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/ ०१ / अभ्या./2014–15/4481 दि: 20.05.2014

प्रती,
मा. परीक्षा नियंत्रक,
प्रस्तुत विद्यापीठ.

विषय : Bachelor of Architecture SY सुधारीत अभ्यासक्रमा बाबत....
महोदय,

उपरोक्त विषयास अनुसरून आपणास कळविण्यात येते की, प्रस्तुत विद्यापीठाच्या दिनांक 30.04.2104 रोजी आयोजित मा. विद्यापरीषद बैठकीतील विषय क्र. 50/32–2014 ठरावा नुसार Bachelor of Architecture SY हा सुधारीत अभ्यासक्रम सोबत जोडल्या प्रमाणे शैक्षणिक वर्ष 2013–14 पासुन लागु करण्यात आला आहे.

तरी सदरील ही बाब संबंधितांच्या निदर्शनास आणून द्यावी.

आपला.

संचालक
महाविद्यालय व विद्यापीठ विकास मंडळ

प्रत माहिती व पुढील कार्यवाहीस्तव :

1) संलग्नीत महाविद्यालये, प्रस्तुत विद्यापीठ.
2) कुलसचिव यांचे कार्यालय, प्रस्तुत विद्यापीठ.
3) उपकुलसचिव, पदव्युत्तर विभाग, प्रस्तुत विद्यापीठ.
4) उपकुलसचिव, पात्रता विभाग, प्रस्तुत विद्यापीठ.

SWAMI RAMANAND TEERTH

MARATHWADA UNIVERSITY

NANDED

Syllabus for Bachelor Of Architecture

Program : B. Arch.

Course : Bachelor Of Architecture

Second year

(Semester III & IV)

(As per Credit Based Semester and Grading System With effect from the academic year 2013- 2014)

Swami Ramanand Teerth Marathwada University ,Nanded

Teaching scheme for second year B. Arch. Course (part I) SEMESTER III

Code no.	Subject	Teaching scheme			Examination scheme				
		Lecture Hrs	Studio hrs	Total	Term work	practical Exam.	Theory exam	Total marks	Duration
231	Architectural Design III	Nil	72	72	100	50	---	150	---
232	Architectural Building Const.	24	48	72	50	75	100	225	4 HOURS
	and materials – III								
233	Theory and Design structures III	48	Nil	48	25	Nil	100	125	3 Hours
234	History of Architecture I	48	Nil	48	25	Nil	100	125	3 Hours
235	Climatically Responsive Architecture	48	Nil	48	75	Nil	50	125	2 Hours
236	Site Planning & Surveying & Leveling	12	12	24	50	50	Nil	100	----
237	Environmental science & Services I	48	Nil	48	Nil	Nil	100	100	3 Hours
238	Computer application I	12	24	36	50	Nil	Nil	50	---
239	Elective	24	48	72	100	Nil	Nil	100	---

SECOND YEAR SYLLABUS (III semester)

ARCHITECTURAL DESIGN III

Subject Code No : 231

Lecture Hours : Nil

Studio Hours: 6- 72

Total : 06 Per week - 72

Term work : 100 Marks

Practical exam : 50 Marks

Theory Examination : Nil

Total : 150 Marks

AIM: --

To create an understanding of the interrelationship amongst various elements of architecture form

Function, space planning, user perception & behavior

Objective:--

- To understand the characteristics of site & importance of site which includes built form and open spaces.
- To understand the relationship between form and spaces and the importance of aesthetics.
- To ascertain the response of user group through case studies.
- To enable the presentation through 2d drawings ,sketches and model.

Focus should be on form space relationship , spatial organization, behavioral aspects specially those relating to children , site planning aspects, appropriate materials and construction.

Syllabus:--

1) Residential buildings , institutional building nursery or primary school , schools for children with specific differently abled, primary health centre ,banks neighborhood market, library.

Note:--

At least two major exercises and two minor /time problem should be given . The final submission shall necessarily include a model for at least one of two main problems.

The student have to present the entire semester work for assessment at the practical exam (viva voice).

Reference books:--

1) Time saver standards for building type Mc. Graw Hill professional 2001
2) Time saver standards for interior design and space planning. Mc. Graw Hill professional 2001
3) Neuferts Architects data, Blackwell 2002
4) Architectural graphic standards ,Wiley 2000
5) Site Engineering.

ARCHITECTURAL BUILDING CONSTRUCTION AND MATERIALS III

Subject Code No: 232

Lecture Hours : 02 - 24

Studio Hours: 04 - 48

Total : 06 Per Week- 72

Term work: 50 Marks

Practical exam : 75 Marks

Theory exam: 100 Marks(04Hrs)

Total : 225 Marks

AIM: --

This course is devised to provide an understanding of timber , industrial timber products that go into making of structural and non structural components of buildings

Objectives:--

To understand both in general and detail the methods of construction by using materials for wall finishes etc.

