)
2011 AR 602 WORKING DRAWINGS AND DETAILING
4-0-0 credits-3

Objective

- To motivate the students to learn the techniques of preparing drawings which are used for construction of buildings and working details of project execution on site.
- To give them exposure to the actual procedures in building industry.
- Promote site visits as much as possible to ensure that the students are familiarized with nuances of site development and building construction.

Syllabus

- Working drawings of G+1 Structures with floor plans, sections, elevations, foundation details including site planning and landscape details, centre line drawing, roof plans.
- Schedule of doors, windows, Joinery details, finishes, fixing details, working details of interior projects, Roof plans etc.
- Drainage drawings, water supply and sanitary drawings and plumbing lay outs of multi storied and group buildings.
- Layout drawings of electrical details.
- The course should end with providing practical experience for students in setting out a project through a live case.

Project: The above drawings need to be prepared for design projects like Residences, Apartments, Commercial buildings, Offices etc handled in the earlier Architectural design studio.

Note :- Use of CAD, Rivet techniques in working drawing may be encouraged in this semester

No University examination. Evaluation conducted as per manual

M G UNIVERSITY
B. ARCH COURSE - SIXTH SEMESTER (S6)
2011AR 603 BUILDING BYELAWS, CODE OF CONDUCT
& PROFESSIONAL PRACTICE

0-2-0 credits-2

Objective

- To give an awareness of the various issues pertaining to architectural practice, building regulations and code of conduct of profession

Module I

Architect and his work- Architects Act 1972 – Council of Architecture – Functions and powers of Council of Architecture –Regulations.

Indian Institute of Architects – Role and Function as professional body.

Comprehensive architectural services, landscape, Urban design works, Interior design. Conditions of agreement- Scope of works and schedule of services and Scale of Professional charges as per Council of Architecture guidelines- Guidelines for architectural competition, rules and regulations of copyrights. Code of professional conduct laid by Council of architecture.

Module II

Tenders – Tender documents-EMD, Security deposit, Retention amount, Bill of quantities and various abbreviations and terminology used in tender document.

Types of tenders -their merits and demerits–Tendering procedure.

Contracts- Articles of agreement and conditions of contract- Contract drawings – Contract Sum – Contract bills – consultants –Liquidated damages – Variation and extras – Certificates of Payments. Duties and liabilities of Architect, Client, contractor and clerk of works. Arbitration

Module III

Social obligations and responsibilities of an architect as a professional-Office organization and management of Architect's office -nature of emerging practices-Roles of various personnel at different levels in the office-Tax planning for architects.

Development Controls- Building bye-laws and regulations, Municipal act, National building code of India.

Text Books

1. Roshan H. Namavathy-‘Professional Practice – Estimation & Valuation’

References

1. Asok Nair-‘Professional Valuation Practice’

2. V.N. Vazirani & S.P. Chandala- ‘Construction Management & Accounts’.

3. Hand book of Professional Documents – Council of Architecture.

4. National Building code of India.

University Examination Pattern

PART-A

8 short questions 5 marks each from all modules, 40 marks

3 questions of 10 marks each from Module I, II & III, with choice to answer any two – 20 Marks

PART B

3 questions of 20 marks each from Module I, II, & III with choice to answer any two – 40 Marks

M G UNIVERSITY

B. ARCH COURSE - SIXTH SEMESTER (S6)

2011 AR604 STRUCTURAL DESIGN – V

0-3-0 Credits- 2

Objectives

- To give an introduction to the design concepts of Steel structures.
- To give confidence to students to correctly choose structural systems
- To equip the students to design simple steel structures

Module I

Loading standards - I.S structural sections - I.S specifications –Design Philosophies- Working stress method and Limit state method.

Design of truss - design of tension and compression members – the strength to form relationship for various truss configurations.

Design of simple and compound beams - laterally supported and unsupported.(Design examples to illustrate the need for optimum configuration for the strength requirement)

Module II

Compression members - design of columns - short and long columns – behavior of different column sections under axial and eccentric loading - built up columns. Introduction to moment resisting connections - lacing and battening - column base - slab base - gusseted base.

Module III

Light gauge structures - introduction - type of sections – behavior - local buckling – need for stiffening – evaluation of stiffened and multiple stiffened elements – Design of simple structural components – beams and panels (Extensive computational exercises not expected)

Note: Only Sketches required. Detailed drawing in drawing sheets not required

References

1. Relevant IS Codes. (IS 800-2007, IS 875, IS 805, IS 801, IS 811, IS 6533 Part 1, Part 2, Steel Tables)
2. Subramanian N, Design of steel structures, Oxford University Press
3. S.S Bhavikatti, Design of steel structures, I.K. International Publishing house Pvt.Ltd.
4. Ramchandra, Design of steel structures Vol. I & II, Standard book house, Delhi.
5. S.K. Duggal, Design of steel structures, Tata Mc Graw-Hill
6. B.C.Punmia, Design of steel structures, Laxmi publications.

