

UNIVERSITY OF PUNECircular No. 110 of 1990Subject: Rules and Syllabi for T.Y. Architecture

In pursuance of the decision taken by the university authorities, it is hereby notified for the information of all concerned that the rules for preparation of sessional work and syllabi for T.Y. (Architecture) Course are as given in appendix B have been approved and will be implemented from the academic year 1990-91.

The principals of affiliated Engineering Colleges are requested to bring the contents of this circular to the notice of all concerned teachers and students.

Ganeshkhind
Pune-411007

V.S. Patil
for Registrar

No-CBE/Arch/ 353
Date: 10-3-1990
ZB

Copy forwarded with compliments to :

1. The deans of all Faculties
2. The principals of all affiliated college in Architecture
3. The members of the board of studies in architecture
4. The Co-ordinator Examination Reform cell
5. The Deputy Registrar (Exams)
6. The Asstt. Registrar (exam.Co-ordination unit)
7. The Asstt. Registrar (R & M)
8. The Asstt. Registrar (EXAM. S & T Unit)
9. The Asstt. registrar Engineering
10. The Public Relations Officer
11. The Law Officer
12. The Statutes Committee Unit Ref. No. EC 21 PA-B-22/90 dt. 19-2-90
AC. A-50 PA-60/90 dt. 24-25-
13. The section Officer(External)
14. The P.A. to Registrar
15. University Sub-Centres at Nasik, Ahmednagar & Dhule
16. Data processing Unit.

4. One min-problem of a moderate sized bldg. complex and one min. problem of interior design scheme.

Recommended Reading:

1. Design Fundamentals by Framar
2. Structure in Architecture by salvadori
3. Library of contemporary Architects- Series
4. Interior Design-by Friedmann, Pile Wilson
5. Interior spaces designed by Architects-A.R. Book
6. The use of colour in interiors-by halse
7. Periodicals & Journals.

0.2 BUILDING TECHNOLOGY AND MATERIALS V (T.Y.B.ARCH.SEM.V)

Paper : 100 marks-3 hrs.

Lecture periods- 2 per week

Sessional Work : 100 Marks

Studio periods - 5 per week

Objective: To make student understand more complex problems of foundations, R.C.C. and steel frame constructions.

Course Outline :

- a) Study of Raft, Pile and Cantilever foundations, Combined footings and foundation for stanchion.
- b) Setting out of a structure.
- c) Study of R.C.C. Frame structure including specific studies of stair balconies and canopies.
- d) Introduction to steel frame structure with reference to Industrial structures using steel trusses, A.C. cladding; study of castellated beams, welded and rivetted joints.
- e) Metal doors and windows, rolling shutters, collapsible gates etc.

Materials :

1. Light weight concrete, Guniting
2. Glass, Glass blocks etc.
3. Water proffing compounds, chemical and various other proprietary treatments.
4. Alloys and metals and their application in Architectural fittings.

Recommended Reading:

1. Construction of building Vol. I to V by Barry
2. Construction Technology Vol. I to IV by R.Chudley
3. Building Construction Illustrated by Ching Francis D.K.
4. Vasturachana by Sane
5. Engineering Materials by Chaudhary
6. Civil Engineering hand book by Khana

0.3. ENGINEERING V (T.Y.B.ARCH.SEM.V)

Paper : 100 Marks ~ 3 hrs.

Lecture Periods- 2 per week

Sessional Work : 50 Marks

Studio periods - 2 per week

Sessional Assessment to include

Class tests- 10 marks

Detailed design of steel truss or continuous R.C.C. beam-25 marks

Viva Voce- 15 marks.

Objective: Training students in the design of framed structure and its components in rolled steel sections and reinforced cement concrete.

DETAILED SYLLABUS

TO BE BROUGHT IN FORCE FROM ACADEMIC SESSION 1990-91 i.e. JUNE 1991
THIRD YEAR EXAMINATION IN ARCHITECTURE (T.Y.B.Arch.) SEMESTER V

Admission : A candidate who has completed the course of semester III and Semester IV and cleared the examinations of Semester III and Semester IV as per University rules of passing in force will be permitted to enter upon the course for Semester V

Rules of Examination: A candidate for being eligible for admission to the Semester V examination in architecture should have kept attendance and prepared the sessional work of V semester of one academic term in a college of architecture in the V semester of third year course to the satisfaction of the Principal of the College.

