BACHELOR OF ARCHITECTURE

Third Year – Semester –V and Semester -VI

Revised Syllabus

(W.E. F. 2015-16)

SOLAPUR UNIVERSITY, SOLAPUR

Revised Scheme of teaching and examinations of Vth Semester B.Arch.(w.e.f-2015-2016)

Subject Code	Title of Subject	Teaching Scheme period per week			Examination Scheme				
		Lecture	Studio	Total	Duration In Hrs.	Theory Marks	Sessional Work		Total
							Internal	External UA	
AR5-01	Architectural Design –V	_	8	8	_	_	150	100	250
AR5-02	Building Services- III	3	_	3	3	70	30	_	100
AR5- 03	Working drawing –I	_	4	4	_	_	100	100	200
AR5-04	Interior Design	_	4	4	_	_	100	50	150
AR5-05	Bldg. Construction & Material – V	_	6	6	_	_	100	50	150
AR5-06	Theory of Structure- V	3	_	3	3	70	30	_	100
AR5-07	History of Architecture – V	3	_	3	3	70	30	_	100
AR5- 08	Landscape in Architecture	_	3	3	_	_	50	_	50
		09	**25**	**34**		**210**	**540**	**350**	**1100**

SOLAPUR UNIVERSITY, SOLAPUR

Revised Scheme of teaching and examinations of VIth Semester B.Arch. .(w.e.f-2015-2016)

Subject Code	Title of Subject	Teaching Scheme period per week (each period 50 minutes)			Examination Scheme				
		Lecture	Studio	Total	Duration In Hrs.	Theory Marks	Sessional Work		Total
							Internal	External	
AR6-01	Architectural Design –VI	_	8	8	_	_	150	100	250
AR6-02	Building Services- IV	3	_	3	3	70	30	_	100
AR6- 03	Working Drawing- II	_	5	5	_	_	100	100	200
AR6-04	Accoustics	2	_	2	3	70	30	_	100
AR6-05	Bldg. Construction & Material – VI	_	6	6	_	_	100	50	150
AR6-06	Theory of Structure- VI	3	_	3	3	70	30	_	100
AR6-07	Urban Planning	3	_	3	2	70	30	_	100
AR6 -08	Estimating Specification & Costing -I	4	_	4	3	70	30	_	100
		15	**19**	**34**		**350**	**500**	**250**	**1100**

V SEMESTER

AR5-01: ARCHITECTURAL DESIGN– V

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures – Nil	Paper -Nil	Internal Marks – 150
Studio – 8	Duration – Nil	External Marks – 100
Total – 8		Theory -
		Total - 250

Objective:

Architectural Design as a core subject of Architectural Studies. The objective is to study the fundamentals of design process and application of the knowledge gained in other subjects, towards designing of spaces. The student is expected to collect, analyze, learn the process of Design and approach to the Design.

Course Outline:

1. Identification and Application of elements of design to achieve design principles in Architecture.
2. Approach to design as a continuous process through function, technology and aesthetics (basic components) of the building and their function.
3. To learn the basics of design e.g. Form, proportion, scale etc to develop design skills with respect to needs, limitations, constraints, usage pattern.
4. Study of groups of objects forms, masses with basic geometric forms, their composition for two and three dimensional study.

Scope of the project

1. Design problem of built-up area about 750 to 1200 sq.m
2. Plot areas can vary from 3-4 times of the built up area
3. Multistoried office apartments, Service apartment, commercial complex, Youth Hostel, Communication center, Public Building like Govt. offices, corporate offices, Bank with residence, Exhibition center, pavilions, food malls, Motel, Multipurpose halls, Child care center, Health center, recreation (auditorium, theaters), City Library, Memorials, Public Health Center, town center etc.
4. Introduction of climate, landscape ,services and interiors.

   and one time bound problem of built up area about 500-750 sq.m.

Design process:

1. Case studies and methodology
2. Circulation and site analysis programme and requirement analysis.
3. Data collection and analysis like circulation, bubble diagram, climatic response
4. Conceptual plans and study models
5. Actual plans and climatological details
6. Floor plans, elevations, sections, views and models

Sketching :

1. Freehand sketching with different medium. Of case studies ,detailing of individual spaces and surfaces, volumetric analysis ,conceptual plans.
2. Sketch book size, papers, to be specified.(Preferable half of A4).

Submission :

1. Sketch file
2. Case study reports and data collection in file form
3. Design port folio (as per choice)
4. Design Models

Marking:

1. Site climate analysis and concept	25
2. Floor plans	25
3. Sections & elevation	30
4. Views /Models & Presentation	20

Reference Books:

1. Man climate architecture
2. Francis D.K. Ching –Elements of Architecture
3. Neuferts Data
4. Walter Gropius – Total Architecture
5. Pramar V.S. – Fundamentals in Architecture

AR5-02 : BUILDING SERVICES – III

Teaching Scheme – Per week	Examination Scheme –	
Lectures – 3	Paper - 1	Internal Marks – 30
Studio – Nil	Duration – 3 Hrs	External Marks – Nil
Total – 3		Theory - 70
		Total - 100

Objective:

To develop the knowledge and skill required for understanding services in building and their integration with Architecture

Course Outline :

A) Electricity (introductory)

Electrical installation in building

1. electrical wiring system
2. different material employed & specification
3. Distribution board, layout of point
4. Domestic electrical appliances
5. Earthing for electrical appliance

B) Illumination

1. Principles of natural lighting glare, shade & shadows
2. Natural and artificial lighting and principles of good illumination
3. Illumination level required for diff. activities
4. Different types of artificial lighting system
5. Types of lamps and fitting & their functions.
6. Direct, diffused, indirect.

C) Natural and Mechanical ventilation:

1. Requirements of comfort conditions, temp control, humidity control, air filtration rate of ventilation.
2. Mechanical ventilation in bldg, plenum systems, plenum and exhaust system humidification & cooling, heating of building
3. Air conditioning (Introductory)
   Diff methods of A.C. ,Heat transmission through wall, roof and floor, solar gain through glass, shading internal heat gain, Air ducts.
4. Application to Residential & commercial places
5. Planning requirement for A.C. plant

D) Other Services (Introductory)

1. Lift and escalators
2. Fire and inter communication service for residential & public building and equipment for the same , Rules & regulation for Fire Protection

Submission – file and sketches

References: 1. Building services and equipment by F. Hall

2. Building services by S. M. Patil
3. Refrigeration and Air Conditioning Engg.By S. C. Arora, S. Don Kundwar.
4. Electricity Pack by Raja Rao

AR5 – 03: WORKING DRAWING -I

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures – Nil	Paper - Nil	Internal Marks – 100
Studio – 4	Duration – Nil	External Marks –100
Total – 4		Theory - Nil
		Total - 200

LOAD BEARING STRUCTURE:

Objective :

This subject introduces the students line methodology of preparation of working drawing based on the principle of interpretation and reading of drawings.

Course outline:

These drawing should enable the site staff to transform the drawing into actual construction with help of sufficient data.

Working drawing for load bearing structure (80-100 sqm) area of previous design problem.

a. Building permission drawing (Municipal)
b. Centerline plan.
c. Excavation plan
d. Foundation plan
e. All floor plan
f. Elevation, section/
g. Architectural drawing details

Submission – W.D. Portfolio

Reference –

1. Architectural Handbook series
2. Professional Practice of Architectural Working Drawing.
3. Practical building construction & its management.

AR5 -04 : INTERIOR DESIGN

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures – Nil	Paper - Nil	Internal Marks – 100
Studio – 4	Duration – Nil	External Marks – 50
Total – 4		Theory - Nil
		Total - 150

OBJECTIVE:-

To introduce the students the importance and scope of interior design in relation to Architectural design

Course Outline:-

Interior Spaces: - Factors to be considered in interior design such as functions, grouping, circulation with furniture layout, space organization, Visual Impact (revelation of anthropometric study in design)

Interior Elements :-Role, design and material of furniture, ceiling, walls, floors, lighting, color, upholstery, drapery, texture, indoor landscaping, surface treatment towards total effect of interior space.

