

L J School of Architecture

L. J. K. University

Syllabus for Bachelors of Architecture.

Fourth Year | Semester 8

Subject Code: 1001801 | Subject: Architectural Design Studio VII | Credit: 14

Focus: Determinants of space or Space arrangement in Urban and Rural Housing and their relevance, developing an appreciation of Housing as a process evolving itself with changes in people-place-time.

Course Content:

- Identification of the cultural factors of space making such as notion of privacy and territoriality, family structure and hierarchy, gender roles, occupational associations, traditional values and their continuity etc., interpretations of socio-cultural factors in the built form in terms of spatial organization, orientation, open, semi open and closed spaces correlation, scales and proportions etc.,
- Climate and topography, local construction system and use of materials, bye laws
- Design of various typologies such as dwelling-cluster and neighborhood in a specific community and context, relevant case studies and their analysis, literature review, exercises related to relevant or appropriate construction systems and materials
- One major Studio Project aimed at developing an appropriate design of housing cluster suitable to the site [Rural and Urban Sector]

Methodology:

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

Reference:

1. House Form and Culture by Rapoport, Amos
2. Architecture without Architects by Rudofsky, Bernard
3. EVAW by Oliver, Paul
4. Contemporary Architecture in India by Joglekar, M. N.
5. Co-housing by Mc Camant & Durrett
6. Life, Works and Writings of Laurie Baker by Bhatia, Gautam
7. Housing and Urbanization by Correa, Charles

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Fourth Year | Semester 8

Subject Code: 1001802 | Subject: Theory of Architecture | Credit: 04

Focus: To introduce the various facts of architecture and its influencing factors. To introduce the formal vocabulary of architecture as one of the ways to experience the built environment, To understand and appreciate the universals of architectural form and space in terms of elements and principles within particular historical, cultural and geographic contexts

Course Content:

- Definitions of Architecture – Origin of Architecture – architecture as a discipline – context for architecture as satisfying human needs: functional, aesthetic and psychological-outline of components and aspects of architectural form-site, structure, skin, materials, services, use, circulation, expression, character, experience – Introduction to the formal vocabulary of architecture and Gestalt ideas of visual perception.
- Understanding perceptual effects of specific configuration of architectural spaces Enclosure –Internal and External, Continuous spaces – Spatial relationship and its types, spatial organization: Centralized, Linear, Radial Clustered, Grid – built form and open space relationships.
- Understanding fundamental principles such as proportion, scale, balance, symmetry/asymmetry, rhythm, axis, hierarchy, datum, unity, harmony, dominance, climax – Movement with reference to the architectural form and space – detailed study of relationship between architectural form and circulation – Types of circulation – Building approach and entrance, path configuration and form, path space relationship, orientation.
- Classical, Neoclassical, Post Modernism
- Modern Style in Architecture.

Methodology:

- Lectures, presentation, group work.

Reference:

1. Simon Unwin, "Analysing Architecture", Roulledge, London, 2003.
2. Prammar V.S., "Design Fundamentals in Architecture", Somaiya Publications Private Ltd., New Delhi, 1973.
3. Yatin Pandya, "Elements of Space making", Mapin 2007.
4. Leland M.Roth, "Understanding Architecture: Its Experience History and Meaning", Craftsman house, 1994.
5. Peter von Meiss, "Elements of architecture – from form to place", Spon Press 1977.
6. Rudolf Arnheim, "The dynamics of architectural form", University of California Press, 1977.
7. Neils Prak, "The language of Architecture", Mouton & Co., 1968.

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Fourth Year | Semester 8

Subject Code: 1001803 | Subject: Site Planning | Credit: 04

Focus: To develop sensitivity to factors influencing site design/planning in Rural or Urban area, to develop understanding of principles and techniques of site planning and apply them to actual situations/conditions. To emphasize the role of site planner in site Planning/design

Course Content:

- Introduction to site planning, Importance of site planning, Various factor's affecting to Site planning process Site analysis - understanding various factors influencing site selection and resource analysis.
- Importance of site Planning for starting a new site and Site Set up in Site Planning
- How to influence of site data like contouring, rain intensity, catchment area, geological conditions, local tradition, material + Labor + Machinery availability in same region, water resources, sanitation disposal facility etc in site planning
- Site planning in urban area and Rural Area [Particularly Mass Housing - Site planning in natural area]
- Site planning standards, sources of information for site data and site information
- Importance of Water supply and Sanitation/Drainage system in site planning
- Land use and circulation, zoning, service systems in site planning
- Various Factors affecting for Site Planning for Different Project Like Mass Housing project, Residential projects, Industrial Project, Institutional project, Public Project, Resort / Tourist Project
- Site Planning: Selection of site for various projects, consideration of physical characteristics of site, locational factors, orientation, climate, topography – Landscaping – Mass Housing design – Traditional housing, cluster housing – apartments and high-rise housing [vertical development of housing] – integration all types of services, parking, incorporation of green sustainable practices –prefabrication in housing.