To pass this examination candidate must secure forty percent of the full marks in theory paper and fifty percent of the full marks in the sessional work both forms independent subject heads.

A candidate who has obtained passing marks as mentioned above may at his option, be excused from appearing in that subject at a subsequent examination and will be declared to have passed the whole examination when he has passed in the remaining subject heads of the subsequent examination in accordance with the rules of passing the examination.

Detailed syllabus : Third Year Bachelor of Architecture Degree Course (T.Y.B.Arch.; Semester V)

01. ARCHITECTURAL DESIGN IV (T.Y.B.Arch. SEM. V)

Paper: 100 Marks- 12 hours
Sessional Work : 200 Marks

Lecture Periods- 2 per week
Studio periods - 10 per week

Objective:

1. To help students at identifying problems of designing of single or group of 3 to 4 bldgg. of single or multiple use and function and at conceiving and presenting the appropriate solutions based on related knowledge acquired.
2. To help students at identifying problems or designing 'Interiors' of single spaces of moderate size and complexity for single or multiple function and use and at conceiving and presenting appropriate solutions based on related knowledge acquired.

Course Outline:

1. Design of building-complexes of not more than 3-4 structures of single or multiple but compatible functions and usages of moderate scale, complexity and vertical growths such as shops with apartments, Residential schools, Holiday camps, motels, Institutional campuses etc.
2. Design of inter-spaces between the buildings of the moderate complexes in terms of topography, ground covers and landscape.
3. Interior design lay-outs for single volumes of either single or multiple uses and functions but without constructional details of furniture. Stress to be given in developing telling presentation techniques availed by professional interior designers.

Course Outline:

Structural Steel work

- 1.00 Beams
- 2.00 Tension and compression members
- 3.00 Trusses; N.Girders.
- 3.01 Connections: Rivetted and Welded joints. (No design of Moment connections)
- 3.02 Stanchions for Axial loading
- R.C.C.
- 4.00 Beams: Doubly Reinforced and Tee, Ell Beams.
- 4.01 Continuous R.C.C. Beams for standard loadings
- 4.02 Continuous one-way and two-way slabs.

Recommended reading :

1. Strength of Materials by R. S. Khurmi
2. Calculations, Design and Testing of Reinforced concrete by K.L.Rao
3. Structure an architects approach by H.Seymour Howard
4. Structural systems Henry J.Cowan and Forrest wilson
5. Structural Steel work by Reynolds and Kent.
6. Design of steel structures by L.S.Negi

04. HISTORY OF ARCHITECTURE & HUMAN SETTLEMENTS IV (T.Y.B.ARCH.SEM.V)

Paper: 50 Marks - 2 hrs.

Lecture Periods -4 per week

Sessional work : 50 Marks

Studio Periods -1 per week

Objective: Study of culture and architecture of world of post-19th century. Broad references to formative influences of major architectural and technological contribution in terms of themes in building types, planning and urban design. Stress should be given more on analytical and critical studies and appraisal so as to develop reading and research habits in students.

Course Outline: Post Renaissance revival period. Industrial Revolution- Mass production, use of steel, Reinforced cement concrete, elevators and air conditioning - its effects on architecture. C.I.A.M. and Art nouveau movements. Bauhaus and International style. Post-world war II architecture- Metabolism, structuralism, Post modernism- present tands. Specific architects and Examples to be covered :- Paston-Crystal Palace Louis Sullivan- Peter Behrens and Eric Mendelsohn, Walter Gropius - Bauhaus. Frank Lloyd Wright- Robie House, Falling waters, Guggenheim museum mies van der rohe- Barcelona pavillion, Seagram bldg. Le-Corbusier-villa Savoye, Unite-de-habitation, Chapel Ronchamp Kenzo Tange- Olympic Stadium. Robert Venturi-Guild House, Pier Luigi Nervi, Buckminster Fuller, Frei Otto. (Human Settlements, Hausman² Paris Industrial cities. City Beautiful movement. Washington D.C. New Delhi, Garden city movement- Welwyn. Neighbourhoods. Chandigarh, Brasilia, Runcorn, Milton Keynes, Doxiodis and Dynapolis.

