NEW STRUCYURE FOR FOURTH YEAR AND FIFTH YEAR OF B. ARCH. COURSE

(SEMISTER VII TO SEMISTER X)

SEMISTER VII

Sr. No	Name of the subject	Teaching Scheme			Examination Scheme			Total Marks
		Lectures per week	Studios per week	Duration of Theory papers in hrs	Sessional Work (Internal)	Theory Paper	Oral	
1.	Environmental Design-I	01	05	-	100	-	-	100
2.	Adv. Arch.Design-I	01	09	-	100	-	100	200
3.	Adv. Services-I	01	03	03	50	100	-	150
4.	Adv. Structure-I	04	-	03	50	100	-	150
5.	Urban & regional planning	02	03	03	50	100	-	150
6.	Adv. Building Specification and valuation	02	04	03	50	100	50	200*
	Total Marks							**950**

Note: Additional Seven workload should be devoted for Site visits, case studies, library References.

SEMISTER VIII

Sr. No	Name of the subject	Teaching Scheme			Examination Scheme			Total Marks
		Lectures per week	Studios per week	Duration of Theory papers in hrs	Sessional Work (Internal)	Theory Paper	Oral	
1.	Environmental Design-II	01	05	-	100	-	100	200
2.	Adv. Arch.Design-II	01	09	18	100	100	100	200
3.	Professional Practice and building bye-laws	04	-	03		100	-	100
4.	Adv. Structure-II	04	-	03	50	100	-	150
5.	Urban Design	02	04	-	50	-	50	100
6.	Arch. Project-I (Synopsis, literature review)	02	03	-	50		50	100
	Total Marks							**950**

Note: Additional Seven workload should be devoted for Site visits, case studies, library References.

SEMISTER VII

SUBJECT: ENVIRONMENTAL DESIGN-I (AR07-01)

Lectures –	01Hrs	Theory -	------
Studio -	05Studio	Internal -	100 Marks
Paper -	Nil	External -	-----
Duration -	------	Total Marks-	100 Marks

INTRODUCTION:

This subject is intended to introduce the student the study of built-up spaces and negative spaces, natural environment and built-up environment, aesthetics of spaces in groups of buildings, layout and planning of large areas and campuses. It will cover elements of town planning, Urban design and landscape architecture.

Elements of Town Planning:

i) Planning of Residential areas as social units.

ii) Design of cluster and neighboring layouts.

iii) Layout with topography, climate, orientation.

iv) Different types of roads, housing types.

v) Concepts of densities gross density. Net density land use percentages, efficiency in layout

SUBJECT: ADVANCED ARCHITECTURAL DESIGN-I (AR07-02)

Lectures –	01Hrs	Theory -	------
Studio -	09Studio	Internal -	100 Marks
Paper -	Nil	External -	100 Marks
Duration -	------	Total Marks-	200 Marks

OBJECTIVE:

To familiarize students with large scale Architectural building projects with emphasis on building services & systems, architectural controls & building bye laws.

EXPECTED OUTCOME:

Understanding typologies of Architectural Design projects in Urban area.

Understanding various architectural services such as sewage & sullage disposal, water supply, Electricity, Air-conditioning & fire fighting related to the interior layout of the concerned building.

Understanding of services shall be reflected in drainage layout, layout of water supply, Electrical layout, layout of air-conditioning & layout for firefighting of the concerned design.

MAJOR PROJECT (First) : Housing projects, Institutional building projects, educational campuses, Hospitals, Shopping complexes, concert hall, Museum & art galleries involving campus planning etc. it should have built up area in the range of 5000 sq.m. to 6000sq.m. This project will have 60 % weightage of marks.

MINOR PROJECT (Second): Detailing of various services mentioned above. A separate portfolio of layout of Architectural services is expected. It will have 40 % weightage of marks.