Methodology:

- Lectures, presentation, group work.

Reference:

1. Site planning, Lynch, Kevin
2. A Guide to Site and Environmental Planning, Rubinstein, Harvey M
3. Grade Easy, Untermann, Richard K.
4. Site Planning for Cluster Housing, Untermann, Richard K.
5. Design with Nature, Mc Harg, Ian
6. Urbanization Primer, Caminos, Horatio, and Reinhard Goethert
7. Designed for Recreation, Beazley Elizabeth
8. Campus Planning, Dober, Richard P.
9. The Granite Garden, Spirn, Anne Whiston

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Subject Code: 1001804 | Subject: Design Seminar-I | Credit: 04

Course Content:

The Design Seminar focuses on various Architectural / Social / Cultural issues pertaining to the Community Planning, Urban Planning or Urban Design OR Rural Planning/design. The Focus will be to debate / discuss these issues in the classroom as well as general participatory discussions. The students will be doing research on the themes chosen for the seminar.

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Subject Code: 1001805 | Elective III: Remote Sensing and GIS | Credit: 02

Focus: To introduce the students to the basic concepts and principles of various components of remote sensing and to provide an exposure to GIS and its practical applications in civil engineering.

Course Content:

- EMR AND ITS INTERACTION WITH ATMOSPHERE & EARTH MATERIAL - Definition of remote sensing and its components – Electromagnetic spectrum – wavelength regions important to remote sensing – Wave theory, Particle theory, Stefan-Boltzmann and Wien's Displacement Law – Atmospheric scattering, absorption – Atmospheric windows spectral signature concepts – typical spectral reflective characteristics of water, vegetation and soil.
- PLATFORMS AND SENSORS -Types of platforms – orbit types, Sun-synchronous and Geosynchronous – Passive and Active sensors – resolution concept – Pay load description of important Earth Resources and Meteorological satellites – Airborne and space borne TIR and microwave sensors.
- IMAGE INTERPRETATION AND ANALYSIS - Types of Data Products – types of image interpretation – basic elements of image interpretation- visual interpretation keys – Digital Image Processing – Pre-processing – image enhancement techniques – multispectral image classification – Supervised and unsupervised.
- GEOGRAPHIC INFORMATION SYSTEM - Introduction – Maps – Definitions – Map projections – types of map projections – map analysis –GIS definition – basic components of GIS – standard GIS software's – Data type – Spatial and non-spatial (attribute) data – measurement scales – Data Base Management Systems (DBMS).
- DATA ENTRY, STORAGE AND ANALYSIS - Data models – vector and raster data – data compression – data input by digitization and scanning – attribute data analysis – integrated data analysis – Modeling in GIS Highway alignment studies – Land Information System

Methodology:

- Lectures, presentation, group work.

Reference:

1. Lillesand, T.M., Kiefer, R.W. and J.W.Chipman. (2004). Remote Sensing and Image Interpretation.V Edn. John Willey and Sons (Asia) Pvt. Ltd., New Delhi. Pp:763.
2. Anji Reddy, M. (2001). Textbook of Remote Sensing and Geographical Information System. Second edn. BS Publications, Hyderabad

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Fourth Year | Semester 8

Subject Code: 1001806 | Elective III: Architectural Psychology | Credit: 02

Course Content:

- Basic concept of social psychology – scope – individual, society and culture - Social Psychology in the new millennium - Research Methods in Social Psychology: Systematic, Correlation and Experimental Methods.
- Social Perception - Nonverbal Communications - Attribution: Understanding the causes of others Behaviour - Theories of Attribution- Kelley's model - Impression Formation and Management - Social Cognition: Social Information- Heuristics and Automated Processing - Sources of Error. Groups: Types and formation - Theories of Group Formation - Co-ordination - Group Decision making - Group Think.
- Interpersonal attraction – Factors determining Attraction - Sociometry - Social Motives - types - Social Influences - Conformity- Compliance - Obedience - Prosocial Behavior- Why do we help others- Situational Factors- Individual characteristics - Empathy - Altruism- Attitude: Components, Formation – influence on Behavior - Changing the Attitudes - Persuasion - Cognitive Dissonance.
- Prejudice -Discrimination in Action - Origin - Methods to reduce it - Aggression - Theories of Aggression - Types of Aggression - Determinants of Aggression - Environmental causes - prevention and control of Aggression.
- Environmental Influences: The urban environment and social behavior - Environmental Stress: The hazards of a noisy environment - Temperature and weather as environmental stressors - Temperature and aggression - Air pollution – Effects of negative ions - Personal space – Territorial behavior – Territorial dominance – architectural designs - Crowding - The effects of too many people and too little space.

Methodology:

- Lectures, presentation, group work.

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Subject Code: 1001807 | Elective III: Construction Management | Credit: 02

Focus: To understand different management techniques suitable for planning and constructional Projects and to understand the management system for accomplishing the task efficiently in terms of both time and cost.

Course Content:

- Project management concepts - objectives, planning, scheduling Controlling and role of decision in Project management. Traditional management system, Gantt's approach, Load chart, Progress Chart, Development of bar chart, Merits and Demerits
- Project Network - Events Activity, Network Rules, Graphical Guidelines for Network, Umpiring the events, Cycles, Development of Network - planning for Network Construction, Models of Network construction, steps in development of Network. Work Break down Structure, hierarchies. Concepts: critical path method - process, activity time estimate, Earliest Event time, latest allowable Occurrence time, starts / finishes time of activity, float, and critical activity and path problems.
- Cost model - Project cost, direct cost, indirect cost, slope curve, Total project cost, optimum duration contracting the network for cost optimization. Steps in cost optimization, updating, resource allocation-resource smoothing, and resource leveling.
- Introduction: Creating a New project, building task. Creating resources and assessing costs, refining your project. Project Tracking-Understanding tracking, recording actual. Reporting on progress. Analyzing financial progress.

Methodology:

- Lectures, presentation, group work.

Reference:

1. Dr. B.C. Punmia and K.K. Khandelwal -Project planning and control with PERT/CPM, Laxmi publications, New Delhi, 1987.
2. Elaine Marmel, Microsoft office Project 2003 Bible, Wiley Dreamtect (P) Ltd., New Delhi, 3. 2004.
4. Sam Kubba, "Green Construction Project Management and Cost Oversight", Elsevier, 2010.
5. S.P. Mukhopadyay, "Project Management for architects and Civil Engineers", IIT, Kharagpur 1974.
6. Jerome D. Wiest and Ferdinand K. Levy, "A Management guide to PERT/CPM", prentice hall of Indian pub. Ltd. New Delhi 1982.
7. SR.A. Burgess and G. White, " Building production and project management", the
8. Construction press, London 1979

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Subject Code: 1001808 | Elective III: Transportation Infrastructure-I | Credit: 02

Focus: The focus is to be familiar with the basic concepts of urban infrastructure planning like Mass Transportation systems and its influence on the urban development / smart cities. The connecting networks are generally perceived as the parameter of the urban development or Smart cities

Course Content:

- Mode of Transportation - Road, Underground Tunnel, Railway, Air and Water. Elements, norms, general design considerations for said mode of transportation and Coordination and integration between road, rail, water and air transport network
- Mass Transportation – It's Basic needs of Urban Planning / Smart cities
- Mass Transport networks and terminals: definitions, scope, relationships and their importance in infrastructure planning in urban and regional context;
- Study of Various modes of Mass Transportation [ROAD] – Metro, Rail, BRTS, City Bus, Tram, Flyovers and local regional transport etc....
- Integration of networks and terminals with other components of mass transportation; Characteristics and types of networks and terminals
- Road network: urban / Rural and regional; Concepts, types, elements, norms, basic design considerations and importance of road geometry; Roadside furniture etc.
- Needs of Intersections and Public parking in infrastructure planning for Mass transportation.
- Traffic signs, signals and markings: their types and importance as infrastructure, norms and design considerations;
- Intelligent mass transportation system: concept, need and importance in mass transport system management.
- Concepts, components, and importance, norms and design considerations for terminal design for mass transportation

Methodology:

- Lectures, presentation, group work.