University Examination Pattern

PART-A

8 short questions 5 marks each from all modules, 40 marks

3 questions of 10 marks each from Module I, II & III, with choice to answer any two – 20 Marks

PART B

3 questions of 20 marks each from Module I, II, & III with choice to answer any two – 40 Marks

M G UNIVERSITY
B. ARCH COURSE - SIXTH SEMESTER (S6)
2011AR 605 CONSTRUCTION TECHNOLOGY & PROJECT MANAGEMENT
2-0-0 Credits- 2

Objectives

- To make the students familiar with the various facets of construction and its planning and network analysis
- To familiarize students on construction equipments, procedures and methods
- To give an introduction to material management and safety measures in construction projects scheduling, resource and material management
- To introduce a project management softwares

Module I

Construction Equipments-earth moving, handling, pneumatic and hoisting equipment – pile driving equipment– soil compaction & stabilization. Construction procedures: different methods of construction – types of contract - tenders –prequalification procedure - earnest money deposit – contract document – general and important conditions of contract - measurement and measurement book – arbitration

Module II

Introduction to Construction Scheduling techniques- Bar chart, Gantt chart, Work break down structure, Network representation, Network analysis, Principles and application of CPM, Network crashing. Resource scheduling- resource allocation and resource leveling, other scheduling Methods – PERT and Linear Scheduling Method (LSM)

Module III

Concept of materials management – inventory – inventory control – Economic order quantity ABC analysis. Safety in construction – Safety measures in different stages of construction – implementation of safety programme. Project management software packages – MS Project. Primavera

References

1. Robert Peurifoy, Clifford J. Schexnayder Construction Planning, Equipment and Methods, Mc Graw Hill
2. Callaghan, M.T, Quackenbush,D.G. and Rowings-, J.E, ‘Construction Project Scheduling’, McGraw-Hill
3. Robert B. Harris-, ‘Precedence and Arrow Network Techniques for Construction
4. Stevens James D, ‘Techniques or Construction Network Scheduling’
5. Bhattacharjee S.K-, ‘Fundamentals of PERT/CPM and Project Management’.
6. N. P. Vohra- ‘Quantitative Techniques in Management’

University Examination Pattern

PART-A

8 short questions 5 marks each from all modules, 40 marks

3 questions of 10 marks each from Module I, II & III, with choice to answer any two – 20 Marks

PART B

3 questions of 20 marks each from Module I, II, & III with choice to answer any two – 40 Marks

M G UNIVERSITY

B. ARCH COURSE - SIXTH SEMESTER (S6)

2011 AR 606 Urban Design

0-2-0 Credits- 2

Objectives:

- To gain exposure about the field of urban design
- To understand the fundamental concepts and theories of urban design and their application in design projects

Module I

History of Urban Design:

Examples of early Urban design efforts in Classical and pre-industrial cities- objectives and scope of urban design- Basic functions of urban design- Scope and Criteria of Urban design projects. Value enhancement, aesthetics and conservation. Elements of urban design, Principles and various theories of urban design.

Module II

Urban Design Project formulation:

Urban design projects in various scales: National, Metropolitan, City and project levels, Case studies. Surveying methods and techniques, Demographic surveys, Infrastructure survey, Visual Survey, - Perceiving cities, surveying building use and condition, space linkage and mobility. Urban design principles- Scales and mass, Skyline studies, urban spaces and their characteristics and circulation, principles of organisation- built forms.

Module III

Techniques of Urban Design and execution

Urban design policies, formulation of policies for various components like landscape, infrastructure and built forms. Conservation and economic considerations, Road forms and hierarchy, Road pattern, Pedestrian areas, malls, urban elements, Open spaces and waterfront development. legal aspects – LA act and town Planning acts- Project preparation- agencies involved in the execution- co-ordinating role of planning authorities- project execution phases, schedules and role of Urban Arts Commission.

Text Book

1. Paul D.Spreinegen, “Urban Design- The Architecture of Towns and Cities”, 1965,Mc-GrawHill.
2. Gorden Cullen, “Town scape”.