The class work shall include two projects (one major and one minor) to be handled with complete design, detailing specification of material. The project shall relate to interiors of residential, commercial, educational etc. (Prefrabaly previous year design solution)

Submission - Portfolio

References :

1. Time saver standard Interior Design.

AR 5-05 : BUILDING CONSTRUCTION & MATERIAL – V

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures – Nil	Paper - Nil	Internal Marks – 100
Studio – 6	Duration – Nil	External Marks – 50
Total – 6		Theory - Nil
		Total – 150

OBJECTIVE

To study construction systems with focus on roofing and techniques of pile foundation, metal doors, windows and partitions.

Course Outline:

CONSTRUCTION

Foundation:-

1. Foundation in loose soil.
2. Pile foundation, types of piles, Pressure piles and end bearing pile, precast piles, cast-in-situ piles, method of driving piles, pile caps etc.
3. Construction aspects and details of Raft foundation & types .

Doors Windows & partitions:-

1. Pivoted, revolving, sliding, folding doors ,rolling shutter, collapsible gates, mosquitoes, fly protection.
2. Concrete frames, shutters of different types (synthetic boards, P.V.C, F.R.P. etc.).
3. Sliding & folding partition with different materials like aluminum, cement boards plywood, glass, synthetic material etc.

Roofing:-

Steel trusses of various span (north light), covering material (AC/CGI/Aluminum sheet), patent glazing, Turbo vent and joinery details .

MATERIALS

Properties ,uses ,types , advantages and disadvantages and its applications in buildings

1. Non ferrous metals (Lead, copper, brass, aluminum, zinc)
2. Glass

Submission :

1. B.T. portfolio with sketch.
2. Files and notes of construction and materials.
3. Actual samples of materials.
4. Photos, data, PPT of material usage

Reference books :

For Construction –

1. Building construction – Mc. Kay
2. Building construction – Chudley
3. Building construction – Barry
4. Building construction – Punmia B.C.
5. Building construction – Rangwala

For Materials –

1. Building Material - Sushilkumar
2. Building Material - Rangwala

AR5-06 : THEORY OF STRUCTURES – V

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures – 3	Paper - 1	Internal Marks – 30
Studio – Nil	Duration – 3 Hrs	External Marks –Nil
Total – 3		Theory - 70
		Total - 100

Objectives -
To help students to understand and analyse the behavior of steel structural members.

Course outline :

1) STEEL STRUCTURES –
Bolted and welded joints – failure of Bolted joints – Strength and Efficiency of Bolted Joints – Types – Design of Bolted Joints for Axially Loaded Members (Excluding eccentric connections) Types of welded joints – Advantages and disadvantages – Design of Fillet welds (Excluding eccentric connections).

2) TENSION MEMBERS
Introduction – Net sectional area – permissible stresses. Design of Axially loaded Tension member – Lug angle – code provisions.

3) COMPRESSION MEMBERS
Introduction – various sections – built up section – Design of columns (excluding Lacing, Battening and other connections.)

4) STEEL BEAMS
Introduction – laterally supported and unsupported beams – Design of laterally supported beams.

5) STEEL ROOF TRUSSES
Types of roof trusses – Selection of trusses according to the span – Estimation of gravity loads and wind loads. Analysis of Roof Trusses and Design of at least two members.

Submission: files and sheets

REFERENCES:
1. S.K. Duggal, “Limit State Design of Steel Structures”, McGraw Hill Education, Private Limited, 2010.
2. Dr. V. L. Shah, Prof. Veena Gore, “Structures Publications”, Pune, 2012.
3. S.S. Bhavikatti, “Design of Steel Structures” by Limit State Method as per IS800-2007, I.K. International Publishing House Pvt, Ltd, 2012.

AR5 – 07 : HISTORY OF ARCHITECTURE – V

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures –3	Paper - 1	Internal Marks – 30
Studio – Nil	Duration – 3 Hrs	External Marks – Nil
Total – 3		Theory - 70
		Total - 100

Objectives -To provide an understanding and appreciation of contemporary trends in Indian and western Architecture in terms of ideas and directions though the works of outstanding architects.