Reference:

1. Arasan, V, Thamizh (2004), "Transportation Systems Planning and Operation", Allied Publishers Pvt. Ltd., Chennai.
2. Kadiyali, I. R. (1991), "Traffic Engineering and Transport Planning", Khanna Publishers, New Delhi.
3. Kanda, Arun and Others (2002), "Transportation Systems: status and directions", Phoenix Publishing House Pvt. Ltd., New Delhi.
4. C.S. Papacostas & P.D. Prevedouros (2001), "Transportation Engineering and Planning", Prentice Hall.

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Subject Code: 1001809 | Elective III: Road Safety and Civic Sense | Credit: 02

Focus: To introduce the concepts, principles, tools, and aids of Road Safety and Civic Sense. To acquaint them with the design and safety standards for roads. Also inculcate the practice of safe road behaviour and civic sense among them.

Course Content:

- **Introduction to Road Safety**

Road as an active space, Types of Users, User Behavior, Sensory Factors like Vision and Hearing, in User Behavior, Types of Vehicles: Heavy Vehicles, Light Motor Vehicle, Two Wheelers, Auto-Rickshaw, Bicycles and Cycle Rickshaw, Non-Motorized Vehicles.

Vehicle Characteristics: Dimension, Weight, Turning radii, Braking Distance, Lighting System, Tyres, etc.

Type of Hazards: Conflicts, Accidents.

- **Typology of Roads: Components and Design**

Road Classification: National Highways, State Highways, District Roads (MDR and ODR), Village Roads, Urban Road Classification, Expressways, Arterial, Sub-Arterial, Collector, Local, Service Roads, One-Way, Two-Way etc. Mountains Roads, Speed Limits of the Road types.

- **Intersections**

Types of Road Intersections: Basic Forms of at-grade Junctions (T,Y, Staggered, Skewed, Cross, Scissors, Rotary, etc. Grade Separated Junctions (with or without interchange): Three-Leg, Four-Leg., Multi-Leg, etc.

Design of Intersections: Design and Spatial Standards, for Traffic islands, Turns, Turning Radii, Directional Lanes, Pedestrian, Crossings, Median Crossings, Traffic Calming Components like Speed Breakers and Table-Top Crossings etc.

Design Considerations for Diverging, Merging, and Weaving Traffic.

Location and Design for Traffic Signals.

- **Pedestrian Circulator and Barrier Free Design**

Requirements of Pedestrian Infrastructure: Sidewalks and Footpaths, Recommended Sidewalk Widths, Pedestrian Crossings, Pedestrian Bridges, Subways, Cycle Tracks etc.

Barrier Free Design: Location and Design Standards for Ramps for Wheel Chair Access, Other Provisions like Tactile for Visually Challenged etc.

Safety Provisions: Pedestrian Railings, Anti-skid Flooring, Pedestrian Signal, Walk Button etc.

- **Traffic Signs and Road Markings**

Type for Traffic Signs: Principles and Types of Traffic Signs, Danger Sign, Prohibitory Signs, Mandatory Signs, Informatory Signs, Indication Signs, Directions Signs, Place Identification Signs, Route Marker Signs, etc. Reflective Signs, LED Signs, Static and Dynamic Signs

Types of Road Markings: Center Lines, Traffic Lane Lines, Pavement Edge Lines, No Overtaking Zone Markings, Speed Markings, Hazard Markings, Stop Lines, Pedestrian Crossings, Cyclists Crossings, Route Direction Arrows, Word Messages, Markings at Intersections, etc.

- **Traffic Signals, Traffic controls Aids, Street Lighting**

Traffic Signals: Introduction Advantages and Disadvantages

Signal Indications, Vehicular, Pedestrian, and Location of the Signals, Signal Face, Illustration of the Signals, Red Amber, Green Signals and its Significance, Flashing Signals, Warrant of Signals, Co-ordinated Control of Signals.

Traffic Control Aids: Roadway Delineators (Curved and Straight Sections), Hazard Markers, Object Markers, Speed Breakers, Table Top Crossings, Rumble Strips, Guard Rails, Crash Barriers

Methodology:

- Lectures, presentation, group work.

Reference:

5. Arasan, V, Thamizh (2004), "Transportation Systems Planning and Operation", Allied Publishers Pvt. Ltd., Chennai.
6. Kadiyali, I. R. (1991), "Traffic Engineering and Transport Planning", Khanna Publishers, New Delhi.
7. Kanda, Arun and Others (2002), "Transportation Systems: status and directions", Phoenix Publishing House Pvt. Ltd., New Delhi.
8. C.S. Papacostas & P.D. Prevedouros (2001), "Transportation Engineering and Planning", Prentice Hall.