SUBJECT: ADVANCED SERVICES-I (AR07-03)

Lectures –	01Hrs	Theory -	100 Marks
Studio -	03 Studio	Internal -	50 Marks
Paper -	01	External -	-----
Duration -	03 Hrs	Total Marks-	150 Marks

INTRODUCTION:

A. Sewage disposal of large area (introductory only)

1. Sewage disposal system for housing colony. Small and medium sized project: for smaller and bigger towns and in rural areas.
2. Sewage treatment plants, different types.
3. Bye products.
4. Gas plant and distribution.
5. Connections of large complexes to Municipal sewers and ventilation of sewers to public sewerage system.
6. Introductory concepts of special types of waste, their treatment and disposal.
7. Drainage systems and problems of multistoried buildings.
8. Basic principles of water purification system (Introductory only) plants, water treatment, f1lterationswimming pools, water distribution and central stations. Water Supply, distribution for single and multistoried' buildings and industrial projects. Water bye principles and implementations. Standard for hard soft: and potable water, standards for different users Sources of water supply. Design problems based on water supply and drainage for multistoried building and a small colony.

B. Refuse disposal system

1. Refuse disposal system for a small house, colony and town. Refuse types, and disposal problems.
2. Refuse incinerator methods.
3. Methods of Dry disposal, wet refuse treatment.
4. Industrial refuses disposal, problems and systems.
5. Utilization of farm refuse.
6. Refuse disposal in multistoried buildings.
7. Refuse and environmental pollution problems.

SUBJECT: ADVANCED STRUCTURE -I (AR07-04)

Lectures –	04Hrs	Theory -	100 Marks
Studio -	------	Internal -	50 Marks
Paper -	01	External -	-----
Duration -	03 Hrs	Total Marks-	150 Marks

01. FOUNDATION:

A) Shallow Foundation-

a) Combined footing - Concept, types & structural behavior reinforcement details

b) Raft foundation - Concept, types & structural behavior reinforcement details

B) Deep foundation-

a) Pile foundation- Types like friction, end bearing etc.Under reamed piles, group of pile, pile cap

02. SLABS:

a) Two way slab- concept, design steps, design problem
b) Flat slab- concept , advantages, disadvantages , elements
c) Grid/waffle/Coffer Slab - concept , codal provisions
d) Hollow block slab- concept and advantages

03. STAIRS:

Structural behavior and reinforcement detailing of following types of slab

1) Waist slab
2) Cantilever
3) Folded plate/ slabs
4) Stringer beam type
5) Circular & semicircular
6) Helical
7) Free standing

For the above types detailing in steel material also

04. RETAINING WALL:

Elements, structural behavior & reinforcement details of

a) Cantilever retaining wall
b) Counter fort/ Buttress type retaining wall

Advantages and disadvantages

05. CONCRETE MIX DESIGN:

Parameters for mix design, Water cement ratio, Test for wet & hardened concrete
Concept of ready Mix Concrete (RMC)
Self Compacting Concrete.(SCC)
High strength concrete (HSC)

06. WATER TANKS:

Structural behavior and reinforcement detailing of following types Underground (UG), resting on ground, elevated service reservoir (ESR) Shape in plan square, rectangular, circular, advantage and disadvantages Aesthetical form of E.S.R.

07. CONSTRUCTIONAL METHODOLOGY:

1) Precast Concrete elements- advantages & disadvantages
2) Prefabricated steel works- advantages & disadvantages
3) Prestressed concrete structure- Concept, Pre-tensioning & post tensioning, advantages & disadvantages.

SUBJECT: URBAN AND REGIONAL PLANNING (AR07-05)

Lectures –	02Hrs	Theory -	100 Marks
Studio -	03 Studio	Internal -	50 Marks
Paper -	01	External -	-----
Duration -	03 Hrs	Total Marks-	150 Marks

This course in proposed to impart preliminary training for environmental and city planning. The process of town planning factors affecting city planning and procedures involved, to understand bow farsighted city planning will meet present as well as future social, cultural and economical requirements.

A general understanding of Town Planning principles which have evolved through ages. Evolution of Town Planning thought with special reference to India.