Course outline :

Architecture during 20th Century ,Architecture in Europe and other continent.
Study of philosophy of Architects and their works.

Modern Architecture :

Industrial revolution, its Effects of Industrial revolution its social, economical, political effects.
New building materials and construction technology. E.g.crystal palace , josep paxton

Modern Architectural Movements:

1. Chicago school Arts & crafts
2. Art Nouveau
3. Bauhaus movements
4. International Style
5. Post modern architecture
6. Deconstruction

Ideas and works of great Architects:

1. Louis Sullivan – e.g. Mayer and Schlesinger dept. stores,wainwright building
2. F. L. Wright- e.g. Falling Water,Guggenheim museum newyork
3. Le Carbusier –e.g. Ronchamp church, villa savoye france
4. Mies Vander Rohe – e.g. Dr. Franswarth house, Lakeshore Apartment
5. Walter Grophius –e.g. Fagus factory , Bauhaus school
6. Antoni Gaudi – e.g. Casa Mila apartment, Sagrada Familia
7. Oscar Niemeyer –e.g. National Congress Complex, Chathedral

Contemporary Architecture :

1. Charles Chorrea – e.g. Kanchanjanga apartment Mumbai,
2. Laurie Baker –e.g. Center for Development Studies, Thiruvanantapuram
3. Frank Gehry – e.g. Guggenheim Museum at Bilabao, ghery residence ,california
4. Zaha Hadid – e.g. IBA Housing

Submission- Files and sketches

Reference:

20th century architecture
Banister Fletcher- History of Architecture
Contemporary Architecture by morgan, Ann.Lee & Taylor cotin
Modern Architecture in India by Bahga, Bahga, & Bahga

AR 5- 08 : LANDSCAPE IN ARCHITECTURE

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures – Nil	Paper - Nil	Internal Marks – 50
Studio – 3	Duration – Nil	External Marks – Nil
Total - 3		Theory - Nil
		Total - 50

OBJECTIVE :

To introduce the composition of open to sky spaces exterior ,interior with Landscape elements. The compositions based on the basic design principles Landscape as complementary to Architecture

Course Outline:

1. Definition of Landscape architecture, scope and magnitude
2. Elements of Landscape, Land forms, water bodies, Vegetation
3. Garden sculpture, furniture, hardscape- detailed study
4. Selected plants, taxonomy plantation & maintenance.
5. Historical development French & English, Mughal, Japanese, Landscape.
6. Natural & Manmade Landscape
7. Architectural design problem with Landscape scheme presented through models, sketches and drawings.
8. Visit to nurseries, gardens collection and information of selected plants (herbarium).

Submission : Files & Portfolio

Reference: Time saver std. (Landscape)

1. Landscape Arch. by J.O. Simmonds.
2. Introduction to landscape Architectural by Michel Laurie

VI SEMESTER

AR6-01 : ARCHITECTURAL DESIGN – VI

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures – Nil	Paper -Nil	Internal Marks – 150
Studio – 8	Duration – Nil	External Marks – 100
Total – 8		Theory -
		Total - 250

Objective:

Architectural Design as a core subject of Architectural Studies. The objective is to study the fundamentals of design process and application of the knowledge gained in other subjects, towards designing of spaces. The student is expected to collect, analyze, learn the process of Design and approach to the Design.

Course Outline:

1. Identification and Application of elements of design to achieve design principles in Architecture.
2. Approach to design as a continuous process through function, technology and aesthetics (basic components) of the building and their function.
3. To learn the basics of design e.g. Form, proportion, scale etc to develop design skills with respect to needs, limitations, constraints, usage pattern.
4. Study of groups of objects forms, masses with basic geometric forms, their composition for two and three dimensional study.

Scope of the project

1. design problem of built-up area about 1200 to 2500 sq.m
2. Plot areas can vary from 3-4 times of the built up area
3. The students are expected to design complex buildings such as Science center, Housing, Industrial, Educational campus, Hospital, Multiplex, Concert hall, Museum, Art Galleries, Crematorium, Rehabilitation center, Transport Building, Urban center etc.
4. Introduction of climate, landscape ,services ,interiors and zoning.
5. Time bound problem of built up area about 750-1200 sq.m.

