

FACULTY OF ARCHITECTURE AND EKISTICS
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Ph. D Entrance Syllabus-Paper I (Research Methodology)

General awareness related to changing paradigm of architectural solutions in today's context, reasoning on common architectural/planning problems, comprehension, writing and analytical ability and language proficiency, contemporary issues related to research and higher education, Basic research concepts, Types of research in Architecture/ekistics/planning, Research problem, Research question, Formulation of research objectives, Literature Survey, data review and sourcing, Qualitative and quantitative research methods and statistics, Types of data, Data collection methods, analysis and interpretation, research approaches and paradigms, Variables, Sampling, Visual and behavioral research in architecture/ekistics/planning, Environmental Behavioral studies and research report writing.

Department of Architecture
Faculty of Architecture & Ekistics
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PhD Entrance Syllabus: Paper-II

- **Architecture and Design:** Design composition in 2D and 3D; space organization in design, horizontal and vertical circulation of spaces, anthropometrics, ergonomics; design in terms of form, function, context, climate, micro-climate, material, technology, and aesthetics; site planning, architectural design standards, codes, building bye laws, legislative frameworks; design considerations for various building types, vernacular design, universal design; sociological, cultural, anthropological, and environment-behaviour considerations in design; professional practice; use of CAD, BIM, and computation for conceptualising, drafting, modelling, rendering, and collaboration in design.
- **Architectural History :** Study of built environments from ancient, medieval, and modern history to contemporary times, architectural examples from Europe and the Indian subcontinent, Islamic architecture of India, central and west Asia, development of architecture in terms of the geographical context, materials, technology, social and cultural structure of civilizations; regional, colonial, and Indo-saracenic architecture, modern movements in art and architecture, contemporary architectural movements.
- **Basic Design and Visual Art:** Elements and principles of design, gestalt principles; art appreciation, aesthetics; color theories, communication graphics, architectural graphics and rendering techniques; translation of concept into form using word, image, and layout, understanding the language and aesthetics of photography, famous Indian artists and their art works and styles, vernacular art and craft forms.
- **Building Construction and materials:** Building Construction techniques for substructure and superstructure, Prefab and precast construction, modular type construction, Materials used in building construction, green materials, selection of building materials as per geographical locations, Materials and techniques for structural and non-structural members of a building, Retrofitting and Repair Techniques.
- **Urban Design:** Urban History and Development Theory; Townscapes and urban form; City and its spatial qualities, character and sense of place; Principles, tools & techniques of urban design; Urban renewal & conservation; Urban interventions and contemporary urban design; Site planning and Landscape Urbanism.

- **Regional, City planning and Ekistics:** Evolution and Growth of Human Settlements, Town Planning in Ancient India and other parts of the world. Planning theories and contribution of Individuals in planning thoughts. Methodology of Preparation of master plans, URDPFI Guidelines, Hierarchy of plans: Regional plan, sub-regional plan, sectoral plans and spatial plans. Planning Techniques, Role of remote sensing and GIS in Planning. Ekistics as a discipline dealing with Human settlements in totality. Elements of Ekistics, Definition of Ecumenopolis, 12- Zone proposal, Ekistics Matrix, Anthropocosmos Model, Ekistics Units and Ekistics Grid
- **Traffic and Transportation Planning:** Transport system and components, Traffic surveys; classified traffic volume survey, origin and destination survey, speed and delay survey, road network inventory survey. Parking characteristics, parking norms and standards, design standards for on-street and off-street parking facilities. Hierarchy of road network system, road network standards. Traffic circulation, traffic management principles, corridor management Public transport system in cities, World-wide standards and system selection Cross sectional elements of highways, road geometry and related planning standards, types of intersections, space standards of urban roads. Methods of traffic calming in residential areas, planning standards for pedestrian priority zones, planning standards for cycle tracks.
- **Landscape Design and Landscape Architecture:** Site planning and Landscape engineering, Landscape ecology and Regional Landscape planning, theory of Landscape Architecture, Horticultural practice and plants in design, Geology and soils; Natural resources and environment sustainability, Landscape conservation and historic landscapes.
- **Architecture Conservation:** History, theory & philosophy of conservation, difference between archaeology and conservation, history of conservation movement and emergence of conservation, definitions and terminologies in conservation, principles and approaches of conservation; values, ethics & significance in conservation; conservation methods & classifications; management of historic sites & cultural heritage; organizations & charters: studies of various charters; Role of INTACH, UNESCO, ICOMOS and other such organizations.
- **Housing and Habitat studies:** Housing and Environment, National Housing and Habitat Policy, Legislation and Legal tools, Housing Finance, Housing Design and Technology. Contribution of Housing in the National Economy. Role of Infrastructure in Development. Planning for water supply and sanitation. Solid waste disposal and management in cities.
- **Ecology and Environment:** Natural and man-made ecosystems, ecology, ecological zoning, ecologically sensitive areas, ecological footprint; environmental considerations in design and planning, environmental pollution, climate change, mitigation and adaptation to climate crisis in cities, global warming, disaster

- management; principles of sustainable development, sustainable development goals; green building design considerations, LEED and GRIHA ratings
- **Interior Design:** Principles and elements of Interior design. History of interior and furniture design, reflection of various art movements in Interior design, Impact of Industrialization on Interior Design. Anthropometrics for Interior Design, Product design, furniture Design and Ergonomics. Construction materials, Furnishings of interiors, Design and Décor of Surfaces and Signages. Interior landscaping, Role and use of Art in Interior Design, Interior Environment: Lighting, Thermal comfort, acoustics, Sustainability principles in interior, human psychology and its relationship with interior spaces.
 - **Construction and Project management:** Legal Aspects in Construction Project - Contract and agreement, Indian Contract Act; Contracts for construction-Types, tender and bid documents, contract conditions. Contract handling-Deviations, escalations, claims, disputes and its resolution methods, Arbitration and Conciliation Act. Laws applicable to construction activities. Project life cycle, Applications of cost benefit analysis, Feasibility Report, value engineering etc. Project Planning, Project Monitoring and control, Application of project management processes, Project Procurement and Management, Study of procurement guidelines of international institutions such as FIDIC, WORLD BANK, ADB etc. Project Management - Organization, Roles and Responsibility.
 - **Principles of Structural Design:** Basic principle of structural mechanics, structural behavior of building elements, structural systems for low-rise and tall buildings, principles of structural analysis, design and detailing of structural members, concept of static and dynamic loads, elements of seismology, behavior of structures under wind and earthquake loading, earthquake resistant architecture design.
 - **Building Services:** HVAC services in building- Basics of Air Conditioning, HVAC Systems & Components. Electrical Services: Electrical supply and different components for distribution of electricity in buildings. Plumbing Services: Water Supply, sewage and Drainage system (For Internal and external of building) and its components, Treatment of Wastewater. Fire Services: Classification of Fires, hazards and buildings as per Indian codes. Fire Detection and extinguishing systems for buildings. Smoke management system, Fire and Life safety measures in buildings. Artificial and day lighting in buildings, Architectural Building Acoustics, Intelligent Buildings, Building Management System (BMS), and Renewable Energy sources for Building.