Objects of planning, human settlements, Town Planning as an inter disciplinary process, Contemporary planning concepts, Geddes, Howard, Doxiadis, Perry; Le Corbusier etc. Regional Plans, Development Plans, Urban and Rural Housing Programmes, Legislative, Administrative and "fiscal measures, Zoning and other regulations. Land-use maps topography, influences of climate on town planning. Infrastructure in city planning traffic census, classification of roads, road layouts,widths, junctions, flyover bridges, and various road patterns for vehicles and pedestrian traffic.

Introduction of M. R. T.P. Act, 1966 and Town Planning Act, 1954.

Planning for villages and Rural areas.

SUBJECT: ADVANCED BUILDING SPECIFICATION AND VALUATION (AR07-06)

Lectures –	02Hrs	Theory -	100 Marks
Studio -	04 Studio	Internal -	50Marks
Paper -	01	External -	50 Marks
Duration -	03 Hrs	Total Marks-	200* Marks

SPECIFICATIONS

Importance of specification in building construction, Method of writing in correct order & sequence, use of Indian Standard & "RED BOOK" in drafting specification.

Specification for basic materials like Brick Sand, Cement, Coarse Aggregate, stone, water etc., fixtures and fastening

Specification for construction items like excavation, PCC, RCC works, Brick & stone masonry,

Plastering and finishing, Doors And Windows, Rolling shutter, roofing materials

VALUATION

Definitions of value, cost, price, Importance of valuation, Different types of values, Factors affecting value , Different purposes of valuation, Gross income, outgoings and Net Income, different outgoings

Different methods of valuation for land and building

Application of valuation tables

Valuation Questionnaire

Valuation of Commercial Buildings like hostels, Lodges, theaters etc.

Valuation report for two simple cases

SEMISTER VIII

SUBJECT: ENVIRONMENTAL DESIGN-II (AR08-01)

Lectures –	01Hrs	Theory -	------
Studio -	05 Studio	Internal -	100 Marks
Paper -	Nil	External -	100 Marks
Duration -	------	Total Marks-	200 Marks

INTRODUCTION

Elements of Urban Design:

i) Correlations of F.S. I. Ground coverage, floor heights.

ii) Co-relation of positive and negative spaces, aesthetics of spaces in groups of buildings, Block model making. .

iii) Delineation of Architectural character.

iv) Urban Renewal, conservation, design in relationship with historic buildings. Elements of Landscape Architecture:

i) Materials-hard and soft, textures, shapes-uses.

ii) Types of trees and other landscape elements, their uses in landscape arch.

iii) Relationship between built up and natural environment.

iv) Integration of buildings and landscape, design of open spaces inside and outside buildings.

v) Design of street furniture and signage.

SUBJECT: ADVANCED ARCHITECTURAL DESIGN-II (AR08-02)

Lectures –	01Hrs	Theory -	100 Marks
Studio -	09Studio	Internal -	100 Marks
Paper -	01	External -	100 Marks
Duration -	18Hrs	Total Marks-	300 Marks

OBJECTIVE:

To introduce the student the analysis, planning, design with the understanding of a wide range of related issues in urban & rural context. It includes design of complex buildings & campuses involving analytical study of building spaces with consideration of sociological, economical, cultural & climatic factors.

EXPECTED OUTCOME:

Understanding of application of technology, design of structure involving services & interior & landscape design of the concerned project.

Study of urban structures, urban continuity, movement structure, landscaping, people & vehicular movement's system design, economics, Architectural aesthetics & details.

MAJOR PROJECT (First) : Project involving Architectural Design solutions in Urban areas, Development / redevelopment of markets, plazas, city square, transport & public areas, Railway station, Interstate bus terminus, Airport , Sports Stadium etc.

It shall have minimum built up area in the range of 7000 sq.m. -8000 sq.m. This project will have 70 % weightage of marks.

MINOR PROJECT (Second): Design of related areas of Major Project. This project will have 30 % weightage of marks.

SUBJECT: PROFESIONAL PRCTICE AND BUILDING BY -LAWS (AR08-03)

Lectures –	04Hrs	Theory -	100 Marks
Studio -	-----	Internal -	------
Paper -	01	External -	------
Duration -	03 Hrs	Total Marks-	100 Marks

This subject prepares the student to embark on his professional career in any capacity, To practice his profession efficiently. and to know - bye-law and regulation of various Public authorities.