Recommended Reading:

1. History of architecture- Sir Banister Flecher
2. History of Modern Architecture Vol. I&II- Benevolo
3. Towards the new Architecture- Le Corbusier
4. Complexities and contradictions in Architecture- Robert Venturi
5. Modern Movements in Architecture- Charles Jencks
6. Library of contemporary Architects- Series
7. Urban Pattern- Gallion
8. Urban Design Architecture of Town and Cities -Sprerengen
9. Design of cities- Edmond becon.

05. LANDSCAPE DESIGN II (T.Y.B. ARCH. SEM.V)

Paper : 50 Marks - 2 hrs.

Lecture periods- 2 per week

Sessional work: 50 Marks

Studio periods - 2 per week

Objective : To train students in the design aspects of landscape using their own design project and also to introduce to landscape planning of large scale projects.

Course Outline:

1. New concepts of landscape planning.
2. Integration of building and landscape; outdoor and indoor spaces. Study of form, colour, texture of landscape elements.
3. Landscape planning for public utility as recreational areas with due regard for site development by exploiting natural forms.
4. Execution of landscape proposals.
5. One project on landscape planning for the candidates project of Architectural Design III

Recommended Reading :

1. Landscape Graphics by G.W.Reid
2. Elements and Concepts of Urban Landscape Design G.Eekbo
3. Flowering Trees by Dr. M.S.Randhawa
4. Common trees by Dr. H.Santapan
5. Common trees of India by P. Mukharjee
6. Gardens of Mughal India by S.Crowe and others
7. Anatomy of a park by A. J.Rufledge
8. Every day Gardening in India by EW Grindall.

06. BUILDING SERVICES I (T.Y.B. ARCH. SEM.V)

Paper : 100 Marks - 3 hrs.

Lecture periods- 3 per week

Sessional Work : 50 Marks

Studio Periods - 1 per week

Objective : To familiarise students with commonly used methods and equipments for sewage disposal and water supply and working of such system.

Course Outline :

A) Water Supply

1. Introduction to - common sources of water supply for a town and methods and systems used for such supply.
2. Standards & Thumb rule calculations of determining demand of water on population basis.
3. Tapping of water mains on the street.
4. Storage & Distribution systems in a building
 - a) Suction tank, overhead water storage tank, community water storage tank.
 - b) Pipes used for distribution- Materials specials joinery, installation, classification.
 - c) Control valves used in the system, their functioning.
 - d) Taps, cocks and other specialised fittings used in a distribution system.

B) Drainage & Sewage Disposal

1. Introduction to dry sanitation & water carriage system
2. Commonly used sanitary fittings in a water carriage system its working fixing & connections to building drainage system.
3. Materials used in a building drainage systems
 - a) Pipes their jointing
 - b) Traps their installations
4. Layout of drainage system in a building premises.
 - a) Single pipe and double pipe systems.
 - b) Location of inspection chambers and manholes
 - c) Connection to municipal sewers
 - d) Testing of building drainage system
5. Self cleaning velocity. Thumb rule for gradients to underground drainage system and its relation to diameter of pipe.
6. Thumb rule for calculations of effluent from a building and determining diameter of pipes.
7. Principles and application of ventilating building drainage.

Sessional Work:

1. Sheet showing sanitary and water supply fittings its plan and section and their connection to building drainage system. Joint of pipes etc.
2. Sheet showing construction works for a drainage and water supply system such as suction tank. Inspection chambers/Disconnecting chambers/manhole etc.
3. One drainage plan for architectural design IV project.

