

L J School of Architecture

L. J. K. University

Syllabus for Bachelors of Architecture.

Second Year | Semester 3

Subject Code: 1001301 | Subject: Architectural Design Studio III| Credit: 12

Course Content:

- Context as a determinant of Architectural character
- Addressing Built form with special reference to physical context - climate, landscape, site features, building material & other physical environment
- Exploration of design with special reference to socio-cultural context - social, cultural, economic needs of different user groups with various context like traditional or contemporary.
- Use of appropriate building materials, construction technology and structural system. Integration of basic building services and landscape features.

Methodology:

- Lectures, Studios, Study tours, Measure drawings, documentation, presentation, group work.

Reference:

1. D.K.Ching, Francis: Form Space & Order, John Wiley & Sons
2. Corbusier, Le :Towards New Architecture, Dover Publications Inc , New York
3. De Bono, Edward: Lateral thinking, Harper Collins Publishers
4. Rapoport, Amos :House ,form and Culture, Prentice Hall, Englewood Cliffs, N.J ,1969
5. Giedion, Siegfried; Space, Time and Architecture. ,Harvard University Press, 1963 6. Jain, K. B.: Indian Cities of the Arid West,1994

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Second Year | Semester 3

Subject Code: 1001302 | Subject: Building Construction Techniques III | Credit: 06

Course Content:

- Understanding of different types of flat roof construction in different materials: Brick: Jack arch RCC:
- One way and two way slabs Basic understanding of vernacular flat roofing systems in the country in mud, stone and brick
- Basic understanding of all kinds of sloping roofs in different materials: Lean-to, couple, closed couple, collar, scissor. Detailed study of simple roof trusses: King Post Queen Post
- Different types of roofing materials such as GI sheets, fibre glass, aluminum, polycarbonate, clay tiles, coir-based corrugated sheets etc. along with water proofing materials for roofs such as asphaltic sheets, kapchi finish etc.
- Fixing details of roofing material to structural system.
- Fixing details at ridge and gutter

Methodology:

- Lectures, Studios, drafting, case-studies, sketching, Site visit, Model making, presentation, group work.

Reference:

1. Building Construction - W. B. McKay Vol. I, II, III, IV
2. The Construction of Building - R. Barry Vol, I, II ,III
3. Building Structures Illustrated: Patterns, Systems and Designs - Francis D.K. Ching

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Second Year | Semester 3

Subject Code: 1001303 | Subject: Structure III | Credit: 02

Focus:

- Understanding of basic theories and principles of structural analysis.
- Understanding of properties of materials relevant to structural analysis.
- Understanding of behaviour of structural elements under various conditions.

Course Content:

- Understanding and identifications of location of forces, bending moment and bending stress in fixed beams, over hanging beams, continuous beams, portal frames etc.
- Deflection in simply supported beams and cantilevers with distributed and point loads.
- Columns and struts-short and long columns, slenderness ratio etc.
- Combined bending and direct stresses, axial and eccentric loads effect of eccentricity, e. g. masonry wall, and chimney.
- Fixed beams simple support and fixed support, advantages and disadvantages.
- Determination of positive and negative bending moments in fixed beams. (Confine the loading to point and UDL covering full span only).
- Continuous beams – negative and positive bending moments in continuous beams covering two or more spans of uniform section and simple loading by moment distribution method. Symmetrical Portal frames.
- Strain Energy.

Methodology:

- Lectures, Site Visits, case-studies, presentation, group work.

Reference:

1. Theory of Structures by S. Ramamrutham
2. Structure & Architecture by Angus J Macdonald
3. Salvadori's Structure in Architecture by Robert A. Heller
4. Structure as Architecture: A source book for architects and structural engineers by Andrew Charleston

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Subject Code: 1001304 | Subject: History of Architecture - I | Credit: 02

Course Content:

- The Buddhist Period in India and its monuments including rock - cut Buddhist Chaitya Halls, Viharas and Stupas. 500BCE to 500 CE.
- Early temple forms derived after the decline of the Mauryan dynasty in India. 400 CE to 700 CE.
- Development of Indian Temple Architecture - Modes and Languages of Indian Temple Architecture, with illustrations of North Indian, Central Indian and South Indian Temples. 500 CE to 1200 CE.
- Regional monuments of Gujarat and Rajasthan: Step-wells (Vavs/Baolis) and Reservoirs (Kund).
- Architecture in Maratha Period: Pols - Khadkis, Terraced Temples.

Methodology:

- Lectures, presentation, group work exercises.

Reference:

1. Indian Architecture - Perci Brown. Vol. I, II.
2. Indian Architecture - Satish Grover. Vol.I, II.
3. Eastern Architecture - Ferguston. Vol I, II

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Subject Code: 1001305 | Subject: Climatology II | Credit: 02

Course Content:

- Body heat exchange
- Thermal balance
- Psychometric chart
- Human comfort conditions
- Comfort chart, comfort zone, effective temperature, humidity, radiation, wind, precipitation
- Understand Climatic Zones:
- Global to Local Level
- Understand Passive Means for various Climatic Zones
- Orientation
- Massing/Form
- Fenestration Design
- Use of landscaping Features
- Sustainability aspects
- Rating systems for climate responsive buildings
- Understanding of models, strategies and codes related to energy efficient and climate responsive considerations in buildings.

Methodology:

- Lectures, presentation, group discussions.

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Subject Code: 1001306 | Subject: Surveying and Levelling | Credit: 02

Course Content:

- Introduction: Principles, definitions, units, scales, symbols and instruments used in Surveying, common errors in surveying and their corrections, understanding of features and undulations of Ground. Scales used in Plotting. Study of land forms, graphic representations of landforms topography, Reading of survey Maps
- Linear Measurements, Measurements in horizontal plane, linear measurements with chain & tape, setting-out & survey stations, survey accessories, survey lines, open & closed traverse, chaining & offsetting, direct & indirect ranging, log-books, field boundaries, field area estimation. Compass survey, bearings & angles, local attractions, errors in compass survey.
- Sloping Landforms and Levelling Measurements along sloping landforms, principles, definitions, methods, instruments, & staff required for levelling, simple & differential levelling, dumpy level, adjustments, hand signals, reduced levels, rise & fall methods, errors in levelling, level tube & barometric levelling, plane-table Surveying and its two point and three point method.
- Precision methods in Landforms Survey & Measurement Theodolite surveying, temporary adjustments, horizontal & vertical angles, closing errors and balancing traverse, automated & digital surveying, total station, G.P.S, Aerial Photography, digital levels, auto-levels
- Contours in Landforms Characteristics, contour intervals, direct & indirect methods of contouring, block contour surveys, profile levelling, longitudinal & traverse cross sections, gradients, Contouring methods & equipment,, plotting contours & profiles, estimating areas & volumes.

Methodology:

- Lectures, presentation, group work exercises.

Reference:

1. Surveying Vol – I by Dr. B. C. Punmia
2. Surveying and leveling by - T.P. Kanetkar and S. V. Kulkarni
3. Surveying and leveling by N. N. Basak

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Subject Code: 1001307 | Subject: Computer Application - II | Credit: 02

Course Content:

- Introduction to Google Sketchup.
- Integration of Autocad and Sketchup.
- Designing and explorations in Sketchup.
- Explorations of complex forms.
- Material and Daylight explorations.
- Camera and walkthrough understanding in architectural built masses.

Methodology:

- Lectures, presentation, Computer Lab lectures & presentations, practice sessions.

References: