BMS COLLEGE OF ENGINEERING, BANGALORE
Autonomous College under VTU

VII SEMESTER

Course Code: 12AT7DCARD **Course: Architectural Design - VII**

CONTACT HOURS: 9hrs/Week (9 Studios)
Max. CIE Marks: 100
Max. SEE Marks (Viva-voce Exam): 100
CREDITS: 7

OBJECTIVE:

- 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
- To understand the role of architecture in shaping urban fabric
- To create architecture which fits into a specific urban context
- To understand the role of symbolic, aesthetic (thematic abstracts) and imagery in influencing architecture

OUTLINE:

Studio Project:

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. Projects shall be of urban scale with multiple functions and a need for imagery as one of the architectural goals. Some of the prerequisites of the project shall be; 1. Multiple functions, 2. Public access to majority of spaces, 3. Large gathering areas which are open and extendable to the immediate urban context. Study part of the studio shall be documented and shall be reviewed as part of the Viva-voce.
Eg: Bus Terminal, Shopping Complex, Art Galleries, Cultural Centre, Sports Stadium, Performing Arts Centre, etc.

Self Study:

To be conducted as follows- "Architectural Design related issues to be reviewed from the books, journals and other sources based on its content and merit. Book review outcome can be presented in the form of essay / explanatory model / digital presentation. Prior approval of the selected content for self-study to be sought from course faculty".

NOTE:

The design shall incorporate principles of barrier free environment.
One major project and one minor / time problem to be tackled in the semester.
Detailing of a minimum of two architectural features of the project shall be part of the portfolio.

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Course Code: 09AT7DCBCM Course: Building Construction & Materials - VII

CONTACT HOURS: 5hrs/Week (1 Lecture + 4 Studios)
Max. CIE Marks: 100
Max. SEE Marks (Theory Exam – 4 hrs.): 100
CREDITS: 4

OBJECTIVE:
To acquaint the students with large span roofing systems and pre-engineered construction

OUTLINE:
Unit 1: (Contact Hours - 15)
Geodesic domes, space frames, tensile and pneumatic structures,

Unit 2: (Contact Hours - 10)
Pre-engineered metal buildings

Unit 3: (Contact Hours - 10)
Introduction to pre-fabricated and post tensioning of building components - advantages and relevance in the Indian context

Unit 4: (Contact Hours - 15)
Study of two architectural detailing using the following materials - steel, aluminium, polymers, timber & commercial wood, glass, stones and other materials

Unit 5: (Contact Hours - 15)
Insulation materials – thermal and sound insulation materials
Plastics such as polycarbonates, acrylics, PVC polymer films, FRP – types, properties and uses
Rubber, asbestos cement & bituminous products
Fire rated materials

REFERENCE BOOKS:
1. “Design of Steel Structures” by Ramachandra
2. “Design of Steel Structures” by Kazimi and Jindal

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Course Code: 09AT7DCHSP **Course: Human Settlements Planning**

CONTACT HOURS: 5hrs/Week (3 Lectures + 2 Studios)
Max. CIE Marks: 100
Max. SEE Marks (Theory Exam – 3 hrs.): 100
CREDITS: 4

OBJECTIVE:
To give an introduction to Human Settlements Planning and to develop skills for carrying out surveys, analysis, presentation with respect to selected blighted areas in order to improve them.

OUTLINE:
Unit 1: (Contact Hours - 17)
Human Settlements - Urban settlements and Rural settlements, differences, origin, evolution and growth of settlements. 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. Cities of Indus valley and Vedic period, cities of Moghul period and British period, typical Indo-Aryan cities, typical Dravidian temple city in India.
Unit 2: (Contact Hours - 06)
Principles and concepts – enunciated by Patrick Geddes, Ebenezer Howard, Clarence Arthur Perry, Le- Corbusier, Doxiadis – their relevance to Indian conditions.
Unit 3: (Contact Hours - 08)
Components of an urban settlement - Land use and activity pattern, traffic and road network, density of population and population distribution. Central business district, other business districts, urban nodes, suburbs and fringe areas. Internal spatial structure of cities. Factors influencing the growth pattern, causes and consequences of urban blight and decay of various parts of the urban settlements particularly the CBD and old parts of the settlement.
Unit 4: (Contact Hours - 05)
Study and analysis of settlements – Methods of conducting surveys, surveys for study and analysis - Land use and built form survey, density survey, traffic survey, socio-economic survey and presentation techniques.
Unit 5: (Contact Hours - 03)
Regional Planning – Definition of a region, basic principles of regional planning and various types of regions.
Studio: (Contact Hours - 26)
The studio work shall consist of the study of a settlement – Residential, commercial, Industrial or Mixed land use. The exercise shall involve the land use survey, built form survey and Socio-economic survey of blighted area - analysis of findings and proposals. Documentation and presentation of the studio work shall be through maps, charts, models and a report.
Studio exercises may be carried out in groups of 4 to 5 students.

NOTE:
Only Modules 1 to 5 shall be considered for SEE.

REFERENCE BOOKS:-

1. Ekistics "An Introduction to the Science of Human Settlements" by Doxiadis
2. "The Urban Pattern: City Planning and Design" by Gallion and Eisner
3. "Urban Planning" by Chapin
4. "Traffic Engineering and Transport Planning" by L.R.Kadiyali
5. "Shelter, Settlements and Development by Rodwin and Llyod
6. "Principles of Urban Planning" by Lewis Keeble

Course Code: 09AT7DCPPR **Course: Professional Practice**

CONTACT HOURS: 4hrs/Week (4 Lectures)
Max. CIE Marks: 100
Max. SEE Marks (Theory Exam – 3 hrs.): 100
CREDITS: 4

OBJECTIVE:

- To understand the professional responsibilities and liabilities of the Profession within the ambit of laws of the land, building codes, contract documents and ethics
- To gain insight into valuation, arbitration and building bye-laws and Contract management.

OUTLINE:

Unit 1: (Contact Hours - 12)

Profession:

Idea of Profession, Architect-Professional, difference between professional & businessman. Profession of Architecture, it's essential tenets, duties & responsibilities to the profession.
Architect - his practice, office, Types and extent of services offered, Scale of fees, stages of payments
Code of Professional Conduct, Ethics of the profession -Duties
Options for Student architect
Contract between client and Architect,
Role of IIA and COA in the functioning of the profession,
Architects Act 1972.

Practice:

Types of Architectural firms Architects' Offices Proprietorship firms &Partnership firms-combined concerns Comparison between partnership and Proprietorship firms.
Architectural Competitions-Guidelines of COA, procedure of conduct of such competitions

Unit 2: (Contact Hours - 12)

Contract Management

Overview of procedures in contract management with a focus on Architects's role

Tender:

Architect's role in tender process. Various issues arising out of the tendering process and the role of the Architect in maintaining the objectivity of the process.

Contract:

Types of contract, articles of agreement and the appendix, principles
Conditions of contract, analysis of contract document, Architect's powers& duties-execution of contract condition
Disputes in contract, analysis of contract document, Architect's role in resolving such disputes-execution of contract condition. Liability of Architect with respect to breach of contract . Negligence with respect to standard of care. Liability for users and employees. Safeguards in the construction industry such as performance bonds, insurance warranties, retention indemnities and liquidated damages

Supervision and Contract administration:

Site visits, site meetings, site book, Coordination with various agencies**,** site instructions, clerk of works and site office. Bill checking, handover procedures and final certification, Issues of Contract

Unit 3: (Contact Hours - 16)

Bye laws and Easement, Laws relating to Property and land

Building Bye laws, Floor Area Ratio, Floor Space Index , Zoning regulations, National Building code and its applications Easements, Architects role in protecting easements rights
Land Tenure, Types of land holdings, land registration, easement rights, covenants, trespass and nuisance

Unit 4: (Contact Hours - 08)

Arbitration:

Arbitration & Conciliation Act 1996, Arbitrator, umpire, order of reference, selection of arbitrators, powers and duties of arbitrators, award and implementation of award.

Valuation :

Introduction to Valuation, essential characteristics, classifications and purpose. Methods of valuation, standard rent and cost of construction. Architects role in preparation of Valuation reports and certifications

Unit 5: (Contact Hours - 04)

Fire Insurance:

Architects' role in preparation of the report,
Physical and Economic life of the building.

REFERENCE BOOKS:-

1. Roshan Namavathi,"Professional Practice for Architects and Engineers".
2. Bob Greenstreet, Legal and Contractual Procedures.
3. AJ Legal Handbook
4. KG Krishnamurthy and SV Ravindra, Professional Practice
5. KG Krishnamurthy and SV Ravindra, Construction Management.

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Course Code: 09AT7DCCMG **Course: Construction Management**

CONTACT HOURS: 3hrs/Week (3 Lectures)
Max. CIE Marks: 100
Max. SEE Marks (Theory Exam – 3 hrs.): 100
CREDITS: 3

OBJECTIVE:
To provide an insight into Management of Buildings / Construction Projects involving management of money, manpower, machinery and time.

OUTLINE:
Unit 1: (Contact Hours - 07)
Construction Organization
Need for management of construction projects, role of Project / Construction Managers in the construction industry.
Organization, Types of Organization, Study of organizational structures suitable for building / construction projects, the roles of the various members of a typical construction organization, ethics in construction industry.
Unit 2: (Contact Hours - 05)
Construction Management Techniques
Construction Planning, Scheduling and Controlling Phases
Use of management techniques - Bar Charts, Milestone Charts, Line of Balance Charts
Unit 3: (Contact Hours - 09)
Construction Management Techniques
Construction Planning, Scheduling and Controlling Phases
Use of management techniques - Networking using CPM and PERT
Unit 4: (Contact Hours - 10)
Construction Management Techniques
Construction Planning, Scheduling and Controlling Phases
Use of management techniques - Project Cost Analysis using CPM
Unit 5: (Contact Hours - 08)
Construction Equipments
The role of equipment in construction industry, factors affecting the selection of construction machinery, standard and special equipments, understanding the various issues involved in owning, operating, maintaining and economic life of the equipments.
Brief description of equipments / machinery related to earth moving (tractors, excavators, dragline, trenchers, etc.), hauling and conveying (various types of trucks, conveyors), drilling & blasting, dewatering & pumping, spreading & compacting, formwork & concreting (including concrete mixers, transporting & pumping), hoisting and safety equipments.

NOTE:
Use of Project Management Software (Primavera, MS Project, etc.) to be encouraged although the same is not for examination purpose.

REFERENCE BOOKS:-

1. 'Construction Planning, Equipment and Methods' by R.L.Peurifoy
2. 'Construction Planning and Management' by Dr.U.K.Shrivastava
3. 'Project Management for Architects' by S.P.Mukhopadhyay
4. 'Construction Management' by Dr.K.G.Krishnamurthy and S.V.Ravindra

Course Code: 09AT7DCIND **Course: Interior Design**

CONTACT HOURS: 3hrs/Week (3 Studios)
Max. CIE Marks: 100
Max. SEE Marks (Viva-voce Exam): 100
CREDITS: 2

OBJECTIVE:

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

OUTLINE:

Unit 1:

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.

Unit 2:

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.

Unit 3:

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.

Unit 4:

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.

Unit 5:

Surface treatment and plantscape – 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 comprise of one interior design project to be handled with complete design, detailing, furniture layout, specification for the materials, and their application. The project shall relate to interiors of residential, commercial, educational or other public spaces.

NOTE:
The class work shall comprise of one interior design project to be handled with complete design, detailing, furniture layout, specification for the materials, and their application. The project shall relate to interiors of residential, commercial, educational or other public spaces.
Use of computers may be encouraged.

REFERENCE BOOKS:-
1. "Human Dimension and Interior Space" by Panero Julious & Zelink Martin
2. "Design of Interior Environment" by Alexander and Mercourt
3. "Interior Design Illustrated" by Francis D K Ching and Corky Binggeli

Course Code: 09AT7IEELE **Course: ELECTIVE - I**

CONTACT HOURS: 2hrs/Week (2 Lectures)
Max. CIE Marks: 100
Max. SEE Marks: 100
CREDITS: 2

OBJECTIVE:
To expose students to specialized areas related to architecture

OUTLINE:
The electives offered are

1.	Housing	(Theory Exam)
2.	Photography	(Viva-voce Exam)
3.	Elements of Urban Design	(Viva-voce Exam)
4.	Disaster Risk Management	(Theory Exam)
5.	Origamic Architecture	(Viva-voce Exam)
6.	Visual Art	(Viva-voce Exam)
7.	Creative Writing	(Theory Exam)
8.	Environmental Studies	(Theory Exam)

NOTE :
The detailed syllabus will be provided by the faculty member offering the elective course.