Recommended Reading :

1. Plumbing - Johnson A
2. Teach yourself plumbing- Ernest hall
3. Sanitation, Drainage & water supply- Mitchell
4. Environment & Services- Peter burbeny
5. Drainage & sanitation - E.H.Blake
6. The bathroom- Kira Alexander
7. Water supply & Sanitary Engineering- Kshirsagar
8. गस्तु परिसर आगि साधने- इदापवार

07. WORKING DRAWING I (T.Y.B.ARCH.SEM.V)

Paper : Nil

Sessional Work ; 100 Marks

Lecture periods- 1 per week

Studio Periods - 3 per week

Objective : Introduction to methodology of preparation of working drawing based on principles of visual communication. Interpretation and reading of drawings.

Course Outline : Two working drawings of load bearing wall structure one working drawing of design problem of Sem.V showing minimum plans two sections and two elevations.

THIRD YEAR EXAMINATION IN ARCHITECTURE (T.Y.B.ARCH.) SEMESTER VI
Admission : A candidate who has completed the course of Semester V by attending one academic term of semester V will be permitted to enter upon the course of semester VI.

Rules of Examination : A candidate for being eligible for admission to the semester VI examination in architecture should have kept attendance and prepared Sessional Work for Semester V and VI in a College of Architecture to the satisfaction of the Principal of the College.

To pass the semester VI examination a candidate must secure forty percent of the full marks in theory paper and fifty percent of the full marks in the Sessional work both forming independent subjectheads.

A candidate who has obtained passing marks as mentioned above may at his option be excused from appearing in that subject at a subsequent examination and will be declared to have passed the whole examination when he has passed in the remaining subject heads of the examination in accordance with the Rules of passing examination.

Detailed syllabus : Third Year Bachelor of Architecture Degree Course (T.Y.B.ARCH. SEMESTER VI)

01. ARCHITECTURAL DESIGN V (T.Y.B.ARCH.SEM VI)

Paper : 100 Marks - 12 hrs. Lecture Periods - 2 per week
Sessional Work : 200 Marks Studio periods - 10 per week
Objective : To help students at identifying problems of designing single building or greater complexity of functions and use like departmental stores, terminal buildings commercial and administrative buildings etc. and at conceiving and presenting appropriate solutions based on related knowledge acquired.

Course Outline :

1. Designing buildings of lowrise large scale of single or multiple use and functions.
2. Designing of out-door spaces of such buildings.
3. Two minimum problems to be set for design.

Recommended reading :

1. Periodicals and Journals.
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02. BUILDING TECHNOLOGY AND MATERIALS VI (T.Y.B.ARCH.SEM VI)

Paper : 100 Marks 3 hrs. Lecture Periods - 2 per week
Sessional Work : 100 Marks Studio periods - 5 per weeks

Objective : To make students aware about timber joinery in special applications and also about using long span structures in steel and concrete.

Course Outline :

1. T.W.folding doors, Bay windows
2. T.W.sliding folding doors.
3. Retaining walls and its terminology. Mass retaining wall in stone and brick R.C.C. retaining walls in basements with water proofing treatments.
4. Reinforced brick work, cavity walls, decorative brick work for jallis screens etc.
5. More about roofing and flooring systems developed by C.B.R.I.
6. Introduction to long span structures in concrete and steel.
7. Modular Co-ordination
8. T.W. partitions. single skin double skin. Use of insulating materials
9. Suspended ceilings in T.W. with A.C. Sheet, plaster of paris, fibre boards etc. Proprietary types in Aluminium, pressed steel etc.

Materials:

1. Special types of external and internal renderings such as stone vegeer facing, brick cladding, stucco plaster etc.
2. Wood veneers, synthetic boards, plywoods, particle boards, acoustic boards etc.
3. Insulating materials for ceilings and partitions.
4. Fibre glass reinforced plastics- Its merits and applications

Recommended Reading :

1. Construction of building vol. I to V by Barry
2. Construction Technology Vol. I to IV by R.Chudley
3. Building Construction Illustrated by Ching Francis D.K.
4. Vasturachana by Sen
5. Engineering Materials by Chaudhary
6. Civil Engineeris hand book by khana

03. ENGINEERING VI (T.Y.B.ARCH.SEM.VI)

Paper : 100 Marks - 3 hrs. Lecture periods- 2 per week
 Sessional work : 50 Marks Studio Periods - 2 per week
 Sessional Assessment to include

Class Tests - 10 Marks
 Detailed design of R.C.C. retaining wall-25 marks or R.C.C. staircase -25 Marks, Viva Voce - 15 Marks

Objective : To acquaint students to elements of soil behaviour and designing of elements in masonry constructions and reinforced cement concrete.