Design process:

1. Case studies and methodology
2. Circulation and site analysis programme and requirement analysis.
3. Data collection and analysis like circulation, bubble diagram, climatic response
4. Conceptual plans and study models
5. Actual plans and climatological details
6. Floor plans, elevations, sections, views and models

Sketching :

1. Freehand sketching with different medium. Of case studies ,detailing of individual spaces and surfaces, volumetric analysis ,conceptual plans.
2. Sketch book size, papers, to be specified.(Preferable half of A4).

Submission :

1. Sketch file
2. Case study reports and data collection in file form
3. Design port folio (as per choice)
4. Design Models

Marking:

1. Site climate analysis and concept	25
2. Floor plans	25
3. Sections & elevation	30
4. Views /Models & Presentation	20

Reference Books:

1. Man climate architecture
2. Francis D.K. Ching –Elements of Architecture
3. Neuferts Data
4. Walter Gropius – Total Architecture
5. Pramar V.S. – Fundamentals in Architecture

AR6-02: BUILDING SERVICES- IV

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures – 3	Paper - 1	Internal Marks – 30
Studio – Nil	Duration – 3Hrs	External Marks – Nil
Total – 3		Theory - 70
		Total - 100

Objective:
To understand the various types of waste ,their treatment and disposal .

Course Outline:

1)Sewage treatment plant (introductory only)
1. Basic Principles of Sewage treatment plant it subjective and layout of the Sewage treatment plant

2) Sewage disposal
1. Sewage disposal of large area (introductory only) -
2. Sewage disposal system for housing colony small and medium size project for smaller and bigger towns & in rural area.
3. Connection of large complexes to municipal sewer and ventilation of sever public sewerage system.
4. Methods of Sewage disposal – Natural and Artificial Method
5. Special type of waste - Introductory of special type of waste, their, treatment & disposal

3) Disposal of Sewage in Unsewered areas
1. Different types of Privys
2. Septic Tank, Imhoff tank
3. Public Toilet – Sulabha Shauchalaya (pit latrines)

4) Waste water treatment plant (Introductory)

5) Refuse disposal
1. Refuse disposal system for small house, colony and town Refuse types & disposal problems.
2. Refuse incinerator methods.
3. Methods of dry disposal, wet disposal of refuse
4. Industrial refuse disposal, problems and system.
5. Utilization of farm refuse.
6. Refuse disposal in multi-storied building.

Submission : files and sketches

References: 1. Building services and equipment by Birdie
2. Building services by S. M. Patil
3. Water supply and sanitation by Rangawala

AR6-03: WORKING DRAWING -II

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures – Nil	Paper - Nil	Internal Marks – 100
Studio – 5	Duration – Nil	External Marks –100
Total – 5		Theory - Nil
		Total - 200

R.C.C. Framed Structure

Objective:

This subject helps the students for preparation of working drawing based on the principle of interpretation and reading of drawings.

Course outline :

These drawing should enable the site staff to transform the drawing into actual const with help of sufficient data.

1. Working Drawing for R.C.C. framed composite structure of previous design problem.
2. Centerline plan, excavation plan, foundation and plinth/ Ground beam plans.
3. all floor plans
4. elevation all side
5. Section
6. Architectural detail as required (Kitchen , staircase, etc.
7. Rain water drainage and of water proofing details, terraces & toilets and balconies, water harvesting(Rain, Grey water)
8. Layout plan showing electric, plumbing , sanitation and other services.

Submission – Portfolio

References :-

1. Architectural Handbook series
2. Professional Practice of Architectural Working Drawing.
3. Practical building construction & its management.

AR6- 04 :ACCOUSTICS

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures – 2	Paper - 1	Internal Marks – 30
Studio – Nil	Duration – 3Hrs	External Marks – Nil
Total – 2		Theory - 70
		Total - 100

Objective :
to study the importance of acoustics in buildings .

