फोन : (०२४६२) २२९२४२ / ४३
फॅक्स : (०२४६२) २२९२४५ / २२९३२५
स्वामी रामानंद तीर्थ
मराठवाडा विद्यापीठ,
नांदेड.

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Swami Ramanand
Teerth Marathwada
University, Nanded.

जा.कं.शैक्षणिक / 01 / अभ्यासकम / 2014–15 / 1769 दि: 29.10.2014

प्रती,
मा. परीक्षा नियंत्रक,
प्रस्तुत विद्यापीठ.

विषय : Bachelor of Architecture Third Year या विषयाच्या अभ्यासकमा बाबत....

उपरोक्त विषयास अनुसरून आपणास कळविण्यात येते की, प्रस्तुत विद्यापीठातील शारदा भवन एज्युकेशन यांचे यशवंत महाविद्यालय, नांदेड येथे राबविण्यात येणारा (Bachelor of Architecture Third Year) बॅचलर ऑफ अर्किटेक्चर या विषयाच्या तृतीय वर्षाचा सोबत जोडल्याप्रमाणे अभ्यासकम शैक्षणिक वर्ष 2014–15 करिता लागु करण्यासाठी मा. विद्यापरीषदेच्या वतीने मान्यता प्रदान केली आहे.

तरी ही बाब पुढील कार्यवाहीस्तव सर्व संबंधितांच्या निदर्शनास आणून द्यावी.

सचालक
महाविद्यालय व विद्यापीठ विकास मंडळ

प्रत माहिती व पुढील कार्यवाहीस्तव :

1) प्राचार्य, सर्व संबंधित विज्ञान महाविद्यालये, प्रस्तुत विद्यापीठ.
2) कुलसचिव (निवडनुक कक्ष), यांचे कार्यालय, प्रस्तुत विद्यापीठ.
3) उपकुलसचिव, पदव्युत्तर विभाग, प्रस्तुत विद्यापीठ.
4) उपकुलसचिव, पात्रता विभाग, प्रस्तुत विद्यापीठ.
5) सिस्टिम एक्सपर्ट, प्रस्तुत विद्यापीठ.(सदरील परीपत्रक विद्यापीठाच्या संकेतस्थळावर प्रसारीत करावे)

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SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY NANDED

Syllabus for Bachelor Of Architecture

Program : B. Arch.

Course : Bachelor Of Architecture

Third year

(Semester V & VI)

(As per Credit Based Semester and Grading System With effect from the academic year 2014- 2015)

Swami Ramanand Teerth Marathwada University ,Nanded										
Teaching scheme for Third year B. Arch. Course Semester V										
		Teaching scheme			Examination scheme					
Code no.	Subject	Lecture Hours	Studio hours	total	Term work	pract Exam.	Theory . exam	Total marks	CREDITS	Duration
351	Architectural Design V	Nil	108	108	100	50	100	250	10	12 hours
352	Working Drawing I	Nil	72	72	50	50	Nil	100	04	——
353	Architectural Building Const.& materials V	24	48	72	75	50	100	225	09	4 HOURS
354	Theory and Design structures V	48	Nil	48	25	Nil	100	125	05	3 Hours
355	History of Architecture V	48	Nil	48	25	Nil	100	125	05	3 Hours
356	Estimating , costing& specification writing- I	24	12	36	25	50	100	175	07	3 Hours
357	Environmental science & Building Services V	48	Nil	48	Nil	Nil	100	100	04	3 Hours
358	Computer application in Architecture III	12	24	36	50	Nil	Nil	50	02	——
359	Elective V	24	24	48	50	Nil	Nil	50	02	——

Notes : Theory , internal, sessional work , and external viva are considered as separate heads of passing.

Total marks for the examination = 1200

Minimum marks for passing the examination :

Internal exam has to be conducted at college level

Internal : 50%

External & theory : 40%

Each period shall be of 50 minutes duration and each semester shall be consist of 90 days of teaching programme.

The college are required to arrange the time table as per semester and as per the teaching scheme prescribed.

ARCHITECTURAL DESIGN V

Subject Code No. : 351

Lecture Hours : Nil

Studio Hours: 09-108

Total : 09 per week - 108

Credits : 10

Term work :100 Marks

Practical exam : 50

Theory exam : 100(12 hrs.)

In two days (6 hours per day)

Total : 250 Marks

Aim:

To explore the design of buildings addressing the socio-cultural & economic needs of contemporary urban society.

Objectives:

- To enable the students to understand the importance of special planning within the constraints of development regulations in force for urban.
- To enable the students to design for large groups of people in a socially & culturally sensitive manner, taking into account aspects such as user perceptions ,crowd behavior, large scale movement of people and identity of buildings.
- To emphasize on the importance of understanding the relationship between open space & built form and site planning principles including landscaping , circulation network and parking.

contents:

scale & complexity of buildings and small complexes that address the social & cultural needs of contemporary urban life.

- Behavioral aspects
- Socio-cultural aspects
- Designing for the differently abled
- Building bye-laws & rules

- Appropriate materials & construction techniques
- Climate design

Syllabus:

Ex- servicemen's housing, Orphanages, Working women hospital, Home for physically and mentally challenged, Museum/ Art centre, Educational campus ,Shopping complexes/mall, etc.

Term work:

At least two major projects and one time problem on any of the topics above. At the final practical exam one model to be presented of one of the major projects. One Perspective for time problem.

Books for reference:

1) Time saver standards for building types
2) Time saver standards for Interior design & space planning.
3) Neufets Architect Data
4) Kevin Lynch- site planning
5) Sam I – Miller- Design process- A primer for architectural and interior design

WORKING DRAWING I

Subject Code No. : 352

Lecture Hours : Nil

Studio Hours: 06-72

Total : 06 per week -72

Credits: 4

Term work :50 Marks

Practical exam : 50 Marks

Theory exam : Nil

Total : 100 Marks

Aim :

The focus of the course is to impart skills related to the preparation of drawings meant for construction work on the site & to improve the students ability of detailing.

Objective :

- ToImpart training in the preparation of working drawing for buildings (mostly load bearing ground floor structures) and incorporating specifications as complementary to the working drawings.
- To sensitize the students in preparing finer design details required for buildings

Syllabus:

Unit I: Preparation of working drawings : suitable scales of drawing , methods of giving dimensions : on plans, sections elevation and other standards.

Unit II: Preparation of plans : site plan with all dimensions, center line plan , foundation plan ,terrace floor plan.

Unit III: Elevations & sections : all side elevations , sections sufficient to explain (1 section through staircase & one through the toilet block) the scheme .

Unit IV: Detail layout for sanitation ,water supply and electrical layout (plan showing internal and external lines of sanitation , water supply and electricity) staircase detail including railing , handrail detail, detail of toilet with fittings, kitchen platform details with built in cupboards.

Unit V: Detailing of architectural elements such as balconies ,verandahs, R.C.C canopy , other shading devices.

Unit VI: Details of doors and windows, teak wood fully paneled doors/commercial flush door shutters /steel / aluminum glazed windows , joinery details of doors & windows, details of fittings.

TERM WORK:

The students have to prepare two working drawing sets of residential buildings (150-200) of a load bearing structure.

ARCHITECTURAL BUILDING CONSTRUCTION AND MATRIALS V

Subject Code No. : 353

Lecture Hour: 02-24

Studio Hour : 04-48

Total: 06 Per Week - 72

Credits: 9

Term Work: 75 Marks

Practical Exam:50 Marks

Theory Examination :100 (04 Hrs)

Total : 225 Marks

Aim :

To provide an understanding of various constructions practices and details using steel in the structural components of a building

Objectives:

- To understand both in detail the methods of construction using steel for structural purposes such as foundations, steel columns roof trusses and roof coverings
- To understand both in detail the methods of construction of building components using steel in staircase, rolling shutters , doors & windows.

Contents:

BUILDING CONSTRUCTION:

UNIT I : Steel Construction.

- Structural Steel Sections: Technical nomenclature of different steel sections, construction methods, methods of connections , different types of welds , revetting , bolting , steel in foundations , column beam connections.
- Steel roof trusses: Design & detailing, Types of trusses, long span , north light, spac frames , portal frames , space decks – construction details of the above and the context in which they are used.
- Steel roof coverings: Types of roof coverings using steel , aluminium, asbestos cement etc. The students should be encourage to market survey for latest roof covering sheets available in markets.

- Steel staircases: Basic principles, types of staircases straight flight, dog legged, spiral & other types . Support conditions for stairs, details of handrail, balusters etc. and finishes for stairs.

  EXERCISES OF THE ABOVE THROUGH DRAWING SHEETS AND CASE STUDIES.

  UNIT II: Steel doors , Windows, and rolling shutters, Types of doors& windows- openable, sliding etc, methods of constructions using steel design and detailing of steel rolling shutters , collapsible gates etc. fixing details of strong room & safe deposit vault doors, ventilators.

BUILDING MATERIALS:

- Asphalt:- Classification, forms of asphalts, properties of asphalt.
- Bitumen:- forms and uses
- Electrical insulators:- conductors, non conductors, properties
- Fly ash:-Dry system , wet system, properties of fly ash.
- Sealants for joints: Different types, properties, application accessories.
- Anti Termite treatment:
- Precast structure.

Term work:

At least one sheet to cover each of the construction item as given above including submission of files to cover the materials parts as well as notes on construction if any.

Books for reference:

1) Dr. B.C. Punima- A Text Book of Building Construction.
2) T.D. Ahuja & G.S. Birde- Fundamentals of Building Construction.
3) J.K. Mckay-- Building Construction vol.1&2
4) R.M. Davis- Plastics in Building Construction.
5) S.C. Rangwala – Engineering Materials
6) N. Krishna Raju- Structural Design & Drawing Reinforced Cement Concrete & Steel.

THEORY AND DESIGN OF STRUCTURES V

Subject Code No. :354

Lecture Hour: 04-48

Studio Hour: Nil

Total: o4 per week -48

Credits : 5

Term Work: 25Marks

Practical Examination: Nil

Theory Examination: 100 (03 Hrs)

Total: 125 Marks

Aim :

The focus is on structural design of buildings in steel.

Objectives:

- To develop the structural design skills of the students in steel.
- To enable the students to develop capacity to design steel structures.

Syllabus:

Unit I: Design of simple beams including check for shear and deflection for laterally supported and unsupported conditions, analysis of simple beam from strength and stiffness considerations .Including understandings of different proportion of concrete and its suitable uses.(sizes of sections can be adjusted as per architectural design by changing reinforcement or concrete mix.)

Unit II: Design of built up beams with flange plates only. Introduction to plate girders (no design calculations.)

Unit III: Axially loaded tension members . Introduction, net effective areas, analysis& design of tension members , including riveted & welded connections. (L-angles &T-Sections only.)

Unit IV: Columns, Analysis and design of axially loaded steel columns using single –I-section. 2 channels placed back to back and toe to toe, 4- angles etc. including lacing system.

Unit V: Design of slab base and gusseted base for axial loads. (without moments) for different columns.

Unit VI: Design for Grillage foundation for Isolated columns only.

Unit VII: Purlins: Introduction , dead load , live and wind loads, design of angle purlin & I-section Purlin.

Unit VIII: Bracket connections : Riveted and Welded connections , design of joists.

Term work:

Notes and analytical part including calculations of all the items in the given units.

Books for References:

1) Design of steel structures (Vol.- I) – Ramchandra , standard Book House New Delhi.
2) Structural design and drawing – N- Krishna Raju.
3) Design of steel structures – Ramamurtham s. and Narayanan . R.
4) Criteria for design a R.C.C. structures as per IS 800-2007

HISTORY OF ARCHITECTURE V

Subject Code No. : 355

Lecture: Hours : 04-48

Studio Hours : Nil

Total : 04 per week - 48

Credits : 5

Term work :25 Marks

Practical exam : Nil

Theory exam: 100 marks(03 Hrs.)

Total : 125 Marks.

Aim:

To inform about the development of architecture in western world through the evolution of Christianity as a religion and the cultural and contextual determinants that produced that architectural.

Objective:

- To understand church architecture as evolving within specific context including aspects of society, religion, politics, and climate.
- To gain knowledge of the development of architectural form with reference to technology , style and character in the western world through the evolution of the church from early Christian times up to the renaissance period.

Syllabus:

Unit I: Romanesque Architecture:

Architectural characters of the churches in northern , central and southern Italy,eg. Pisa cathed (central Italy). French Romanesque for eg. Abbey –Aux Homes at Caen.

British Romanesque eg. Durham's cathedral.

Unit II :Introduction to gothic architecture

Its evolution , structural systems, Arches ,vaults and cross vaults, decoration, characters of French architecture eg. Notre dam, Paris

Understanding the general influences and characters of British and Italian gothic Architecture and its structural developments and decorative motifs. Characteristics of British Gothic Arcchitecture, characteristics of Italian , Gothic architecture for EG. Milan cathedral.

Unit III: Birth of Renaissance and its Impact

Architectural style of early Renaissance, characteristics and works of Brunelleschi,

High renaissance and mannerism. Study of the works of Bramate and Michelangelo.

Baroque and rococo. Architectural style of Palladio and Bernini, Basilica Vicenza

Unit IV: French Renaissance:

Character and style of French Renaissance eg. Louvre, Paris , British Renaissance Tudor, Elizabethan and Jacobean styles. Characteristics and works of Ingo Jones, Christopher . Wren's contribution towards Renaissance architecture with st. Paul's London as eg.

Term Work:

Files to be submitted with sketches of important examples of each period.

Books for Reference:

History of architecture - Percy Brown

History of architecture – Sir Bannister Fletcher.

Estimation , Costing & Specification Writing I

Subject Code No. : 356

Lecture: Hours: 02- 24

Studio Hours : 01-12

Total : 03 per week-36

Credits : 7

Term work :25 Marks

Practical exam : 50 Marks

Theory exam: 100 marks(03 Hrs.)

Total : 175 Marks.

Aim:

To enable students understand the method of writing specifications for various items of works involved in the building , to expose the students the procedure involved in estimating costs involved, simple projects will be introduced for preparation of specifications.