Course Outline:

- 1.00 Retaining Walls
 - a) Active and passive pressures of soil. Rankine's theory Earth pressure.
 - b) Masonry Retaining Walls
 - c) R.C.C. Cantilever Retaining walls
 - d) Counterfort type retaining wall : concept and general detailing.
- 2.00 Design of R.C.C. colums for Eccentric loading.
- 3.00 Staircases : Types, loadings and design. Detailed design of simply supported staircases.

Recommended Reading:

1. Strength of Materials by R.S.Khurmi
2. Calculations, Design and Testing of Reinforced concrete by K.L.Rao
3. Structural an architects approach by H.Seymour Howard
4. Structural systems Henry J.Cowan and Forrest Wilson
5. Structural steel work by Reynolds and kent.
6. Design of steel structures by L.S.Negi

04. QUANTITY SURVEYING AND ESTIMATING I (P.Y.B.ARCH. SEM.VI)

Paper : 100 Marks - 3 hrs.
Sessional Work -50 Marks

Lecture Periods - 2 per week
studio periods - 3 per week

Objectives : To help student in taking off quantities of simple structure and understanding various types of estimates, modes of measurements etc.

Course Outline :

1. Introduction- definition, aim, object, scope and importance of the subject.
2. Types of estimates- approximate & detailed.
3. Mode of measurements as stipulated by I.S.I.
4. Methods of taking off quantities of load bearing wall structures & preparation of abstract bill of quantities, unit of measurements

Recommended Reading:

1. Professional Practice by Roshan Namavati
2. ISI Handbook of measurement of building works 3. estimating and costing (Prof. practice) M.T.Rangwala 4. estimating and costing S.N.Datta
5. Randhka mandapetrak Shastri R.P.Erande

05. BUILDING SERVICES II (P.Y.B.ARCH.SEM.VI)

Paper : 100 Marks - 3 hrs.
Sessional Work : 50 Marks

Lecture Periods- 3 per week
Studio Periods - 2 per week

Objective: To familiarise students with commonly used methods and equipments for sewage disposal and water supply and working of such systems.

Course Outline :

A) Water supply

1. Storage and distribution systems used in High rise building- introduction only
2. Principles of pumping and location of pump
3. Introduction to-Qualities and tests of potable water and water treatment.

B) Drainage and Sewage disposal

1. Surface water disposal for a community.
2. Design and calculation of septic tanks; Introduction to bio-gas
3. Systems used for high rise buildings- introduction only
4. Civic authorities regulations for water supply and drainage.

C) Hot water supply

1. Direct system components and equipments used for the same.
2. Indirect system-calorifier
3. Upfeed system and drop system.

D) Garbage disposal

1. Definitions
2. System used in a building/campus for collection and disposal of Garbage

Sessional work :

1. Layout and Longitudinal sections for water supply and drainage system for a campus prepared of Arch. Design V problem alongwith garbage disposal system
2. Design & details of septic tank based on above layout.
3. Fitting, fixtures of systems used in hot water supply.

Reference books:

1. Plumbing- Johnson A
2. Teach yourself plumbing- Ernest Hall
3. Sanitation, Drainage & Water supply- Mitchell
4. Environmental and service - Peter burbeny
5. Drainage and sanitation - E.H. Blake
6. The bathroom- Kira Alexender
7. Water supply and sanitary Engineering - Kshirsagar
- 8 वास्तु परिचय आणि तंत्रे - एम. आणि इंदरवार

66. WORKING DRAWING II (T.Y.BARCH. SEM. VI)

Paper : Nil

Sessional work : 100 Marks

Lecture Periods- 1 per week

Studio Periods - 3 per week

Objective : To help students to prepare working drawing of framed structures and composite buildings and services.

Course Outline: Working drawing of more complex building including one working drawing of design problem in Sem.VI.
