SCHEME OF TEACHING AND EXAMINATION OF VII SEM B.ARCHITECTURE

Sl. No.	Subject Code	Title of the Subject	Teaching Scheme in Periods per Week (50 Mts)				Examination Scheme				
			Lecture	Studio	Pract	Total	Duration (hrs)	Theory Marks	Prog. Marks	Viva Marks	Total
1.	09ARC 7.1	Architectural Design – VII	-	09	-	09	-	-	50	300	350
2.	09ARC 7.2	Building Construction & Materials – VII	01	05	-	06	-	-	50	100	150
3.	09ARC 7.3	Physical Planning	03	-	-	03	03	100	50	-	150
4.	09ARC 7.4	Professional Practice – I	03	-	-	03	03	100	50	-	150
5.	09ENG 7.5	Structures – VII	03	-	-	03	03	100	50	-	150
6.	09ARC 7.6	Interior Design	01	03	-	04	-	-	50	-	50
7.	09ARC 7.7	Landscape Architecture	02	02	-	04	03	100	50	-	150
8.	09ENG 7.8	Earth Quake Resistant Structures	04	-	-	04	-	-	50	-	50
			17	19	-	36		400	400	400	1200

ARC= Architectural Subjects ENG = Engineering Subjects

No. of Subjects/Heads = 08 No. of Theory Examinations = 04

Progressive Marks to be awarded by the subject teacher.

Minimum Marks for passing: Theory Marks 40%, Progressive Marks 50%, Viva marks 40%.

09ARC 7.1 – ARCHITECTURAL DESIGN – VII

CONTACT PERIODS: 9(STUDIO) PER WEEK

VIVA MARKS : 300

PROGRESSIVE MARKS : 50

Objectives:

1. To learn about reading and documenting urban contexts and to understand the idea of urban space. To understand the difference between urban design as opposed to urban development.
2. To understand the role of architecture in shaping urban fabric.
3. To create architecture which fits into a specific urban context.

Outline:

The role of urban space as a public realm and the need to create such spaces as extension of private domain in a public building shall be investigated and shall become one of the architectural goals of the project. Some of the prerequisites of the project shall be; 1. Multiple functions, 2. Public access to majority of the spaces, 3. Large gathering areas which are open and extendable to the immediate urban context. Projects like transport interchanges, large retail areas with entertainment areas, transport terminals with commercial areas, performing art center with museums and such multiple functions shall be taken. Study part of the studio shall be documented and shall be reviewed as part of the viva.

Eg of Projects: Bus Terminal, Shopping Complex, Art galleries, Cultural center, Sports stadium, Performing Arts Centre etc.

Note: The design shall be sensitive to the needs of disabled, aged people and children.

One major project and one minor/ time problem to be tackled in semester.

Detailing of architectural features of the major project like entrance lobby, skylights and staircases has to be attempted.

09ARC 7.2 – BUILDING CONSTRUCTION & MATERIALS – VII

CONTACT PERIODS: 6 (1 LECTURE + 5 STUDIO) PER WEEK

VIVA MARKS : 100

PROGRESSIVE MARKS : 50

Objective:

To familiarize students with construction techniques in interior spaces and to provide an introduction to prefabrication

Outline:

Construction – Detail of wardrobes, modular kitchens, cabinet shelves and show cases for residence, offices, book stores and commercial buildings, work stations. Internal finishes to wall and ceiling using plywood, PVC, marble, granite, cement, fibre board, plaster of Paris, particle board, wood wool, straw and any other materials introduced in the market. Partition systems, false ceiling systems. Introduction to prefabrication and post tensioning of building components. Advantages and relevance in the Indian context.

Materials – Plywood, block board, particle board, hard board, laminates, MDF, HDF, HDPE wood wool, sound insulating materials, Bituminous products.

Note – Minimum one plate on each construction topic. Site visits to be arranged by studio teachers. Study of material applications in the form of portfolio. The entire portfolio on construction and materials shall be presented for viva exam.