Objectives:

- To educate the students the need and importance of specifications, how to write specifications , important aspects of the design of a specification
- To inform the students the need for estimation – the concept of abstract and detailed estimates based on measurements of materials and works.
- To educate the students to work out the rates of important items in building construction based on PWD schedule of rates for the particular year / current year.

Syllabus

Unit I: Quantity Surveying Introduction:-

Definitions and terms used , principles , units of measurements , Methods of preparing approximate estimates (plinth area & cubic content method) basic differences & advantages , approximate estimates based on Bay Area Method, Service Unit Method etc.

Unit II: Detailed building estimation-

Method of obtaining detailed quantities of building items worked on measurement sheets (centre line method , long wall & short wall method), PWD systems to be followed. Definition of estimate.

Unit III: Detailed estimates for load bearing and framed structures. (Ground floor only)

Unit V: Preparing estimates for services like water supply ,plumbing, various fittings for water supply and drainage.

Unit VI: Rate Analysis: Cost of materials and labor for various works , current rates of materials & labor to be referred from schedule of rates of PWD of the respective year, different methods of execution i.e. piece work ,daily basis , lump sum, labor rates and percentages etc. prime cost and provisional sum.

Unit VII: Specifications; - definitions , purpose and importance of specifications , general of brief specification , detailed specification , writing of specifications for UCR masonry , brick masonry, doors & windows, mortars, plasters, flooring like terrazzo, ceramic tiles, Indian patent stone, glazed tiles etc. All RCC items, some major sanitary & water supply fixtures and fittings.

Unit VIII: Measurement book(M.B.) R.A. bills , final bills , interim and final certificate.

Term Work :

Detail estimates with measurement sheets & rate abstract of at least 2 exercises each of load bearing & frame structures (only ground floor).Rate analysis of important building items such as brick masonry, UCR masonry, all concrete & RCC items in load bearing & RCC framed buildings.

Books for Reference:

1) Professional Practice – Roshan Namawati.
2) Schedule of rate s of every year of PWD Govt. of Maharashtra.
3) Estimating , costing & Valuation – Rangwala.
4) Estimating , costing (civil engineering) – B.N. Datta.
5) Estimating , costing , specification & Valuation – m. Chakravarty

ENVIRONMENTAL SCIENCE AND BUILDING SERVICES V

Subject Code No :357

Lecture Hour: 04-48

Studio Hour: Nil

Total: 04 Per Week- 48

Credits : 4

Term Work: Nil

Practical Examination: Nil

Theory Examination: 100 Marks (03 Hrs)

Total : 100 Marks

Aim:

To Familiarize the students with building service that support the functioning of building in the area of electrical wiring , lighting & conveying systems.

Objectives:

- To inform the students of the laws& basics of electricity and wiring systems within domestic and commercial buildings.
- To expose the students to the fundamentals of lighting & lighting design.
- To familiarize the students to the basic design principle systems of vertical distribution systems within the building.
- To expose the students with the NBC code of all of the above building services.

Syllabus:

Unit I: Electrical systems:

Electrical wiring systems: Laws of electrical circuits . Ohm's and Kirchhoff's laws

Laws of electrical circuits- single/three phase supply , electricity for safety types of earthing ISI specifications.

Electrical wiring systems in domestic and commercial buildings ., conduits, types of wiring , diagram for connection, bus way, bus bars, lighting track and conduits (aluminum , metallic, non-metallic) arrangements. Power handling equipment , switch boards, panel boards, Lighting conductors, purpose, materials, fixing, earthing arrangements.

Unit II : Fundamentals of lighting: principles of light – electromagnetic radiation , waves, nature of vision , measurements of lighting. Principles of illumination- definitions, visual tasks, factors affecting visual tasks, , units of light, definition of flux , solid angle, luminous intensity, utilization factor , depreciation factor , brightness & glare.

Unit III: Illumination and lighting: - Electrical light sources : brief description , characteristics and application of different types of lamps, method of mounting & lighting control . Luminary's classification, lumen method for design – room reflections / glare- manufacturer's data on luminaries/ luminaries cost.

Unit IV: Lighting Design: Installation and application in buildings.

Artificial light sources: special energy distribution luminous efficiency-color & their application areas and outdoor lighting. Light for offices, schools , libraries, residential , hospitals, parking , outdoors etc.

Elementary ideas of special features, required minimum level of Illumination to the physically challenged & elderly in building types. Solar energy systems for residential/ commercial buildings, reducing electrical loads, installation & maintenance.