Course outline:

1. **Sound and its properties**
   1. Origin and propagation of sound, properties of sound, behavior of sound in enclosed spaces.
   2. Units of measurement of different properties of sound.
   3. Reverberation, absorption, reflection and resonance Insulation and transmission of sound, sabins formula.
   4. Acoustical criteria for various uses.
   5. Properties and different materials for these purposes, choice of site and location of buildings, considering acoustics conditions.
   6. Principle of acoustical design, effect of geometry and shape of rooms.
   7. Choice and location of suitable acoustic materials, sound shadows,
   8. Illustrative examples of auditoriums for different purposes, conference halls, lecture halls, multi-purpose halls.
2. **Noise:**
   1. Characteristics of noise, noise criteria for different types of rooms, sources of noise.
   2. Control of noise in buildings, and town planning, structure borne sound, acoustical problems in multistoried buildings.
3. **Sound amplification**
   1. Principles of sound amplification and distribution.
   2. introductory specifications for sound reinforcement systems for different types of halls.

Design problems

1. Design problems based on above principles, It should preferably be based on Architectural Design problem.
2. Design should be accompanied by study reports, showing acoustical calculations and applications of principles and detailed drawings.

Submission : files and sketches

References : Acoustics in Building Design by Siraskar K.A.

AR6-05 : BUILDING CONSTURCTION AND MATERIAL-VI

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures – Nil	Paper - Nil	Internal Marks – 100
Studio – 6	Duration – Nil	External Marks –50
Total – 6		Theory – Nil
		Total – 150

CONSTRUCTION

Objective

To study construction systems with focus on specialize techniques.

Course outline:-

Foundation:-

1. Details of basement Construction with water proofing in (a) Masonry (b) R.C.C.
2. Dewatering of basements, sheet piles.
3. Methods of water proofing for basements, swimming pools and tanking (internal & external)
4. Bank Vaults.

Super Structure:

1. Framing girders in steel, steel stanchion & erection of steel structure.
2. Glass curtain wall with steel, Aluminum, plastic framing .
3. Cladding in stone slabs and other materials.

Precast:-

1. Precast cellular concrete block, slab panels (siporex), various construction components.

Ferrocement

1. Specification methods of construction (vaults, wall, water tanks).
2. Thermal insulation for ferrocement structures.

MATERIAL

Properties, uses, types, advantages and disadvantages of

1. Plastics,
2. ceramics
3. asbestos
4. paints & varnishes

Submission :

1. B.T. portfolio with sketch.
2. Files and notes of construction and materials.
3. Actual samples of materials.
4. Photos, data, PPT of material usage

Reference books :

For Construction –

1. Building construction – Mc. Kay
2. Building construction – Chudley
3. Building construction – Barry
4. Building construction – Punmia B.C.
5. Building construction – Rangwala
6. Building construction – Mitchell

For Materials –

1. Building Material - Sushilkumar
2. Building Material - Rangwala

AR6 -06: THEORY OF STRUCTURE – VI

Teaching Scheme – Per week	Examination Scheme –	
Lectures – 3	Paper - 1	Internal Marks – 30
Studio – Nil	Duration – 3 Hrs	External Marks –Nil
Total – 3		Theory - 70
		Total - 100

Objectives -
To help students to understand and analyse the behavior of R.C.C. structural members.

Course outline :

1) LIMIT STATE DESIGN OF SLABS
Introduction to Working and Limit state methods. Behavior of one way and two way slabs – Analysis and Design of one way and two way slabs for various edge conditions.

2) LIMIT STATE DESIGN OF BEAMS
Analysis and design of singly and doubly reinforced rectangular for Bending – Design of Continuous beams using IS code co-efficient. IS a code provisions for slabs.

3) LIMIT STATE DESIGN OF COLUMNS
Analysis and design of Square and Rectangular column for Axial and Un-axial bending. IS a code provisions for the columns.

4) LIMIT STATE DESIGN OF FOOTINGS
Introduction to different types of foundations. Analysis and design of Square and Rectangular footings for Axial and Un-axial bending. IS a code provisions for the Footings.

