

NORTH MAHARASHTRA UNIVERSITY, JALGAON
SYLLABUS FOR ARCHITECTURE (T.Y.)

W.e.f - June - 2004

THIRD YEAR B.ARCH.
TERM - I

Subject : BUILDING SERVICES - II

Paper - 100 marks - 3 Hrs
 Sessional - 50 marks

Lectures - 3/ week
 Tutorial - 1/ week

Objective : to familiarise students with commonly used methods and equipments for sewage disposal and water supply systems.

1. Water storage and distribution systems used in high rise buildings, principals of pumping and location of pumps.
2. Introduction to qualities, tests and storage of potable water and water treatments.
3. Surface water disposal for community, design and calculations, standards for septic tanks, soak pits, introduction to biogas plant.
4. Systems for collection and disposal of domestic and city garbage disposal, wet and dry garbage disposal systems.
5. Systems for domestic and commercial supply of hot water in buildings.

2. SUBJECT : STRUCTURES - V

Paper - 100 marks - 3 Hrs
 Sessional - 50 marks

Lectures - 3 / week
 Tutorial - 1 / week

Objective : Training students in the design of framed structures and its components in rolled steel sections and RCC.

- 2.1 Structural steel work.
 Beams
 Tension and compression members
 Trusses and girders.
 Rivetted and welded joints (No design of moment connections)
 Stanchions under axial loading.
- 2.2 RCC structures :
 Doubly reinforced and Tee beams.
 Continuous RCC beams under standard loading conditions.
 Continuous, one way and two way slabs.

Recommended books :

- Strength of materials - H.S. Khurmi
 Design and testing of reinforcement concrete - K.L.Rao
 Design of steel structures - L.S. Negi.

3. SUBJECT | SPECIFICATIONS

Paper - 100 marks - 3 Hrs

Lectures - 3/ week

Tutorial - 1/ week

- 3.1 Introduction to types of specifications, its relationship with working drawing, need of writing specifications.
- 3.2 Method, form and language of writing specifications for materials and workmanship.
- 3.3 Style of specifications writing in accordance with IWD red book and I.S specifications.
- 3.4 Study in detail of specification clauses concerning building works-
 - a. Brick work and stone masonry.
 - b. RCC items- footing- columns- slabs etc.
 - c. Plastering works.
 - d. Floorings.
- 3.5 Study in detail of specification clauses concerning services and installations.-
 - a. Drainage and sanitation (Domestic)
 - b. Water supply installations.
 - c. Electrical installations.

4. SUBJECT : AIR CONDITIONING AND VENTILATION

Objective : Study of advanced services of mechanical ventilation, humidity control, air conditioning.

Paper - Nil

Lectures - 2/ week

Sessional - 50 marks

Tutorial - 1/ week

- 4.1 Comfort conditions in built environment.
- 4.2 Mechanical ventilation in buildings, air filters, humidity control.
- 4.3 Mechanical ventilation and air conditioning equipments and its operations.
- 4.4 Design parameters and ducting layouts, fire precautions.

Sessional work shall consist of atleast two drawings on ducting layouts for offices, hospital units, industrial units, etc.

5. SUBJECT : LANDSCAPE DESIGN.

Paper - 50 marks - 2 hrs

Lectures - 3 / week
Tutorials- 1 / week

Objectives :- To make students understand the importance of ecological balance through landscape design, for built environment.

- 5.1 History of development of landscape architecture of different styles.
- 5.2 Specific requirements and conditions for plant growth.
- 5.3 Ecological and environmental aspects of landscape design, ground covers, pollution control parameters.
- 5.4 Integration of building and landscape, out door and indoor landscapes, form, colour and texture of landscape elements, landscape furniture.
- 5.5 Landscape planning for public utility and recreation, site development, exploitation of natural forms and topography.

6. SUBJECT : BUILDING CONSTRUCTION - III

Paper - 100 marks - 3 hrs

Lectures - 2/ week
Studio - 4/ week

- 6.1 Concept of bulb pressure, suitable types of foundations in soil with low load bearing capacity- such as pile foundations, raft, grillage, combined footings etc.
- 6.2 R.C.C. frame structures, footing foundations, columns, beams, slabs, stairs and cantilever elements.
- 6.3 Timber frame structures and its applications to temporary structures.
- 6.4 Steel frame structures, roofing systems in steel, behaviour and applications of rivetted and welded joints, fabrication of steel stanchions.

7. SUBJECT : ARCHITECTURAL DESIGN - III

Paper - 100 marks - 12 Hrs
Sessional - 200 marks

Lect/ Studio - 9/ week

Objectives : To help students in identifying problems of designing single or group of 3 to 4 buildings of single or multiple functions.
To work on concepts of cluster.

Design of building complexes of not more than 3 to 4 buildings- such as shops and apartments, residential schools, holiday camps, motels, Institutional complexes.

Stress shall be on balance of built up and open spaces and landscaping of the functional areas.