Unit V: lighting Design : Basic design principles , criteria for planning, sizing, selection & layout of vertical distribution systems (lifts, escalators & moving walk ways) along with mechanical dimensional details, elevators types of elevators- design criteria, capacity, frequency, car size speed , number & size of elevators, layout of banks of elevators , planning& loading service cars in buildings, types of elevators- pit , machine room details, escalators & their uses, dimensions, angle, tread, risers, etc- NBC code

Books for Reference:

1) Philips lighting in Architectural Design
2) R.G. HOPKENSON& J. D. Kay. The lighting of Buildings.
3) National Building Code
4) Benjamin Evaus – Daylight in Architecture

COMPUTER APPLICATION IN ARCHITECTURE III

Subject Code No: 358

Lecture Hour: 01-12

Studio Hour: 02 -24

Total: 03 Per Week -36

Credits : 2

Term Work:50

Practical Examination: Nil

Theory Examination: Nil

Total : 50 Marks

Aim:

The lecture / studio programmed to engage students with understanding of the various softwares, visual languages, design fundamentals , visual literacy which provide the fundamental understandings required for the medium

Objectives:

- To educate the students to further architectural design skills through advanced computer applications.
- To focus in the area of computational media techniques& technologies & their impact on architectural design and production.

Syllabus:

Unit I: Introduction to digital theory and its unit that equips students with an understanding of the territory of computational design through its theoretical vocabulary and relevant histories.

Making of architectural vector diagrams to explore design and for digital communication using vector applications like coral draw , illustrator, etc.

Term Work:

Students should produce 3D model and drawings with walkthroughs, interior layouts, landscape elements etc. of at least 1 residential project.

ELECTIVE V

Subject Code No :359

Lecture Hour: 01-12

Studio Hour: 02-24

Total: 03 Per Week -36

Credits: 2

Term Work: 50

Practical Examinations: Nil

Theory Examination: Nil

Total : 50 marks

Aim :

To understand rules and regulation of act

Objectives:

To educate the students understand rules and regulation of act

Syllabus:

Architects act 197

Swami Ramanand Teerth Marathwada University ,Nanded

Teaching scheme for Third year B. Arch. Course Semester VI

Code no.	Subject	Teaching scheme			Examination scheme				CREDITS	Duration
		Lecture Hours	Studio hours	total	Term work	Pract .Exam.	Theory exam	Total marks		
361	Architectural Design VI	Nil	108	108	100	50	100	250	10	12 hours
362	Working Drawing II	Nil	72	72	50	50	Nil	100	04	—
363	Architectural Building Const& materials VI	24	48	72	75	50	100	225	09	4 HOURS
364	Theory and Design structures VI	48	Nil	48	25	Nil	100	125	05	3 Hours
365	History of Architecture VI	48	Nil	48	25	Nil	100	125	05	3 Hours
366	Estimating , costing & specification writing II	24	12	36	25	50	100	175	07	3 Hours
367	Environmental science & Building Services VI	48	Nil	48	Nil	Nil	100	100	04	3 Hours
368	Computer application in Architecture IV	12	24	36	50	Nil	Nil	50	02	—
369	Elective VI	24	24	48	50	Nil	Nil	50	02	—

Notes : Theory , internal, sessional work , and external viva are considered as separate heads of passing.

Total marks for the examination = 1200

Minimum marks for passing the examination :

Internal exam has to be conducted at college level

Internal : 50%

External & Theory : 40%

Each period shall be of 50 minutes duration and each semester shall be consist of 90 days of teaching programme.

The college are required to arrange the time table as per semester and as per the teaching scheme prescribed.

ARCHITECTURAL DESIGN VI

Subject Code No. : 361

Lecture Hours : Nil

Studio Hours: 09-108

Total : 09 per week - 108

Credits: 10

Term work :100 Marks

Practical exam : 50

Theory exam : 100(12 hrs.)

In two days (6 hours per day)

Total : 250 Marks

Aim:

To explore the design and form of building typologies that are the result of pressure on urban and economics, technology & ecology.

Objectives:

- To create an awareness with regard to the design of green buildings and sustainable architecture.
- To inculcate the importance of services integration and construction in spatial planning in the context to design of high rise buildings and service intensive buildings
- To highlight on the importance of high rise building as elements of identity in urban areas and urban design principles that govern their design.
- To explore computer aided presentation techniques including 2D & 3D drawings with walkthrough and models as required.

Syllabus:

Scale & Complexity – advanced & complex problems including large scale multistoried buildings & complexes for residential/ commercial/ institutional / mixed use in an urban context with focus with focus on visual characteristics , service integration and sustainable practices

Term work:

Office buildings, multiuse centre, convention centre, multiplex , corporate complex, health care and hospitality building

Display of competence in the application of knowledge gained from the following will be an essential requirement for all the design projects.

Materials, construction, structures , theory/ fundamentals of Architecture Science and Behavioral science.

Books for Reference:

1) Edward D Mills- planning for architects 2)Time saver standard for building types

WORKING DRAWING II

Subject Code No. : 362

Lecture Hours : Nil

Studio Hours: 06-72

Total : 06 per week -72

Credits : 4

Term work :50 Marks

Practical exam : 50

Theory exam : Nil

Total : 100 Marks

Aim :

The focus of the course is to impart skills related to the preparation of drawings meant for construction work on the site & to improve the students ability of detailing in computer.

