

Code: AR **Architecture and Planning**

City Planning: Evolution of Cities; Principles of City Planning; Types of Cities & New Towns; Climate Change and Eco-City Concept and other emerging concepts such as Urban agriculture, PPP, SEZ, TOD, Smart City etc; Sustainable Development, disaster resilient urban planning, Inclusive Planning

Housing: Neighborhood Concept; Residential Densities; Housing Typology; Slums and Informal Housing, Standards for Housing and community facilities; Housing Infrastructure and Layout; National Housing Policies, Housing Finance and Management; Housing Programs in India; Affordable Housing and Self Help Housing, Eco-Friendly housing, Housing for special needs; Age-Friendly housing.

Landscape Design: Principles of Landscape Design and Site Planning; History of Landscape Styles, Historical Gardens; Landscape Elements and Materials; Plant Characteristics & Planting Design; Environmental Considerations in Landscape Planning.

Computer Aided Design: Application of Computers in Architecture and Planning; Understanding Elements of Hardware and Software; Computer Graphics; Programming Languages C and Visual Basic and Usage of Packages such as AutoCAD and Revit software, 3D-Studio, 3D Max, etc.

Environmental Studies and Building Sciences: Components of Ecosystem; Ecological Principles Concerning Environment; Environment Pollution, Control & Abatement. Climate Responsive Design; Energy Efficient Building Design, Green Building Concepts and Ratings; Thermal Comfort; Solar Architecture; Basic Principles of Lighting and Architectural Acoustics; Building performance simulation and evaluation.

Visual and Urban Design: Principles of Visual Composition; Proportion, Scale, Rhythm, Symmetry, Harmony, Datum, Balance, Form, Color, Texture; Sense of Place and Space, Division of Space; Barrier Free Design; Theories and concepts of Urban Design, Focal Point, Vista, Imageability, Visual Survey, Figure-ground Relationship.

History and evolution of Architecture: Indian: Indus Valley, Vedic, Buddhist, Indo-Aryan, Dravidian and Mughal Periods; World History of Architecture: Egyptian, Greek, Roman, Byzantine, Gothic, Renaissance and Baroque Periods; Architectural Developments and Impacts on Society since Industrial Revolution; Arts and Crafts Movement, Art Nouveau, Art Deco, Eclecticism, International Styles, Post Modernism, Deconstruction in Architecture etc. Influence of Modern Art and Design on Architecture; Indian Vernacular and Traditional architecture, Oriental Architecture; Recent trends in contemporary architecture, works of renowned National and International Architects;

Building Services: Water Supply, Sewerage and Drainage Systems; Sanitary Fittings and Fixtures; Plumbing Systems, Principles of Internal & External Drainage Systems, Principles of Electrification of Buildings, Intelligent Buildings; Elevators & Escalators, their Standards and Uses; Air Conditioning Systems; Fire Fighting Systems, Building Safety and Security Systems.

Building Construction and Management: Building Construction Techniques, Methods and Details; Building Systems and Prefabrication of Building Elements; Principles of Modular Coordination; Estimation, Specification, Valuation, Professional Practice; Project Management Techniques like PERT, CPM; etc.

Materials and Structural Systems: Behavioral Characteristics of All Types of Building Materials E.G. Mud, Timber, Bamboo, Brick, Concrete, Steel, Glass, FRP, Different Polymers, Composites; Principles of Strength of Materials; Design of Structural Elements in Wood, Steel and RCC; Elastic and Limit State Design; Complex Structural Systems; Principles of Pre-Stressing; Long span structures and Tall Buildings; Principles of Disaster Resistant Structures; Temporary structures for rehabilitation.

Planning Theory: Regional Planning; Settlement hierarchy and Planning; History of Human Settlements; Growth of Cities & Metropolises; Principles of Ekistics; Rural-Urban Migration; Heritage Conservation; Urban Renewal and Conservation; Five-Year Plan; Long term Comprehensive Plans, Structural and City development Plan, Master Plan, Zonal Plan and Local Area Plan, Planning in rural areas.

Techniques of Planning: Planning Survey Techniques; Land Use and socio-economic surveys Preparation of Urban and Regional Structure Plans, Development Plans, Action Plans; Site Planning Principles and Design; Statistical Methods of Data Analysis; Application of G.I.S high resolution satellite data processing and Remote Sensing Techniques in Urban and Regional Planning; Decision Support systems and Land Information Systems.

Traffic and Transportation Planning: Principles of Traffic Engineering and Transportation Planning; Traffic Survey Methods; Design of Roads, Intersections, Grade Separators and Parking Areas; Hierarchy of Roads and Levels of Services; Traffic and Transport Management in Urban Areas, Intelligent Transportation System; Mass Transportation Planning; Para-Transits and Other Modes of Transportation, Pedestrian & Slow Moving Traffic Planning.

Infrastructure, Services and Amenities: Principles of Water Supply and Sanitation Systems; Water Treatment; Solid Waste Disposal Systems; Waste Treatment, Recycle & Reuse; Urban Rainwater Harvesting; Power Supply And Communication Systems --- Network, Design & Guidelines; Demography Related Standards at Various Levels of the Settlements for Health, Education, Recreation, Religious & Public-Semi Public facilities.

Development Administration and Management: Planning Laws; Development Control and Zoning Regulations; Building Byelaws; Laws Relating to Land Acquisition; Development Enforcements, Urban Land Ceiling; Land Management Techniques; Planning and Municipal Administration; Disaster Mitigation Management; 73rd & 74th Constitutional Amendments; Valuation & Taxation; Revenue Resources and Fiscal Management; Public Participation and Role of NGO & CBO; Institutional Networking & Capacity Building. URDPFI Guidelines, UN – Habitat norms, Urban and regional governance, participatory approach in planning
