INTRODUCTION

Begins as a continuation of Architectural design I

OBJECTIVES

1. To equip the students to design buildings / built environment (single / multi space) of simple nature emphasizing the importance of process of design through conceptual development. Understanding of project briefs, site analysis, circulation diagram, function and form and their correlations, structural system, climate, materials, incorporating ideas of vertical and horizontal interconnection of spaces and services especially sanitary and water supply, natural lighting and ventilation etc.

2. Conduct Case studies, Data collection to understand the project.

3. To learn about the importance of detailing in Architectural Design.

4. Awareness of Building rules/National Building code of India /other regulations applicable for the site selected.

5. Development of Presentation and communication skills.

SYLLABUS

a) Major Project 1: Design of simple buildings such as day care centre, nursery school, clinic, weekend cottage or buildings of similar scale and nature incorporating circulation diagram, development of concept of design.


c) Minor Project 2: Short duration (one week) Projects to boost the imagination/innovation and speedy decision making- such as Design of kiosk/bus shelter/exhibition pavilion/, saloon, internet cafe or other buildings/ spaces of similar nature etc.

REFERENCES:


3. Architecture in Indian sub continent, Bakshi, S R, Vista international publishing house, Delhi, 2008


5. Neufert’s Architect’s data

No University examination. Evaluation conducted as per manual
Objectives

- Understanding of materials, basic principles of construction and elements of building through theory and drawing
- To give adequate knowledge about building foundations.
- Understanding of building materials like Steel & Aluminium products and paints.

Module I


Deep Foundations-Types- Piles, Piers, Caissons-Materials and method of construction.

Execution problems in loose and clayey soil, Shoring, Timbering.

Drawings – Raft foundation, Pile Foundation, Well Foundation.

Module II

Metals and metal products as building material:

Steel – Composition, Properties, anticorrosive measures, mechanical and heat treatment of steel - Market forms of steel : Steel for Reinforcement - Hot rolled bars, CTD Bars, TMT bars, Welded wire fabrics; Steel for Pre stressed concrete; Structural steel; Stainless steel and steel alloys.

Other metals : Aluminium and its alloys, copper and its alloys

Paints, distempers & varnishes – types –composition – properties – environmental, climatological and durability specs - application– Uses –BIS specifications- Covering capacity, method of distempering wall surfaces, and painting of timber and iron work

Module III

Steel doors and windows – Standard sections – Channel, box, extruded etc. – Connections – Specifications

Aluminium doors and windows – Standard sections – Connections and specifications.

Door and window fittings – Door and window hinges like butt hinges, pin hinges, parliament hinges, garnet hinges, counter flap hinges, strap hinges, piano hinges, auto-closing hinges - Door and window bolts like sliding door bolt, tower bolt, flush bolt – door handles- door locks-other fastenings to door and windows like hook and eyes, window stays, door stoppers, door closers, caster wheels, floor springs, pivots, magnetic catchers for wooden cupboards etc.

Drawings – Steel windows and doors, Aluminum doors, windows and hand rails, Door and window fittings.
References:
9. Relevant BIS Code Pertaining to Materials of Construction

University Examination Pattern

There will be three sections A, B & C

A section will have 8 short questions of 5 marks, from all modules - There will not be any choice

\[ \text{(8 x 5 = 40)} \]

B section There will be three questions of 10 marks from each module of which 2 questions are to be answered.

\[ \text{(15 x 2=30)} \]

C section (Drawings) Two drawing questions of 30 marks of which one question is to be answered.

\[ \text{(30 marks)} \]
Objectives

1. To introduce architectural vocabulary and provide an understanding of various architectural styles and their salient features.