Objective:

- To enable students to learn the techniques of preparing drawings by using computr software's.

Syllabus:

Project shall involve detailing of drawings for multistoried framed structure buildings including using computers for lettering , dimensioning lines, drafting conventions , title blocks , office standards , representation of different materials in section showing line weight age . Graphic symbols , drafting and preparing all the detail working drawings done in v sem. Including shop drawings of various fixtures and fittings, details of working electrical caballing , interiors etc.

Term work:

The above drawings need to be prepared on computer for one design project for multistoried framed structure such as apartment, office building ,shopping complexes etc.

ARCHITECTURAL BUILDING CONSTRUCTION AND MATRIALS VI

Subject Code No. : 363

Lecture Hour: 02-24

Studio Hour : 04-48

Total: 06 Per Week - 72

Credits: 9

Term Work: 75 Marks

Practical Exam:50 Marks

Theory Examination :100 (04 Hrs)

Total : 225 Marks

Aim:

To provide an understanding of various construction practices and details using teak wood, plywood, aluminum in the nonstructural components of building.

Objectives:

- To understand both in detail the methods of construction using teak wood / plywood for nonstructural components of a buildings.
- To understand both in detail the methods of construction using aluminum for nonstructural components of a building.
- To understand about the construction detail of swimming pools (Olympic size).
- To understand the reinforcement details of a cantilever balcony in a auditorium & cinema theatre.

Syllabus:

BUILDING CONSTRUCTION:

Unit I: False ceilings: Brief study of teak wood framing , aluminum framing for false ceiling- false ceiling with POP ,acoustic boards with teak wood framing , fixing of POP boards/ acoustic boards including light fittings, etc.

Unit II : Aluminum Doors & Windows : Brief study of aluminum products ,market forms of aluminum , aluminum extrusions, sketches of the above.

Aluminum doors and windows design details ,door –open able sliding, pivoted louvered

Unit III : Teak wood partitions , aluminum partitions , curtain walling.

flooring – in mud , murum, stone- marble, granite tandur , kota , Shahabad etc. tiles – mosaic terrazzo ceramic and vitrified, wooden- teak wood , artificial wood.

Paving : cast in situ concrete, concrete tiles, interlocking blocks, clay tiles, brick and stone

Curtain walling :

Design & construction details using different types of glazing & composite aluminum panels.

Unit IV: Construction of swimming pools with details of retaining wall, raft slab, underwater lighting system , scum gutter, inlet & outlet details , spring board diving details , filtration plant , notes on washing of swimming pools.

Unit v : Construction details of a balcony slab in a auditorium/ cinema theatre, raker beam details & RCC slab details (showing general reinforcement) , longitudinal section of an auditorium

BUILDING MATERIALS .

- Retaining walls, concepts, masonry/ RCC retaining wall, weep hole details , RCC/ masonry retaining walls in basement floor.
- Cavity walls, construction, materials , brick masonry walls, detail of cavity wall near door & window openings.
- Different materials for curtain walling like glazing , composite aluminum doors, materials used for swimming pools , decks , paving

Term work:

The student should submit drawing sheets covering all the units as given above including detailing wherever required

Books for Reference :

1) Dr. B.C. Punmia – A Text book of building construction.
2) T.D. Ahuja & G.S. Birde – Fundamentals of building construction.
3) S. C. Rangwala – Engineering materials.
4) building construction – mackay all volumes.
5) building construction –Chudley.
6) building construction – Barry all volumes.

THEORY AND DESIGN OF STRUCTURES VI

Subject Code No. :364

Lecture Hour: 04-48

Studio Hour: Nil

Total: 04 per week-48

Credits: 5

Term Work: 25Marks

Practical Examination: Nil

Theory Examination: 100 (03 Hrs)

Total: 125 Marks

Aim :

The course is structured to teach building structural systems & to make the students understand the theory behind the structural forums but they are not expected to solve numerical problems.

Objectives:

- to inform the students the building structural systems.
- To increase the students ability to identify the structural forms suitable for architectural expression.

Syllabus:

Unit I: Masonry piers – stability of masonry walls , principles , Design of walls , reinforced masonry , examples.

Unit II : Types of trusses for different spans, materials used , load distribution, IS code specification , types of connections.

Unit III : Introduction to the effect of earthquake on structures – basic principles of construction and materials used , IS code recommendations.

Unit IV: Relation between structure and architecture , geometry of form & structural function. Aesthetic theories of the expressions of structural function in architectural form.

Unit V: Types of building structural elements , load calculations for different structural elements – load distribution methods , IS code recommendation

Unit VI: Structural System Design – fixing up of structural elements for the given plan, size and partition of the same , use of modular co- ordination exercises with different building plans

Term work :

Submissions of files with sketches of different structural forms.