References:

- 1.Jim Mc Ouskey,“ Road form and Townscape”.
- 2.Edmund N Bacon, “ Design of Cities”, 1967,Thames and Hudson.
- 3.Bauchannan,“Traffic in Towns”, H.M.S.O. London.
- 4.Kevin Lynch “Image of the city” MIT Press,
- 5.Paul D. Speriregon, Architecture of town and cities - The MIT press

University Examination Pattern**PART-A**

8 short questions 5 marks each from all modules, 40 marks

3 questions of 10 marks each from Module I, II & III, with choice to answer any two – 20 Marks

PART B

3 questions of 20 marks each from Module I, II, & III with choice to answer any two – 40 Marks

M G UNIVERSITY

B. ARCH COURSE - SIXTH SEMESTER (S6)

2011AR607 ELECTIVE -I

0-3-0 Credits- 3

1. GRAPHIC DESIGN

Objective

To understand the graphical quality and learning of specific technical skills.

Module I

The principles of visual design including shape, color, visual hierarchy, word/image relationships, typography and branding will be introduced.

The aim of the session is to develop a general understanding of the basic rules of visual design as well as the verbal and visual vocabulary to describe and evaluate it.

Module II

History of the Book-History of Graphic Design - Symbols and Communication, Typographic Milestones, Arts and Crafts movement to the Bauhaus to the Digital revolution – The New Wave, Post Modern and Deconstruction.

Pioneers of Modern Graphic Design – Peter Behrens, Saul Bass, Neville Brody, Jonathan Barnbrook, Andy Warhol, Paul Rand.

Color Theory, Colour and Perception, Representation in colour. Introduction to Posters.

Module III

Typography - The fundamentals of typography, and particularly on how typographic form and visual arrangement create and support a message.

Introduction to basic letterforms and typefaces, typographic terminology and theoretical overview of type.

The position of type and graphic elements on a page. Explore the impact of manipulating

Layout and techniques for ensuring legibility and infusing meaning.

Graphic Design Project: From Concept to design of a book.

(The student had to conceptualize and design a small book and print it to complete the project)

References

- 1.The Art of Looking Sideways by Alan Fletcher
- 2.Typography by John Lewis
- 3.Basic Typography with Letters by Ruedi Ruegg
- 4.Pioneers of Modern Typography by Herbert Spencer,Rick Poynor
- 5.The History and Technique of lettering by Alexander Nesbitt
- 6.Graphic Style (From Victorian to Digital) by Steven Heller ad Seymour Chwast
- 7.Ways of Seeing by John Berger

University Examination Pattern

PART-A

8 short questions 5 marks each from all modules, 40 marks

3 questions of 10 marks each from Module I, II & III, with choice to answer any two – 20 Marks

PART B

3 questions of 20 marks each from Module I, II, & III with choice to answer any two – 40 Marks

ELECTIVE -I

2. ARCHITECTURAL PHOTOGRAPHY.

Objective

Photography as a documentary as well as an artistic activity. To understand basics of various tools and devices

Module I

The principles of visual design including shape, color, visual hierarchy, word/image relationships will be introduced.

The aim of the session is to develop a general understanding of the basic rules of visual design as well as the verbal and visual vocabulary to describe and evaluate it.

Module II

History of Photography-History of Films – From Silent Cinema to Introduction of Sound to Digital Revolution.

Module III

Introduction to the still camera. Photographic exercises on the basis of Principles of Design.

Fundamentals of Motion Picture Technology – Direction, Scripting Methods, Pre Production, Cinematography, Editing, Acting.

Introduction to analysis of films and photographs.

Still Photography Project: From concept to Print (The student has to conceptualize an idea and present a minimum of 10 relevant pictures in print.)

References

- 1.Viewing Films : Early Cinema, Charlie Chaplin, Robert Bresson, Sergei Eisenstine, D.
- 2.W. Griffith, Ingmar Bergman, Krischoff Kiezlowsky, Andrey Tarkowsky, Kurosowa,
- 3.Abbas Kirsostami, Kim Kiduk, Dadasahib Phalke, Rithwik Ghatak, Satyajith Ray, Adoor Gopalakrishnan, Mrinal Sen, G Aravindan.
- 4.The Art of Looking Sideways by Alan Fletcher
- 5.Ways of Seeing by John Beger
- 6.The Five C's of Cinematography by Joseph V Mascelli
- 7.How to read a film by James Monaco

University Examination Pattern

PART-A

8 short questions 5 marks each from all modules, 40 marks

3 questions of 10 marks each from Module I, II & III, with choice to answer any two – 20 Marks

PART B

3 questions of 20 marks each from Module I, II, & III with choice to answer any two – 40 Marks

ELECTIVE -I

3. INTRODUCTION TO THE PRODUCT DESIGN

Objective

To understand the importance of product design in different fields.