INTRODUCTION

1. Engagement of an Architect's duties, scope of responsibilities and liabilities in Profession, relationship with client and contractor, professional ethics, Architect's Act, 1972 copy right in drawings.
2. Normal, additional and partial services, scale of fees and mode of payment, claiming of fees, norms terms of engagement, agreement with client, collaboration with other consultants.
3. Possibilities for an architect in profession, e.g. private, practice partnership, corporate practices, salaried work in private and public offices, set up of these offices and his role in them, membership of professional organizations, ways of getting commissions.
4. Office administration, filing, recording of letters and drawings, maintenance of accounts, modes of maintenance of accounts, cash book, bank transactions, ledgers, depreciation and profit and loss statements, Modem Office equipments, reproduction, drafting machines, computers, and their uses.
5. Architectural competitions, types of competitions, objectives and conduct, suitability for various projects, norms for scrutiny of entries, award of premium.
6. Building bye-laws for different categories of Municipalities national code of practice, factory act, cinema theaters act, rules and regulations of town planning Department for buildings and layouts, explosive act, fire insurance land tenures, urban ceiling act, and highways regarding building setbacks, development control rules, Any other acts, rules regulation etc. relevant to building activity.
7. An overview of the Town Planning Acts of Urban Development ministry of States & Central Government. The rules and regulations for Development Control and the principles behind the framing of these. Regional Plan, Development Plans, at State, District, Urban agglomeration, Municipal Corporations & Councils, Improvement trusts & Regional Development Authorities, CRZs, etc. Procedures for formulations, Implementation and applying fro Approvals at various levels
8. Natural rights, air, light and water, easement, ancient lights, acquisition, interference.
9. Methods of execution of works, types of tenders and their suitability for various projects, tender documents, tenders procedure, conditions of contract of ITA and State PWD (introductory), scrutiny of tenders and recommendations.

10. Infrastructure for commencement of work. ,
11. Work order, bar chart for construction work and office work. introductory concept of CPM and PERT methods, site supervision, site visit reports, interim final bills, duties and completion certificates, Formalities on and after completion of work, arbitration. Sessional work based on above topics like drafting of tender notices, special conditions, bar chart for a typical building, visit report etc.

SUBJECT: ADVANCED STRUCTURE -II (AR07-04)

Lectures –	04Hrs	Theory -	100 Marks
Studio -	------	Internal -	50 Marks
Paper -	01	External -	-----
Duration -	03 Hrs	Total Marks-	150 Marks

1. **INDUSTRIAL BUILDING:**
   Concept & structural behavior of Industrial Building
   Planning and designing, bays, ht. of column etc. Different types of trusses for large Span > 15m, Pre Engineered Building (PEB), Concept of truss less roofing
   Gantry Girder- span, crane girder, cab, various forces acting on G.G.
   Different cross section of G.G., Concept of plate girder, Different elements and their functions, Curtailment of flange plate, Concept of Virendell girder, Concept of castellated girder.

2. **EARTHQUAKE RESISTANT STRUCTURE:**
   Precautions in planning, different shapes in plan Aspect ratio, Separation Joint Behavior of Building for EQ forces, Detailing of load bearing structure, Detailing of framed structure
   (Ductile detaining)

3. **APPLICATION OF COMPUTERS IN STRUCTURE:**
   Introduction to analysis of building, Introduction of different software's used in analysis of structure.

4. **PORTAL FRAMES:** Rigid and hinged portal frames in RCC & steel structure

5. **COMPOSITE STRUCTURE:** Concept & detailing, Multistoried load, bearing non load bearing structure

6. **SHELLS:** Introduction of folded plate, geodesic dome, hyperboloids, parabolids, Concept of space frames

SUBJECT: URBAN DESIGN (AR07-05)

Lectures –	02Hrs	Theory -	------
Studio -	04Studio	Internal -	50 Marks
Paper -	Nil	External -	50 Marks
Duration -	------	Total Marks-	100 Marks

INTRODUCTION –

Theory – Definitions of urban planning, urban design and architecture.

