

# L J School of Architecture

## L. J. K. University

Syllabus for Bachelors of Architecture.  
Third Year | Semester 6

**Subject Code: 1001601 | Subject: Architectural Design Studio VI | Credit: 14**

**Focus:** This course aims to familiarize the students with the working drawings or construction documents which are prepared for the actual construction / execution of the buildings. Primary role of this course is to train students to convert design data into construction information and to clearly communicate that information to building construction site.

### Course Content:

- Introduction to working drawings: shop drawings / vendor drawings, working drawings and their significance in the construction of buildings, the essential components of working drawings, notations, drawing standards, specifications etc. Trade literature, detailing methods etc.
- Developing Key plans, Floor Plans, Part plans, Roof Plan /Terrace Plan, Sections, Elevations etc. at suitable scales. Excavation drawings, Foundation drawings, Centre-line drawings.
- Developing elevations, sections, part sections, and wall sections integrated with finishing materials, etc. Choice of materials, fixtures, fittings, availability and constructional feasibility.
- Integration of building systems and services. Developing Basic internal electrical and plumbing drawings. External Plumbing Layout and details.
- Developing Site Plan, Site Marking Plan, Site Grading / Levelling Plan. Landscaping plan with appropriate details and schedules
- Door-Window details with material specifications, schedule of joinery, schedule of hardware etc.
- Construction details for lifts, staircases, escalators etc.
- Relevant kitchen/pantry and toilet layout and sanitation drawings showing fixtures and supporting specifications

### Methodology:

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

### Reference:

1. Osamu A. Wakita, Richard M. Linde, Nagy R. Bakhoun (2011), The Professional Practice of Architectural
2. Working Drawings, 4th Edition, John Wiley & Sons; 4th Revised edition
3. Jeong, K-Y. (2010) Architecture Annual. Seoul: Archiworld Co.
4. Fred A. Stitt (1998), Working Drawing Manual, McGraw-Hill Education
5. Building and Construction Authority. (2005). CONQUAS-21. Singapore : The BCA Construction Quality Assessment System
6. Jefferis, A. and Madsen, D.A. (2005). Architectural Drafting and Design. 5th Ed. New York: Thomson Delmar

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Syllabus for Bachelors of Architecture.

Third Year | Semester 6

**Subject Code: 1001602 | Subject: Building Construction Techniques - VI | Credit: 06**

## **Course Content:**

- **High-rise Structures:** Forces on High Rise Structures, Types of High-Rise Structures, Stabilizing High Rise structures
- **High-rise Structures Space Making Elements:** Floors, Walls, Openings, Roof, Stairs
- **High-rise Structures Construction:** Construction Technology, Structural System, Material exploration in High-rise Structures
- **High-rise Structures Construction:** Construction Technology, Structural System, Material exploration in High-rise Structures

## **Methodology:**

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

## **Reference:**

1. Building Structures ILLUSTRATED”, by Francis D.K.Ching, John Wiley and Sons.
2. Foundation Systems for High-Rise Structures” by Rolf Katzenbach and Steffen Leppla
3. Designing Tall Buildings: Structure as Architecture” by Mark Sarkisian

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Third Year | Semester 6

**Subject Code: 1001603 | Subject: Structure VI | Credit: 02**

## Course Content:

- Earthquake Resistant Design: Philosophy of earthquake resistant design, earthquake proof v/s earthquake resistant design, four virtues of earthquake resistant structures (strength, stiffness, ductility and configuration), seismic structural configuration, Capacity design concept, Introduction to IS: 1893 (Part I).
- Building Layout and Design: Loads as per I.S., distribution & flow of loads, lateral load due to wind and seismic as per latest IS standards, load combinations, guide lines for preparation of structural layout for building. Analysis, design & detailing of G + 3 RC framed building for residential purpose including ductile detailing.
- Design of Retaining wall: Types, behavior and application of retaining wall, stability criteria, design & detailing of cantilever type retaining wall for various ground conditions.
- Types of foundations, importance of soil & other factors while recommending type of foundation
- Ductile Detailing: Concepts of Detailing of various structural components as per IS: 13920 provisions.
- Special Topics: Introduction to Earthquake Resistant Features of unreinforced & reinforced masonry Structure, Confined Masonry, Soil liquefaction, Structural controls, Seismic strengthening.

## Reference:

1. Earthquake Resistant Design of Structures by Shrikhande and Agrawal.
2. Shah & Karve; Limit State Theory & Design of Reinforced Concrete; Structure Pub., Pune
3. Dr. H. J. Shah; Reinforced concrete Vol-I & II; Charotar Pub. Anand.
4. IS: 456 - Code of practice for plain and reinforced concrete.
5. IS: 875 (Part I to V) - Code of practice for structural safety of Buildings Loading standards.
6. IS: 1893 - Criteria for earthquake resistant design of structures.
7. IS: 13920 -Code of Practice for ductile detailing of RC structure subjected to seismic force.
8. EQ Tips; IIT Kanpur & BM &TPC New Delhi.