2. To trace the developments in construction techniques and to illustrate the role of technology on architectural form.

3. To create an understanding and appreciation of visual aspects and principles of architectural design - spatial organization, composition, scale, proportion etc

Module-1


Module-2

Module-3
Islamic architecture under Imperial style: Slave, Khalji, Tughlak, Sayyid, Lodi and Sher Shah Sur-
Minarets, Tomb, Mosques in Afghanistan, Delhi and Sasaram;

Text Books
1. Architecture of the Islamic World - George Michell - (its history and social meaning),

References:

University Examination Pattern
There will be two sections A & B
**A section** will have 8 short questions of 5 marks, from all modules - There will not be any choice

\[8 \times 5 = 40\]

**B section** will have 3 subsections each covering one module. There will be three questions of 10 marks from each module of which 2 questions are to be answered

\[20 \times 3 = 60\]
OBJECTIVE

• To give an introduction to the basic principles governing structural systems.

Module I

Elastic Constants- Elastic constants, Rigidity Modulus, Poisson’s Ratio, Bulk Modulus and Shear Modulus. Relations-Modulus of Elasticity and Modulus of Rigidity. Application to uniform sections
- Strain strain behavior of elastic materials, plastic materials and brittle materials (concrete, brick, steel, glass, aluminium, plastics and various building composites)
Axial stresses - Bars of varying cross section - Deformation due to self weight – Bars of uniform strength - Temperature stresses – Composite members – equilibrium & compatibility conditions.

Module II

Torsion – Concept of torsion in beams, torsion equation, torsional stresses in simple sections.-
behaviour of structural members experiencing stresses due to axial thrust, bending and torsion (concepts only) - shear centre (concept only).

Compound stresses: Two dimensional problems-normal & tangential stresses on an inclined plane -
principal stresses and planes-maximum shear stresses & planes – Analytical & Mohr’s circle methods – applications in load bearing walls

Columns and Struts – Long and short columns - Effective length, critical load, slenderness ratio,
Euler’s equation for different end conditions. Combined bending and direct stresses in short columns.

Module III

Deflection computation: Slope and deflections of Cantilever, simply supported and overhang beam
for different load conditions using Double Integration method and Macaulay’s method - Moment
Area method for simple case of loading - Shear deformation (basic concepts only)
References:

University Examination Pattern

There will be two sections A & B
A section will have 8 short questions of 5 marks, from all modules - There will not be any choice

$$8 \times 5 = 40$$

B section will have 3 subsections each covering one module. There will be three questions of 10 marks from each module of which 2 questions are to be answered

$$20 \times 3 = 60$$
Objective:
To familiarize students to computer based representations and to impart necessary skills for using graphic software and creating two dimensional composition and drawings

Module I
Introduction to the advancements in the field of computer application in Architecture, Information technology and network concepts- Computer as a design medium. Applications and limitations of computer in Architecture.
Concept of Computer aided drafting – Conventional drafting and CAD- Brief overview of related software. Units of a CAD workstation, their operation and critical parameters. General concepts of building geometry and typology,

Module II
Introduction to Graphics Software – Painting, drawing and image editing using Photoshop, Paint shop, Corel Draw, Power Point and Illustrator.

Module III
Creating two dimensional composition and drawings-
Controlling various CAD software environment – creating two dimensional drawings and editing commands. Coordinate space and metric, Geometric, Primitive and Symbols, Object properties. Basic transformations absolute and referential, Editing, Segmentation by colour, layering and grouping.
Organizing drawings with layers – Advanced geometry editing & using blocks inquiry tools – CAD-design center. Text annotation – Creating hatch patterns - dimensioning Plotting slide presentation &. Importing /exporting files.

Text books
2. Omusa, George – Advanced techniques n AutoCAD

References
1. DH Sanders, ‘Computers Today’ Mc Graw Hill
2. Omura George, “Mastering AutoCAD, BPB Publications, New Delhi,
4. Adele and Seth Green Berg – Fundamental Photoshop 5.5.

University Examination Pattern
Practical examination of 4 Hrs duration is to be conducted
Objectives:
1. To introduce global climate and climatic data required for a building designer
2. To understand human response to various climate and comfort criteria
3. To understand day lighting and ventilation design standards and principles
4. To understand design principles for climate responsive architecture

Module 1 (16 Hours)
Elements of climate – temperature, humidity, precipitation, radiation, wind- climatic data measurements and representation, tropical Climate -classification and characteristics of tropical climate, - Climatic Zones of India & their characteristics. Climatic design recommendations for various climatic zones in India.

Module II ( 16 Hours)

Module III( 16Hours)
Day lighting and Natural ventilation

Text Book
2. Givoni . B. “Man climate and Architecture”
Reference

University Examination Pattern
There will be two sections A & B
   A section will have 8 short questions of 5 marks, from all modules - There will not be any choice
      \[8 \times 5 = 40\]
   B section will have 3 subsections each covering one module. There will be three questions of 10 marks from each module of which 2 questions are to be answered
      \[20 \times 3 = 60\]
M G UNIVERSITY
B. ARCH COURSE - THIRD SEMESTER (S3)
2011 AR 307 SURVEYING & LEVELLING
0-2-0 Credits-2

OBJECTIVE:
- To develop the knowledge and skills related to surveying and leveling principles and practice

Module I
Surveying – Definition, classification, principles of surveying, character of work, shrunk scale.
Chain Survey – Instruments used, Types of chain, Instruments for ranging. Setting out angles, erecting perpendiculars.
Field Work – Chain triangulation, recording and plotting, errors in survey. Planimeter and Pentagraph.

Module II
Levelling: Principles of leveling; Study of instruments - Temporary adjustments of level, Booking and reduction of levels – Basic ideas on plotting of longitudinal and cross sections, Contouring – Characteristics of contours, direct and indirect methods of contouring, interpolation, uses of contours, setting out works such as centre lines of a building, grade for sewer, centre line of a bridge.

Module III
Theodolite survey: Study of instrument, Temporary adjustment of theodolite, Measurement of horizontal and vertical angle, Method of repetition. Field book, Field work of theodolite traversing, Total Station survey, GPS.
The students should be given a practical session of minimum 3 hours duration wherein they prepare a drawing of the surveyed area.

References:
3. Dr. P.B. Shahani, ‘Surveying and Levelling’, Vol I and Vol II
6. David Clerk, ‘Surveying’

University Examination Pattern
There will be two sections A & B
A section will have 8 short questions of 5 marks, from all modules - There will not be any choice
   8 X 5 = 40

B section will have 3 subsections each covering one module. There will be three questions of 10 marks from each module of which 2 questions are to be answered
   20 X 3 = 60
OBJECTIVE
Kerala is very rich in heritage buildings spread over the entire area. This course is envisaged to give awareness to the students regarding the design planning, construction technology, materials etc of the traditional buildings.

METHODOLOGY
As per the scheme 2 hours/week is set apart making 28 hours available in one semester. The cumulative 28 hours (one week) have to be made available in one slot of one week (5days)

SYLLUBUS
The planning of the settlement, placing of building its relationship with rituals and cultural activities, (eg. Koothambalam)are to be documented Social and religious relevance of various spaces and structures to be studied and documented. Detailed drawing of building plan elevation section, construction details and other sketches of buildings elements etc. have to be prepared. Photographs have to be taken. Videos can be made. Classes are to be arranged with the help of local sthapathis. Traditional settlement has to be identified by the beginning of the semester and the students should be taken there along with the supervisory teacher. This is a residential project and the students should experience the traditional environment.

SUBMISSION
Report have to be prepared which should include principles of design, site and location plan, details of individual building including plan, elevation, section, sketches of important elements, measured drawings of important feature column, brackets, scripture. Photographs and videos are also to be included.

Final Report has to be prepared compiling the works of the individual students with covering report by the supervisory staff.

EVALUATION
Individual works have to be evaluated during the fieldwork itself on a day today basis and internal marks to be awarded by the supervisory staff. Final presentation of the report and evaluation will be done by the end of the semester Students are to present the individual works done by them and the external marks will be awarded by jury as per Architectural Design II manual.