References:

1) “Construction Technology” by Chudley
2) “Construction of Buildings” by Barry

09ARC 7.3 – PHYSICAL PLANNING

CONTACT PERIODS: 3 (LECTURE) PER WEEK

DURATION OF EXAM : 3 HOURS

EXAM MARKS 100

PROGRESSIVE MARKS : 50

Objective:

To give an introduction to the discipline of urban and regional planning

Outline:

Human settlements – Urban settlements and Rural settlements, differences, origins, evolution and growth of settlements. Major functions of a city, city forming and city serving functions. Problems faced by a typical city. Relation between urban and rural settlements, characteristics and planning efforts of cities and towns of various historical periods like Egyptian, Greek, Roman, Medieval, Renaissance, Neo-classical. Industrial Revolution and its impact on cities, the contemporary city. Cities of Indus valley and Vedic period, cities of Moghul period and British period, typical Indo-Aryan cities, typical Dravidian temple city.

Planning Theories – enunciated by Ebenezer Howard, Patrick Geddes, Soria Y Mata, Doxiadis, Le-Corbusier, Clarence Stein, Clarence Arthur perry, Hilberseimer – their relevance to Indian conditions.

Land use planning, land use classification for cities and rural settlements, analysis of land uses in Indian cities.

Urbanisation, Industrialisation and urban growth, definitions and inter relationshiop. Trends in urbanization in India since Independence. Growth of metropolitan cities, their growth and management problems, world urbanization trends.

Components of a settlement – activity pattern and land use, traffic and road network, density of population and population distribution. Central business district of a city, other business districts, urban nodes, rest of the city, fringe area and suburbs. Growth and aging of various parts of the city particularly the CBD, the problems caused due to this including slums, internal spatial structure of cities – concentric zone theory, sector theory, multiple nuclei concept and work-home concept.

Planning Techniques – study and analysis of existing settlements, methodology of conducting diagnostic surveys and studies, land use survey, density survey, FSI survey, traffic surveys, presentation of data

Regional Planning – relation among various settlements of a region, pattern of settlements in a region. Definition of a region, various types of regions, basic principles of regional planning

Urban Renewal – causes and consequences of urban blight and obsolescence – slums and shanties – methods of conducting surveys, analysis and presentation of data, prevention of formation of slums and squatter settlements. Environmental and management issues.

Reference:

1) “The Urban Pattern: City Planning and Design” by Gallion and Eisner
2) “Urban Planning” by Chapin

09ARC 7.4 – PROFESSIONAL PRACTICE – I

CONTACT PERIODS: 3 (LECTURE) PER WEEK

DURATION OF EXAM : 3 HOURS

EXAM MARKS 100

PROGRESSIVE MARKS : 50

Objectives:

To understand the responsibilities & liabilities of the Profession.

To understand the process of Contract management .

Outline:

Profession: Idea of profession and essential difference among profession, trade and business. Profession of architecture, its essential tenets, duties and liabilities. Types and extent of services offered by architects, scale of fees, stages of payment, and contract between client and architect. Code of Professional Conduct, Architects Act of 1972. Role of Council of Architecture and the Indian Institute of Architects in the functioning of the Profession.

Practice: Types of Architectural firms, proprietorship, partnership, associate ship, and private limited concerns. Advantages and disadvantages of each type of firm. Various means of building client base and gaining projects. Architectural competitions,

guidelines of COA, procedure of conduct of such competitions.

Administration and basic accounting procedures. Taxes and implications of service tax. Implication of GATS on the profession in India.

Building Industry: General overview of the industry. Various participants and dimensions of building industry. Finance, statutory controls, construction procedures, enforcement issues related to building industry and the role of architect, employer, and contractor.

Contract Management: Overview of procedures in contract management with a focus on Architect's role.

Tender: Procedure of calling for tender, documents necessary for tendering process. Tender document and its content. Types of tenders, suitability of different types to various categories of projects. Advantages and disadvantages of each type of tender. Tender notices, opening, scrutiny, process of selection and award. Architect's role in tender process. Essential characteristics of Tender Notice, Earnest Money Deposit, Security Deposit, Retention Amount, Mobilization Amount and Bonus & Penalty Clauses.

Various issues arising out of tendering process and the role of an architect in maintaining objectivity in the process.

Contract: General Principles, types of contract, definitions of various terms used in the contract document. Contract document, contents and sections dealing with various aspects of contract management. Conditions and Scope of Contract and the role of an architect in ensuring a positive completion of a contract. Architect's role in the contract and vested authority.