Books for Refernce:

1) Criteria for earthquake design of structures – Bureau of Indian Standards (IS 1893- 2000)
2) Code of practice for earthquake design & construction of building - Bureau of Indian Standards (IS 4236-1976)
3) Felix Candela – Architecture & Structuralism 1963
4) Lane Allen –Developments in structural Form -1975
5) Siejel curt – Structure & form in Modern Architecture
6) Criteria for design a steel structure as per IS 800-2007.

HISTORY OF ARCHITECTURE VI

Subject Code No. : 365

Lecture: Hours :04-48

Studio Hours : Nil

Total :04 per week-48

Credits: 5

Term work :25 Marks

Practical exam : Nil

Theory exam: 100 marks(03 Hrs.)

Total : 125 Marks.

Aim:

To expose the students to the origin, development and spread of modern architecture in western world as well as the architectural scenario of colonialism in India.

Objectives:

- To introduce the condition of modernity and bring out its impact in realm of Architecture
- To study modern architecture as evolving from specific aspects of modernity industrialization, urbanization , material development, modern art as well as society's reaction to them.
- To create an overall understanding of the architectural developments in India by colonial rule.

Syllabus:

Unit I : Effects of industrial Revolution on construction technology and Architectural design . Early movements as Eclecticism, Functionalism, Art Nouveau and Arts & Crafts movement.

Unit II: Modern Architecture: Development Adolf Loos and critique of ornamentation peter Behrens- Modern Architecture & Art expressionism, constructivism, cubism.

Unit III : Bauhaus – school of design & handicraft , Walter groupies, Mies van der rohe, growth of international style.

Unit IV: Ideas and works of Gropius , le Corbusier, Alvar Alto, Latest works of frank Lloyd Wright .

Unit v : Modern Architecture – Later Directions post world war II developments & spread of international style , later works of Corbusier, Brasilia – capital of Brazil , works Lucio Costa, Oscar Niemeyer and works of later modernist as Louis Kahn, Paul Rudolph , Eero Saarinen,Pei , Kenzo Tange.

Unit VI : Colonial Architecture in India – colonialism & its impact , early colonial architecture , forts , bungalows, cantonments , planning of New Delhi and works of British Architects in India in pre – Independent of India.

Unit VII : works of some of the famous Indian architects like B. V. Doshi, Charles Correa , Achyut Kanvinde, Raj Rewal etc. and impact of Chandigarh experiment on Indian Architecture

Term work :

Students should submit (pencil, crayon ,ink) sketches of the works of some of the famous architect, western & Indian architects with notes in file

Books for Reference:

1) Bahga S.S. Post Independence Architecture
2) Bhatt, Vikram and Scriver, peter : Contemporary Indian Architecture – After the Masters.
3) Curtis , J.R. William : Modern Architecture since 1900
4) Modern Architecture in United States.

Estimation , Costing & Specification Writing II

Subject Code No. : 366

Lecture: Hours: 02-24

Studio Hours : 01-12

Total : 03 per week-36

Credits: 7

Term work :25 Marks

Practical exam : 50

Theory exam: 100 marks(03 Hrs.)

Total : 175 Marks.

Aim:

To enable students understand the method of writing specifications for various items of works involved in the building , to expose the students the procedure involved in estimating costs involved, Detail projects will be introduced for preparation of specifications& estimation.

Objectives:

- To educate the students in detail the need and importance of specifications, how to write specifications , important aspects of the design of a specification as per market survey for item not included in DSR.
- To inform the students the need for estimation in detail for calculating quantity of material required for different types of item of building works – the concept of abstract and detailed estimates based on measurements of materials and works.
- To educate the students to work out the rates of important item of interiors for small residence and office.

Syllabus

Unit I: to find out quantities of building material in detail as per drawings , specification and estimation. Like reinforced steel , concrete bricks ,grills, wooden , frames, tiles, window cladding etc.

Unit II: Detailed building estimation-

Method of obtaining detailed quantities of building materials worked on detailed estimate.

Unit III: Detailed estimates for framed structures. (multistory only) [Architectural design problem sub. Code: 361]

Unit V: Preparing estimates for services like water supply ,plumbing, various fittings for water supply and drainage as per DSR & as per market.

Term Work :

Detail estimates with measurement sheets & rate abstract of at least 1 exercises of frame structures .Second exercise of interior or services work.