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**Subject Code: 1001604 | Subject: History of Architecture IV | Credit: 02**

## **Course Content:**

- **Works by Masters:** Alvar Aalto, Tadao Ando, David Chipperfield, Steven Holl, Toyo Ito, Le Corbusier, Jean Nouvel, Alvaro Siza, Louis Sullivan, Louis I. Kahn, Frank Lloyd Wright
- **Post Independent Architecture in India:** Achyut Kanvinde, B. V. Doshi, Charles Correa, Laurie Baker, Raj Rewal, Joseph Allen Stein

## **Reference:**

1. History of Architecture, Sir Banister Fletcher, Architectural Press
2. Christopher Tadgell, "History of Architecture"
3. Francis D.K.Ching, "A Global History of Architecture", John Wiley and Sons.
4. Sarbjit Bahga, Surinder Bahga Modern Architecture in India: Post-independence Perspective
5. William J.R. Curtis "Modern Architecture Since 1900".

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Third Year | Semester 6

**Subject Code: 1001605 | Subject: Estimation and Costing | Credit: 02**

## Course Content:

- **Computation of areas and volumes for following objects:** - Square, Rectangular, Triangle, Cylinder, Cone, Frustum of cone, Frustum of pyramid, circle, sphere and segment of sphere, Ellipse
- **Estimates:** - Definition, Units of measurements, types of estimates, Different methods to find the quantities of civil works. Estimated cost and its importance. Provisions of IS-1200, for working out quantities and deductions in civil works. Entering the measurements in quantity sheet and calculation of quantities of various items of civil works of small residential building (concrete, Steel, Shuttering, brickwork, wooden work), and Small Industrial Shed with Market rates of material and labour, Introduction to schedule of rates, Entering quantities and rates in abstract sheet, calculation of estimated cost. Estimate of Septic Tank, Soak Pit, Sanitary item – Plumbing, Electrification. Rate analysis of all major items to be prepared.
- **Specifications:** - Definition, importance of specification, Types of specification, Care to be taken while drafting specifications, Drafting general specifications, and detailed specifications for various civil work items.
- **Rate Analysis:** - Definition of rate analysis, Definition of task, Determination of man power and material requirement for a given quantity of items of civil works, study of present wages of labour and prices of material in the market. Study of market rents of different construction, Determination of rate of item of civil work. Working out rates of various items of civil works like 10 m<sup>2</sup> plaster, 10 m<sup>3</sup> 1:2:4 plain and reinforced concrete, 10 m<sup>3</sup> brick work etc.

## Methodology:

- Lectures, presentation, group discussions.

## Reference:

1. B. N. Dutta, Estimation and Costing in Civil Engineering, Ubs Publishers Distributors,
2. Ltd.
3. S. C. Rangwala, Estimating and Costing, Charotar Publishing House.
4. G. S. Birdi, Textbook of Estimating & Costing, Dhanpat Rai and Sons, Delhi.
5. M. Chakraborti, Estimating, Costing, Specification and Valuation.
6. P.W.D. Handbook and SOR, IS Code – 1200.
7. A. S. Kotadia, Professional Practice and Valuation, Mahajan Publications.
8. S. C. Rangwala, Valuation of Real Properties, Charotar Publication.

# **L J School of Architecture**

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Third Year | Semester 6

**Subject Code: 1001606 | Elective II: Interior Design | Credit: 02**

## **Course Content:**

- Historicity, Principles , Built-in and Movable Furniture
- Interior fittings and furnishings
- Color, Form , Texture and lighting in Interiors
- Building services and materials related to interior design

## **Methodology:**

Tutorial/lab work, presentations on various aspects of interior design. A small interior design project can be introduced to students and can be worked on conceptually.

## **References:**

1. Architecture and Interior Design: An Integrated History to the Present by Buie Harwood (Author), Bridget May (Author), Curt Sherman
2. Beautiful Home: Ideas for Interior Design, Fittings & Furniture by Anne Wiltsher

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**Subject Code: 1001607 | Elective I: Advance Computer Application | Credit: 02**

**Course Content:**

- Basics and advances of 3-D Modeling.
- Rendering through software & Walk through.
- Introduction to Analytical software for energy efficiency calculations, quantity takeoff, project management, day lighting visualization, parametric analysis etc
- Study through softwares like Lumion, Rhino, Grasshoper, etc.

**Methodology:**

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

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Third Year | Semester 6

**Subject Code: 1001608 | Elective II: Vernacular Architecture | Credit: 02**

## **Course Content:**

- Introduction of locally available construction materials
- Passive building technologies
- Building skin, material and construction details
- Traditional Architecture- vernacular vocabulary, spatial structure and building elements.

## **Methodology:**

- Lectures, case-studies, Model making, presentations.

## **References:**

1. Vernacular Architecture: an Illustrated Handbook by R.W. Brunskill
2. Built to Meet Needs: Cultural Issues in Vernacular Architecture by Paul Oliver



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**Subject Code: 1001609 | Elective II: Architecture Journalism & Creative Writing |  
Credit: 02**

## **Course Content:**

- Analysis of historical and contemporary examples of written and journalistic criticism of architecture, including selected writings by Indian and overseas critics; Discursive techniques, analysis of major critical themes.
- Structure of Architecture Journals, thematic categories in architectural writing over the past three centuries.
- Writing Descriptive and Analytical Reports
- Editing Write-ups, Photo Journalism, Book Reviews.
- Digital and print journalism. Creation of architectural content for social media.

## **Methodology:**

Lectures, presentation, group discussions. Journalism assignment for a simple architectural project may be introduced for practice.

## **References:**

1. Architecture and the Journalism of Ideas by Bender, Thomas  
Architectural Criticism and Journalism by Mohammad al-Asad w/ Majd Musa