8. SUBJECT : WORKING DRAWING - I

Paper- Nil
Seasonal- 100 marks

Lect/ Studio- 6/ week

- 8.1 Methodology of preparation of working drawing, interpretation and reading of drawings, method of dimensioning.
- 8.2 Legal aspects of working drawing and its status in contract document.
- 8.3 Preparation of a set of working drawing of a simple structure, lead bearing type, in professional style.

THIRD YEAR B. ARCH
TERM- II

66 SUBJECT : STRUCTURES- VI

Paper - 100 marks - 3 Hrs

Lectures - 3/ week
Tutorial - 1/ week

- 1.1 Retaining walls :- Active and passive pressure of soil, Rankine's earth pressure theory.
 - a. Masonary retaining walls
 - b. RCC retaining walls.
 - c. Counterfort type retaining walls- concept and theory.
2.
 - a. Design of RCC columns for eccentric loading.
 - b. Detail design of RCC footings, isolated and combined footings.
 - c.
3. Simply supported staircases- loading conditions and detail design including landings.
4. Introduction to the theory of RCC and steel portal frames, steel columns, plate girders, parameters of reinforcement and fabrication procedures. (Note- This topic should not include any calculations and should be dealt theoretically only)

2. SUBJECT : QUANTITY SURVEYING AND ESTIMATING - I

Paper - 100 marks - 3 Hrs

Lectures - 3/ week
Tutorials- 1/ week

Objective : To help students in taking quantities of simple structures, mode of measurements, methods of billing.

- 2.1 Definations, aim, objectives, scope and importance of the subject.
- 2.2 Types of estimates- Approximate methods and detailed estimates.
- 2.3 Mode of measurements as specified by I.S. Code.
- 2.4 Methods of calculating quantities of load bearing wall structures of various elements, preparation of abstract bill of quantities with appropriate unit of measurements.

3. INTRODUCTION TO TOWN PLANNING :

Paper - 50 marks - 2 Hrs.
 Sessional- 50 marks

lectures - 3/ week
 Tutorial - 1/ week

- 3.1 Introduction to physical planning, development of settlements- villages- Towns- metropolises. Salient features of historic towns and its relevance in present context.
- 3.2 Standards of land use allocations, public amenities.
- 3.3 Hierarchy of roads and junctions, planning elements, its influence on planning of settlements.
- 3.4 Salient features and elements of a development plan of a town- city and region- Roll of MRTD Act.
- 3.5 Conceptual study of - Neighbourhood, industrial town, satellite town, Garden city, New towns.
- 3.6 Sky line, colour and texture of townships, conservation of heritage, role of the Urban Arts Commission.

4. SUBJECT : BUILDING SERVICES : III

Paper- 100 marks - 3 Hrs
 Sessional- 50 marks

Lecture - 3/Week
 Tutorial - 1/week

- 4.1 General distribution of electric power in towns and cities, substations for small schemes and industrial units, meter rooms.
- 4.2 Electrical installations in buildings with reference to connections with supply company, mains, meter boards, installations of individual units, electrical wiring systems in different materials and its specifications, layout of points, domestic appliances and their earthing, installations of air conditioning, elevators and pumps.
- 4.3 Indoor illumination with natural and artificial lighting with different types of lighting methods as, direct- diffused and indirect methods.
- 4.4 Application of lighting systems with special reference to illumination levels for shops, show rooms, offices, class rooms, stage and auditoriums.

5. ELECTIVE- I

Paper- Nil
Sessional- 50 marks

Lectures - 2 / week
Tutorials- 1 / week

Objectives : To inculcate in students an ability to study and conduct research work independently on the subject related to architecture, including its presentation in written form and visual presentation.

A batch of maximum 20 students shall select one of the topics from the list of subjects.

6. ARCHITECTURAL DESIGN - IV

Paper - 100 marks - 12 Hrs
Sessional- 200

Studio - 9 / week

Objective : To help students identifying problems of designing single building of greater complexity of functions and utility, such as departmental stores, terminal buildings, commercial and administrative buildings.

Designing of outdoor functional and open spaces, applying the knowledge of landscape acquired upto this level of course.

7. SUBJECT : BUILDING CONSTRUCTION- IV

Paper - 100 marks - 3 Hrs
Sessional - 150 marks.

Studio - 6 / week

- 7.1 Sliding doors, folding doors, bay windows- in timber.
- 7.2 Doors, windows and fixtures in steel and aluminium, metal casements.
- 7.3 Single skin and double skin partitions in timber, metal sections, PVC and metallic moulded sections, for acoustical and insulation installations.
- 7.4 Suspended ceilings of various materials and frames, for acoustical and insulation purposes.
- 7.5 Roofing and flooring elements and systems of C.B.R.I.

8. SUBJECT : WORKING DRAWING- II

Paper- Nil
Sessional - 100 marks.

Studio - 6 / week

Preparation of a set of working drawings of a simple R.C.C. frame structure

OR

Preparation of a set of working drawings of one of the buildings designed by student in assignment of architectural design-III by designing it with R.C.C frame structure.