Issues of Contract: I) Termination of contract, ii) Certificates of value and quality, iii) Virtual completion and final completion, iv) Defects liability period, v) Latent and patent defects, vi) Liquidated and un-liquidated damages, vii) Extension of time, delays and penalty, viii) Non tendered items, extras, extra work, additional works, variations, rate analysis and architect's role in certification of variations, ix) Prime cost, provisional sum, x) Types of insurance necessary during contract including fire insurance for safeguarding client's interest.

References:

1) "Professional Practice for Architects & Engineers"by Roshan Namavathi

2) "Legal and Contractual Procedures for Architects"by Bob Greenstreet

3) AJ Legal Handbook

4) "Professional Practice"by KG Krishnamurthy and SV Ravindra.

09ENG 7.5 – STRUCTURES – VII

CONTACT PERIODS: 3 (LECTURE) PER WEEK

DURATION OF EXAM : 3 HOURS

EXAM MARKS 100

PROGRESSIVE MARKS : 50

Objective:

To give an introduction to pre-stressed concrete, special structural forms and detailing of RCC structural members.

Outline:

Basic concepts of pre-stressed concrete-pre-stressing systems, materials, behaviour of pre-stressed concrete beams and losses in pre-stress.

Introduction to special structural forms and basic structural concepts about : shells, folded plates, domes, grid structures, flat slabs(RCC), space frames, tensile structures and pneumatic structures (no problems to be solved for these).

Detailing of typical – Beam (singly and doubly reinforced), slab (one way and two way), column footing (square isolated), and staircase (dog legged and open well)

Note: The teacher is also expected to expound the structural concepts introduced in non-mathematical terms with examples and application in architectural design.

References:

1) “Pre-stressed Concepts” by N Krishna Raju

2) “Structures” by DL Schodek

3) “Form and Structure in Architecture” by Alexander Zamen

4) “RCC – design and practice” by N Krishna Raju and RN Pranesh

09ARC 7.6– INTERIOR DESIGN

CONTACT PERIODS: 4 (1 LECTURE + 3 STUDIO) PER WEEK

PROGRESSIVE MARKS : 50

Objective:

To introduce the students to the discipline of Interior Design and to develop basic skills required for handling simple interior design projects –

Outline:

Designing the size and form of interior spaces using user – activity, analysis and anthropometrics, effect of enclosure, fenestration, colour and lighting on perception of interior space, application of scale, proportion to enhance the quality of interior space, psychological effects of space.

Elements of interior space – design for comfort – climatic comfort, natural and artificial lighting, air conditioning and acoustics. Services – air conditioning ducts, electrical wiring, water supply and removal of waste water, elements of furnishing and surface treatment and the need and scope.

Applied decoration – colour, texture, plane and fixtures in relation to emphasis of background of space through change of levels and structural form modulation through artificial and natural lighting, emphasis of focal points and unity in interior design.

Furniture design – Role of furniture, ergonomic factors of furniture design and materials used. Matching furniture to decorative style, fitted furniture, its characteristics and application. Functional classification of space, barrier free design.

Surface treatment and plant scape – decorative materials for ceiling, walls, floors, drapery, upholstery for openings and furniture respectively and matching them with overall colour scheme and composition. Sources and collection of information, elements of indoor plants and interior landscape and use of water.

The class work shall include two interior design projects (one major and one minor) to be handled with complete design, detailing, furniture layout, specification for the materials, and their application. The projects shall relate to interiors of residential, commercial educational or other public spaces.

Note – Use of computers may be encouraged.