5) STAIRCASE
Introduction to different types of Staircases – Reinforcement details of staircase. IS code provisions for staircase.

Submission - Files & Sketches.

REFERENCES:

1. P.Dayaratnam, “Design of Reinforced Concrete Structures”, Oxford and IBH Publishing Co., 1983.
2. C. Sinha and S.K. Roy, “Fundamentals of Reinforced Concrete”, S.Chand & Co., New Delhi, 1983.
3. Dr. B.C. Punmia, “Reinforced Concrete Structures”, Vol, 1 & 2 Laxmi publication, Delhi, 2004.
4. IS 456 “Indian Standard, Plain and Reinforced Concrete, Code of Practice, Bureau of Indian Standards, 2000.
5. S.Unnikrishnan Pillai and Devados Menon, “ Reinforced Concrete Design” – Tata McGraw Hill Publishing Co. Ltd., New Delhi, 1999

AR6 – 07: URBAN PLANNING

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures –3	Paper - 1	Internal Marks –30
Studio – Nil	Duration – 3Hrs	External Marks – Nil
Total – 3		Theory - 70
		Total - 100

Objective:

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 how foresighted city planning will meet present as well as future social, cultural and economical requirements.

Course outline:

1. A general understanding of Town Planning principles which have evolved through ages on global scale.
2. Evolution of Town Planning thought with special reference to post independence (19 century)India. e.g. New Delhi, Chandigarh, Gandhi nagar, Bhuvaneshwar.
3. Objects of planning, human settlements, Town Planning as an interdisciplinary process, Contemporary planning concepts of Geddes, Howard, Doxiadis, Perry, Le Corbusier etc.
4. Regional Plans, Development plans Urban and Rural Housing Programmes Legislative, Administrative and fiscal measures, Zoning and other regulations.
5. Land-use maps, topography, influences of climate on town planning.
6. Infrastructure in city planning, traffic census, classification of roads road layouts, Widths, junctions, flyover bridges, and various road patterns for vehicles and pedestrian traffic.

Submission : files and sketches

References :

1.“The Urban Pattern : City Planning and Design” by Gallion and Eisner
2. Fundamentals of Town planning by G.K. Hiraskar
3. Text Book of town planning by Amit Bandopadaya
4. town planning by Rangwala

AR6-08 -ESTIMATING SPECIFICATIONS AND COSTING -I

Teaching Scheme – Per week	**Examination Scheme –**	
Lectures – 4	Paper - 1	Internal Marks – 30
Studio – Nil	Duration – 3 Hrs	External Marks – Nil
Total – 4		Theory - 70
		Total - 100

Objective:

The subject enable the student to prepare outline specification and approximate and detailed estimates for simple building and gets an idea about financial aspect of construction of buildings. The estimation of civil items of load bearing structures with RCC slab and Mangalore tiles, pitched roof and RCC items required – should be done.

Course outline:

1. Introduction to the definition, aim and scope of "Quantity Computation"
    1. Study of different types of estimates
    2. Approximate estimate ,Plinth area estimate, Cube rate estimate, Revised estimate, Supplementary estimate, Supplementary and revised estimate, Annual repair and maintenance estimate
    3. Contingencies
    4. Work charge establishment
    5. Tools and plants
    6. Schedule of Rates
    7. Administrative approval of sanction
    8. Expenditure sanction
    9. Technical Sanction
    10. Bill of Quantities.
    11. Day work
    12. Prime cost
    13. Provisional quantities
    14. Capital cost
    15. Complete estimate of project
2. Study of mode of measurements as stipulated in I. S. 1200
3. Methods of computing quantities for load bearing types of structure by PWD method and center line method and preparing abstract and bills of quantities including units of measurements.
4. Computing quantities of various building items load bearing structure and Preparing of quantities for estimation.

5. Study of composition of rates of various building items, percentage distribution in the rates of materials, labour, tools and plant, contractor's profits and overheads etc.
6. Analysis of rates of main items of building work with reference to prevalent market rates of materials and labour wages.

Submission : files and notes

Reference:-

1. Estimating and Costing by SK Dutta
2. Estimation by SC Rangawala