Urban morphology, public realm, urban pattern, grain, texture.

Land use, Scale of urban design, heritage of urban design,

Elements of urban design – image of the city

Principles of urban design.

Building bye- laws and zoning regulations

Study for Smart City Planning : Urban renewal/rejuvenation of urban form, Heritage of urban design, Social & Cultural Aspects , Traffic & Transportation, Design for Masses – Public places, Street scape, Housing in urban design, Landscaping in urban design, Skyline, Environmental Awareness in urban design,

Emerging concepts in urban design, salient examples. Case study/ appraisal of an Urban center/ central business district/ Town center in view of the above issues related to Urban Design.and critical lines of arguments will be pursued by examining urban places and spaces in their making,

Group Study for Formulation of outline land use and design structure proposals for the area. Evolution of a viable design program. Individual Project for studio work of small scale based on above aspects.

SUBJECT: ARCHITECTURAL PROJECT-I (Synopsis, Literature review) (AR07-06)

Lectures –	02Hrs	Theory -	------
Studio -	03 Studio	Internal -	50 Marks
Paper -	Nil	External -	50 Marks
Duration -	------	Total Marks-	100 Marks

PREAMBLE:

No solution to any architectural problem can be considered as ideal due to ever changing human needs and behavior, brought about by socio-economic factors and advances in science and technology.

Technology has advanced so rapidly over the last decade, (and will continue to do so at even a faster rate). Those human living patterns, their needs and behavior are changing likewise posing even greater planning problems for the architect. It is in this context that an architectural design dissertation is an exercise in analyzing a problem (whether it be an urban renewal scheme, a housing project an educational or medical institution, or any other such problems of the candidate's own choice) by making a thorough study of the particular problem, to establish its development over the years and evaluate its shortcomings in terms of present day and future human needs and finally offer a probable design solution which takes all these factors into account.

Each candidate wishing to undertake such a problem is required to give a synopsis,which should outline the following –

1. The problem itself with appropriate title.

2. Reasons for selecting that particular problem.

3. How the candidate intends to tackle the problem and present it in the form of a dissertation, including the design presentation of the scheme.

The work should include intensive investigation and research on social and economic aspects project needs, climatology, Design project may be based on development schemes, or redevelopment schemes of complexes in town centers, Education, Industrial, Recreation, Commercial or residential use involving problems in traffic movement of vehicles and People, giving layouts. Landscaping, model and concise written report clearly outlining the concept and evolution of design. The final solution will be a complete design drafted on cartridge of tracing paper .model, perspective etc. as much as to explain the scheme in its totality.

Submission Schedule:

PROJECT I (Synopsis, Literature Review)

1. Registration of title and acceptance letter from guide
2. Synopsis submission
3. Literature review

Note: Marks for stages 1 to 3 shall be allotted by the respective guides as per the marking scheme decided unless a student passes in the internal assessment, he will not be allowed to appear for the external assessment.

Guides and Approval of Dissertation Topic:

1. All teachers with a teaching experience of ten years are eligible, irrespective of the posts / department responsibility they hold, to guide students.
2. The choice of guide is made by the student and their choice made known to the coordinators.
3. Each approved guide can guide minimum 4 number of students as per the total number of students in the class and the total number of teachers available. willing teachers are given opportunity to guide.
4. For certain topics there may be more than one guide. The second guide may be from within the institute or from practice.
5. The exact title of the topic shall be finalized immediately after the evaluation of the synopsis.And ones the Title is finalized ,it should be reported to University within one month after starting the term and not allow to change.

Submit your application of dissertation topic on the proforma given below.

Date:

To:

The Principal,

Respected Sir,

I am preparing my dissertation on the topic entitled as follows:

Title of the dissertation:

I have requested Shri/Prof ---------- to guide me in this work and he has agreed to do so. So allow me to do the work under his guidance.

Thanking you

I hereby accept to guide this project.

Yours Truly.

(Signature & Name of the Guide.) (Sign. & Name of the Student)