Module I

The principles of visual design including shape, color, visual hierarchy, word/image relationships, and typography and branding will be introduced.

The aim of the session is to develop a general understanding of the basic rules of visual design as well as the verbal and visual vocabulary to describe and evaluate it.

Module II

Theory and exercises in Colour and composition-Study of Ergonomics and Anthropometrics.-Study of Materials.

Module III

Elements of Form – Theory and Exercises-Representation Techniques and Computer Applications.-Nature and Form - Theory

Project: Simple Product Design

The student has to conceptualize a product and through the various stages of development reach a design for the product. It has to be presented as a working or non-working prototype in a 1:1 scale (exceptions as decided by the faculty).

Text Books

1.The Fundamentals of Product Design - RicharMorris

References

1. Drawing Techniques for Product Designers - Koos Eissen and Roselien Steur

2.Methods and Perspectives - Brenda Laurel

3.Indian *Anthropometric* Dimensions for Ergonomic design Practice

- Dr. Debkumar Chakraborty (for Indian body dimensions)

4. Emotional Design: Why We Love (or Hate) Everyday Things - Donald A. Norman

University Examination Pattern

PART-A

8 short questions 5 marks each from all modules, 40 marks

3 questions of 10 marks each from Module I, II & III, with choice to answer any two – 20 Marks

PART B

3 questions of 20 marks each from Module I, II, & III with choice to answer any two – 40 Marks

M G UNIVERSITY
B. ARCH COURSE - SIXTH SEMESTER (S6)
2011 AR 608 ELECTIVE –II
0-3-0 Credits- 3

1. COST EFFECTIVE TECHNOLOGY IN BUILDING CONSTRUCTION

Objective

To understand the importance of cost effective methods in building construction.

Module I

Cost effective technology: Significance of technology. Conventional technologies -modern technologies- appropriate technology- levels of technological intervention. Planning and design aspects- construction-economic- maintenance and longevity aspects. Basic principles governing affordable construction.

Module II

State-of-art of building materials and techniques for construction. characteristics advantages and disadvantages of conventional indigenous and cost effective building materials and products- construction practices using alternative building materials and their applicability – Performance evaluation of cost effective materials and methods with respect to the life cycle cost of buildings.

Choice of materials in Indian/Kerala conditions- indigenous building materials- organic and inorganic building materials- alternative building materials- use of industrial and agricultural wastes - Survey of such materials development by research organizations like CBRI, SERC etc.

Module III

Relevance of improving of traditional technology- Application of innovative technology/alternate technology- Critical analysis (in terms of initial investment, maintenance cost and longevity of buildings) of the local adaptation of the innovative technologies by various agencies.

Text books

1. CBRI 'Advances in Building Materials and Construction '

References

- 1.A.G. Madhav Rao, D.S.Ramachandra Murthy – Appropriate technologies for Low Cost Housing – Oxford & IBH Publishing, 1996.
- 2.G.C. Mathur – Low cost Housing in Developing Countries .
- 3.Proceedings of International Seminar on Low cost Housing and Alternative Building Materials (1988), CBRI Roorkee.
- 4.Jagdish and Singh – Better Houses with Mud
- 5.CBRI – Live Better with Mud and Thatch
- 6..Baker Laurie (1988) – Mud
- 7.Publications of COSTFORD.

University Examination Pattern

PART-A

8 short questions 5 marks each from all modules, 40 marks

3 questions of 10 marks each from Module I, II & III, with choice to answer any two – 20 Marks

PART B

3 questions of 20 marks each from Module I, II, & III with choice to answer any two – 40 Marks

ELECTIVE –II

2. MODULAR COORDINATION AND PRE-FABRICATION TECHNIQUES IN BUILDING CONSTRUCTION.

Objective:

To understand the importance prefabrication and application of modular coordination in building construction

Module I

Principles of Modular coordination-module-basic module-multimodules-horizontal and vertical modules, sub modules. Modular dimensioning and modular drawings.

Codel provisions for Modular coordination and Prefabrication

Module II

Principles of prefabrication in building construction-classification-Partial & full prefabrication. Methods used for Prefabrication, Methods of Prefabrication methods of transportation and hoisting techniques. Equipments used for Prefabrication, Transportation and Hoisting and placing of components

Module III

Components- foundation, walls, roof etc. Details of Pre-cast, prestressed construction for large span structures -- Detailing of joints- Water proofing etc

Construction details of various prefabricated structures in steel, concrete etc

Principles of prefabrication of cellular structures, Space frames, tensile structure, pneumatic structure.