Books for Reference:

6) Professional Practice – Roshan Namawati.
7) Schedule of rate s of every year of PWD Govt. of Maharashtra.
8) Estimating , costing & Valuation – Rangwala.
9) Estimating , costing (civil engineering) – B.N. Datta.
10) Estimating , costing , specification & Valuation – m. Chakravarty

ENVIRONMENTAL SCIENCE AND BUILDING SERVICES VI

Subject Code No :367

Lecture Hour: 04-48

Studio Hour: Nil

Total: 04 Per Week 48

Credits : 4

Term Work: Nil

Practical Examination: Nil

Theory Examination: 100 Marks (03 Hrs)

Total : 100 Marks

Aim:

To familiarize the students with building services that support the functioning of a building in the area of internal environment control and fire & security systems.

Objectives:

- To expose the students to the science behind an air- conditioning & refrigeration.
- To familiarize the students with various air –conditioning systems and their applications.
- To study the design issues for the selection of various systems & their installation .
- To inform the various ways by which fire safety design can be achieved in buildings through passive design.

Syllabus:

Unit I: AIR CONDITIONING: BASIC REFERIGERATION PRINCIPLES:

Thermodynamics- heat, temperature, latent heat of fusion, evaporation, saturation, temperature, pressure temperature, relationship for liquid refrigerant, refrigeration cycle components, vapor compression cycle, compressors, evaporators, refrigerant control devices , electric motors, air handling units, cooling towers.

Unit II : AIR CONDITIONING : SYSTEMS AND APPLICATIONS

Air conditioning systems for small buildings, window types, evaporative cooler, packaged terminal units& through the wall units, split system.

System for large buildings- chilled water plants all air system. Variable air volume, allwater systems.

Configuring / sizing of mechanical equipment, equipment spaces and sizes for chiller plant , cooling tower, fan room, circulation pumps, pipes , ducts.

Unit III : AIR CONDITIONING : DESIGN ISSUES AND HORIZONTAL DISTRIBUTION SYSTEMS

DESIGN: criteria for selecting the air conditioning system for large building and energy conservation measures – typical choices for cooling systems for small and large buildings , horizontal distribution of services for large buildings grouped horizontal distribution over central corridors , above ceiling , in floor, raised access floor , horizontal distribution of mechanical services.

Unit IV: FIRE SAFTY : DESIGN AND GENERAL GUIDELINES OF EGRESS DESIGN:

Principles of fire behavior, fire safety design principles , NBC planning considerations in buildings- non combustible materials , egress systems ,Exit, Access distance between exist, exterior corridors , maximum travel distance doors, smoke proof enclosures, general guidelines for egress design for auditoriums, concert hall, theatres, other building types, window egress , accessibility for physically challenged, NBC guidelines for lift , lobbies, stairways , ramp design , fire escapes and A/C electrical systems.

Unit V :FIRE SAFETY , FIRE DETECTION AND FIRE FIGHTING INSTALLATION:

Heat smoke detectors , sprinkler systems , firefighting, pump and water requirement,storage, wet risers, dry risers, fire extinguishers & K cabinets, fire protection systems as CO2 and Halon system, fire alarm system, and Snorkel ladder.

Configuring: Sizing and space requirements for fire fighting equipments.

Books for Refernce:

1) Air Conditioning & Referigeration – William Sterms & Julian R. Fellows
2) Fire Safety –National Building Code
3) Air Conditioning & Energy Conservation – F.C.Sherrat.
4) Design for fire safety – Andrew m. Bnehanan.

COMPUTER APPLICATION IN ARCHITECTURE IV

Subject Code No: 368

Lecture Hour: 01-12

Studio Hour: 02 -24

Total: 03 Per Week -36

Credits: 2

Term Work:50

Practical Examination: Nil

Theory Examination: Nil

Total : 50 Marks

Aim:

The lecture / studio programmed to engage students with understanding of the various software's, visual languages, design fundamentals , visual literacy which provide the fundamental understandings required for the medium

Objectives:

- To educate the students to further architectural design skills through advanced computer applications.
- To focus in the area of computational media techniques& technologies & their impact on architectural design and production.

Syllabus:

Unit I: Scene setup: involves arranging virtual objects, lights, camera and other entities on a scene which will later be used to produce a still image or an animation ,image processing and video editing to create architectural walkthroughs.

Unit II: Building information & Modeling: using three dimensional , real time dynamic building modeling software to increase productivity in building design and construction , the process produces building information model which encompasses building geometry, spatial relationships geographic information modeling application like Revit Architecture, Auto CAD etc.

Term Work:

Students should produce 3D model and drawings with walkthroughs, interior layouts, landscape elements etc. of at least 1 commercial project and one project of architectural design studio should be submitted in cad (marks will be given for term work in both the subjects).

ELECTIVE VI

Subject Code No :369

Lecture Hour: 02-24

Studio Hour: 02-24

Total: 04 Per Week -48

Credits: 2

Term Work: 50

Practical Examinations: Nil

Theory Examination: Nil

Total : 50 marks

Aim :

- Seminar on any material they had studied in A.B.C.M. with samples and case study.
- Seminar on an any Architects works , list of his famous projects and detail information about one big project handled by him.