References:

1) “Human Dimension and Interior Space” by Panero Julious & Zelink Martin
2) “Design of Interior Environment” by Alexander and Mercourt

09ARC 7.7 – LANDSCAPE ARCHITECTURE

CONTACT PERIODS: 4 (2 LECTURE + 2 STUDIO) PER WEEK

DURATION OF EXAM : 3 HOURS

PROGRESSIVE MARKS : 50

Objective:

To introduce students to the discipline of landscape architecture and to develop basic skills required in handling simple landscape design projects

Outline:

Introduction to landscape architecture, definitions

Noted landscape architects and their concepts and definitions

Natural and manmade landscape, Urban and rural landscape

Elements of landscape architecture like vegetation, land forms and water bodies and their application in design

Introduction to Site planning and site analysis

Landscape materials and plant materials study, introduction to taxonomy

Study and analysis of contemporary landscape designs

Study of existing landscaped areas like courtyards, gardens, urban spaces etc.,

Street and site furniture

Application of landscape design for site plans, small gardens, residential areas, urban spaces, courtyards etc.,

References:

"Landscape Architecture: by JO Simmonds

"Introduction to landscape architecture" by Michel Laurie

09ENG7.8– EARTHQUAKE RESISTANT STRUCTURES

CONTACT PERIODS: 4(LECTURE) PER WEEK

PROGRESSIVE MARKS : 50

Objective:

To provide awareness and introduction to earthquake prevention measures in buildings

Outline:

Building Safety from natural Hazards: an introduction

Earthquake

Cyclone effects: High winds, storm surge, cyclone safety aspects in buildings

Floods

Landslides

Elementary Seismology

Earthquake occurrence in the world, plate tectonics, faults, earthquake hazard maps of India and the states

Causes of earthquake, seismic waves, magnitude, intensity, epicenter and energy release, characteristics of strong earthquake, ground motions

Seismological instruments: Seismograph, Accelerograph, Seismoscope/Multi SAR

Introduction to Theory of Vibration

Single degree undamped and damped systems, resonance response to earthquakes, elastic response, concepts of response spectrum

Flexibility of long and short period structures; concepts of response spectrum

Site planning, Building Forms and Architectural Design Concepts for Earthquake resistance

Historical experience

Site selection

Site development

Building forms – Horizontal and vertical eccentricities, mass and stiffness distribution, soft storey etc.,

Seismic effects related to building configuration

Plan and vertical irregularities, redundancy and setbacks

Special Aspects – Torsion, appendages, staircases, adjacency, pounding, Contemporary international approaches

Performance of Ground and Building in past eqrthquakes

Earthquake effects – On ground, soil rupture, liquefaction, landslides

Behaviour of various types of buildings, structures, power plants, switch yards, equipment, life lines and collapse patterns

Behaviour of Non-structural elements like services, fixtures, mountings

Social and Economic consequences of earthquakes

Lab simulation of models

Seismic Design Principles

Concept of seismic design, stiffness, strength, period, ductility, damping, hysteric energy dissipation, center of mass, center of rigidity, torsion, design eccentricities.

Ductility based design: Design of energy absorbing

Seismic base isolation and seismic active control

Structural Detailing

Innovations and selection of appropriate materials

IS code provisions for the buildings

IS 1893-2002, IS 4326-1993

Horizontal and Vertical Seismic co-efficients, valuation of base shear, distribution of shear forces in multistory building.

Seismic detailing provisions: Masonry and Wooden buildings (IS 4326, IS 13828) Adobe houses

Seismic Designs and detailing of RCC and steel buildings: IS 1893 – 2002, IS 13920- 1993 IS 456-2000 IS 800-2004

Special reinforcing and connection details in structural drawings.

Earthquake Resistant Construction Details

Various types of construction details of:

Foundations, soil stabilization, retaining walls, plinth fill, flooring, walls, openings, roofs, terraces, parapets, boundary walls, under ground and overhead tanks, staircases and isolation of structures

Local practices: traditional regional responses

Construction Quality Control

Sequence of Construction: Good supervision practices, critical check point and certification at certain stages, reporting, maintenance of records, testing

Vulnerability Assessment and Seismic strengthening of Buildings

Seismic vulnerability evaluation of existing buildings

Weakness in existing buildings, aging, weathering, development of cracks

Concepts in repair, restoration and seismic strengthening, materials and equipment for restoration of masonry and concrete structures

Methodologies for seismic retrofitting

Techno-legal and Techno-financial aspects in Building Projects

Building Bye-laws

Cost Benefit studies

References:

1. Manual of EQR, Non engineered construction, Indian Society of Earth Quake Technology, Roorkee.

2. Seismic Conceptual Design of Buildings, Basic principles for Engineers, architects, building owners and authorities, Hugh Bachmann