Properties and application of materials and method of construction for prefabrication.

References

- 1.Heki.K (ed) 'Shells, Membranes and space frames' Elsevier,
- 2.Sarja A. 'Open and industrial Buildings'
- 3.Akvert, G.H Dietz Culter Lawrence (ed) 'Industrial Building system for Housing'
- 4.Bauverlag & Wiesbaden 'Manual of Precast Concrete Construction System Buildings with Large panels'
- 5.Gabind , Fracols 'Beyond the Cube The Architecture for Space Frames and Polyhedral'
- 6..National Building Code of India

University Examination Pattern

PART-A

8 short questions 5 marks each from all modules, 40 marks

3 questions of 10 marks each from Module I, II & III, with choice to answer any two – 20 Marks

PART B

3 questions of 20 marks each from Module I, II, & III with choice to answer any two – 40 Marks

ELECTIVE –II

3. BUILDING AUTOMATION AND SECURITY SYSTEMS/ INTELLIGENT BUILDING SYSTEMS

Objectives

To provide knowledge about the building security systems from burglars and theft and automation for energy efficiency and long distance control of various types of buildings and its impacts.

To provide Knowledge of Automation Systems in Buildings. This includes – Safety and Security Systems like Alarm and Monitoring Systems against Fire, Theft and unauthorized Intrusion. Systems that help in saving energy, optimizing indoor environment and access to these systems from Remote locations.

Module I

A brief history of security systems and building automation. Description on what are security systems and its impact on the inhabitants. Basic representation of the systems in drawings including notations and signs. Auto CAD Drawings and GUI Representation and Animation to

1. Understand Layout Diagram of a Building
2. To determine
 - points for providing CCTV Camera Surveillance
 - the Specification of Cameras and Video Recording Systems
 - Video Analytics Software requirement (UVSS/NPRS/FRS/Biometrics/FF etc)
 - location of Smoke Detectors and Distress Alarm/ Audio Interface
 - design/layout of Public Address Systems

Module II

Study of various types of security systems including cable and wireless systems, its merits and demerits etc, types of building automation , advantages, impact on energy saving, impact on initial investment etc. Details of

1. CCTV Surveillance System
2. Video /Sound Data Recording/Recovery Systems
3. Cabling and Conduiting Methods
4. Fire Detection & Alarm Systems
 - Conventional
 - Addressable
 - Special Detection Systems for High Roofed and open Environment
5. HVAC [Heating Ventilation and Air Conditioning Systems] Controls
6. Lighting Control Systems

Module III

Details of components in security systems and automation. Short term and long term advantages on power, energy and cost.

Specification Sheets for Individual Products

Note

1. A detailed case study of 1 or 2 residential or other category building and preparation designs and drawings for a typical residence and apartment buildings to be undertaken special lectures by experts in the field has to be arranged.

Reference Books

1. Understanding Building Automation Systems (Direct Digital Control, Energy Management, Life Safety, Security, Access Control, Lighting, Building Management Programs) by Reinhold A. Carlson, Robert A. Di Giandomenico
2. Direct Digital Control for Building HVAC Systems by Michael J. Coffin
3. Intelligent Network Video: Understanding Modern Video Surveillance Systems by Fredrik Nilsson, Communications Axis
4. Digital Video Surveillance and Security by Anthony C. Caputo
5. Low Voltage Wiring: Security/Fire Alarm Systems, Terry Kennedy , John Traister John E. Traister
6. Data, Voice and Video Cabling, Jim Hayes, Paul Rosenberg
7. HVAC Controls and Systems [Hardcover] by John Levenhagen (Author), Donald Spethmann
8. The Fundamentals of HVAC Direct Digital Control, Practical Applications and Design, Frank Shadpour
9. Building Energy Management Systems: An Application to Heating, Natural Ventilation, Lighting and Occupant Satisfaction by Geoff Livermore
10. Energy-Efficient Building Systems: Green Strategies for Operation and Maintenance by Lal Jayamaha
11. Inside Energy: Developing and Managing an ISO 50001 Energy Management System by Charles H. Eccleston, Frederic March , Timothy Cohen.
12. Lighting Control: Technology and Applications , Robert Simpson
13. Security, ID Systems and Locks: The Book on Electronic Access Control, Joel Konicek, Karen Little

University Examination Pattern

PART-A

8 short questions 5 marks each from all modules, 40 marks

3 questions of 10 marks each from Module I, II & III, with choice to answer any two – 20 Marks

PART B

3 questions of 20 marks each from Module I, II, & III with choice to answer any two – 40 Marks