



**NATIONAL INSTITUTE OF TECHNOLOGY,  
TIRUCHIRAPPALLI-620015**

## **Department of Architecture** **Syllabus for written test**

### **History & Theory of Architecture**

Factors shaping architectural character of a region; Egyptian Architecture; Greek architecture; Roman architecture; Early Christian architecture; Byzantine architecture; Islamic architecture, Hindu Architecture-Dravidian style. Christian Architecture-Romanesque; Gothic and Renaissance Architecture; Mughal and Colonial Architecture in India Modern Architecture - Art movements Architectural theory in historical perspective- deterministic methods and models; concept of creativity, visual design principles- principles of visual design, organic architecture, and contemporary movements in architecture; design Process-design approaches.

### **Building Materials, Construction & Management**

Foundations - masonry construction - stone & brick masonry - composite walls and cavity walls - arch construction – roof trusses, roof covering- RCC slab over walls, reinforcement detailing - doors, windows and ventilators; floors and flooring – partitions- vertical transportation - Long span and light weight construction - space structures in steel and concrete -fire protection -fire design of buildings– mud wall construction - cladding systems – false ceilings and wall panelling – repair and retrofitting of structures; Construction planning, project management – bar charts and activity charts, resource levelling – network planning methods, critical path method – probabilistic techniques, concepts of uncertainty, optimization techniques and optimization models

### **Surveying & Site Planning**

Importance of site analysis – factors involved. Accessibility, size and shape of sites. Confirming and non-conforming uses. Climate and topography, infrastructures available, sources of water supply and means of disposal system, architectural and visual aspects. Preparation of site analysis diagram. Lie of the land, contours, watershed, surface drainage, ayacuts and irrigation lands.

### **Building Services**

Estimation of water supply, source of water and treatment process; plumbing fixtures and hydrant systems; water distribution systems; specialized services, waste classification, solid waste, drainage, wastewater treatment and techniques. Design criteria of sound for various

architectural spaces, Noise criteria curves, acoustical problems. Behavior of sound in enclosed spaces – principles of geometrical acoustics –Sabine’s formula and its interpretation Auditorium acoustics – design criteria for speech and music – Acoustic design for reverberation control. Wiring system, Architecture, Planning and Design Architectural Graphics; Visual composition in 2D and 3D; Computer application in Architecture and Planning; Anthropometrics; Organization of space; Circulation- horizontal and vertical; Space Standards; Universal design; Building byelaws; Codes and standards.

Wiring circuits, Service connections, Distribution system in houses - The laws of illumination, different type of lamps and their properties, Criteria and Standards of illumination for different activity areas. Basics of heat transfer and thermodynamic principles; psychometric properties and human comfort parameters. Air conditioning load estimation fundamentals- systems of air condition

### **Energy Efficient Architecture**

Passive heating concepts, Passive cooling concepts, Passive heating & cooling concepts. Classification and functions of ventilation. Factors to be considered for integrating Natural Ventilation in Building Design. Wind speed-technique of terrain and height correction. Calculation of Air Flow through Openings (due to Wind Pressure) and calculation of probable wind speed indoors as recommended by Bureau of Indian Standards. Wind speeds and thermal comfort.

### **Housing**

Public sector and private sector housing, the need for housing policy and the role of HUDCO and State Housing Boards. Slums - Definitions, Causes and consequences. Attempts made to solve the problem of slums. Low - cost housing: Ways and means of controlling the cost of houses. Low-cost construction techniques and material tried out in India and in developing countries.

### **Urban Design, Landscape and Conservation**

Historical and modern examples of urban design; Elements of the urban built environment – urban form, spaces, structure, pattern, fabric, texture, grain, etc.; Concepts and theories of urban design; Principles, tools and techniques of urban design; Public spaces, character, spatial qualities and Sense of Place; Urban design interventions for sustainable development and transportation; Development controls – FAR, densities and building bye-laws.; Urban renewal

and conservation; heritage conservation; historical public spaces and gardens; Landscape design; Site planning.

### **Planning Techniques and Management**

Application of G.I.S and Remote Sensing techniques in urban and regional planning; Tools and techniques of Surveys – Physical, Topographical, Land use and Socio-economic Surveys; Urban Economics, Law of demand and supply of land and its use in planning; Graphic presentation of spatial data; Local self-governance, Panchayatiraj institutions; Planning Legislation and implementation – Land Acquisition Act, PPP etc.; Decision support system and Land Information System; Urban geography and econometrics; Management of Infrastructure Projects; Demography and equity in planning.