To understand both in general and in detail the methods of construction by using man made timber products such as plywood's.

To understand the basic principles of timber staircases and R.C.C. stairs.

Syllabus:--

1) Opening and fenestration.
2) Methods of construction of manmade timber products such as plywood's, block boards. Laminated wood and gypsum products in fix partitions, wall paneling, false ceiling(timber/metal)
3) Wooden ground and upper floors, terms defined, bridging joists, binding joist, binders ,beams and girders, solid and herring bone strutting, floor boards, ceiling joist etc.
4) Staircases, terms defined, tread, riser, stringer ,nosing, flights, landing, headroom ,handrail, balusters, newel posts etc
5) Types of stairs : straight, dog legged, open well, geometrical, circular, spiral, bifurcated wooden stairs, basic knowledge of R.C.C. stairs

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Studio Hours: 04 - 48

Total : 06 Per Week- 72

Term work: 50 Marks

Practical exam : 75 Marks

Theory exam: 100 Marks(04Hrs)

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4) Staircases, terms defined, tread, riser, stringer ,nosing, flights, landing, headroom ,handrail, balusters, newel posts etc
5) Types of stairs : straight, dog legged, open well, geometrical, circular, spiral, bifurcated, wooden stairs, basic knowledge of R.C.C. stairs

B.) MATERIALS:--

1) LAMINATES AND VENEERS.:--

Resin bonded plywood , types of laminates, laminated wood, insulating boards, veneers from different varieties of timber and their characteristics.

2) Paints and varnishes:--

Protective coating ,paints ,constituents of paints, their functions, water paints, distempers and cement based paints, emulsion paints, selection of paints.

Varnishes (oil and spirit), characteristics and uses of varnishes, French polish, anti corrosive paint, damp proofing finish.

3) Glass and glass products:--

Composition and fabrication of glass, types of glass, wired glass, fiber glass, rock wool, glass Crete blocks, structural glass, their properties and uses in building.

4) Plastics:--

Polymer types , thermosetting and thermoplastics, resins, common types of mouldings, fabrication of plastics, polymerization and condensation, plastic coatings, composite materials, classifications, properties and uses –linoleum, plastic coated paper, polyurethane sheets, flexicon sheets, reinforced plastics and p.v.c

TERM WORK:--

At least 8 to 10 drawing sheets to cover on chapter 1,2,3 & notes on materials to be completed in files

NOTES:--

Students should be encouraged to do market survey of the materials as stated above. At least two site visits on construction sites to impart practical knowledge.

Weightage of marks:--

Construction 70%

Material 30%

Reference books:--

1) Building construction by Mckay vol 1
2) Building materiala by s.c. Rangwala
3) Barry : construction of building :vol 1&2
4) Francis d k ching: building construction
5) Bindra arora: building construction
6) building construction by chudley
7) architectural journals.

THEORY AND DESIGN OF STRUCTURES III

Subject Code No: 233

Lecture Hours : 04 -48

Studio Hours : Nil

Total : 04 Per Week -48

Term work ; 25 Marks

Practical exam : Nil

Theory exam: 100 Marks(03 Hrs)

Total: 125 Marks

Aim : --

To make students aware of how structural resolutions become important in the realization become important in the realization of Architectural design concept. The focus is to study the concept of shear force and bending moment in beam section , definition of beams and theory of columns, and to know the concept of indeterminate.

Objectives:--

- to enable a student to understand the basic concepts of shear force and bending moment acting on beams subjected to various loading conditions through exercises.
- To determine stresses in beams and strength of sections by working out problems.
- To calculate deflection of beams using methods.
- To study the theory of columns by working out problems.
- To understand the concepts of indeterminate structure and its analysis.

Syllabus:--

1) Shear force and bending moment:--

Basic concepts shear force and bending moment diagrams for cantilever and simply supported beams subjected to various types of loadings (point loads, uniformly distributed loads, uniformly varying loads and concentrated moment/ couple) overhanging simply supported beams point contraflexture.

1) Stresses in beams:--

Theory of simple bending - bending stress distribution – strength of sections – beams of composite sections(flitched beams) shearing stress distribution in beam sections.

2) **Deflection of beams:--**

Slope and deflection at a point – double integration method and Macaulay's method for simply supported and cantilever beams.

3) **Columns:--**

Short and long columns –concept of elastic stability – Euler's theory – assumptions and load carrying capacity of columns with different end conditions concept of effective length slenderness ratio limitations of Euler's theory – Rankin's formula –eccentric loading- core of column section.

4) **Statically indeterminate beams:--**

Introduction- determination of degree of statically indeterminacy for beams and frames – concept of analysis. (no problems).

Term work:

File to be submitted with solved problems and notes.

Weightage of marks:--

A- Section- 50%
B- Section -50%

Books:--

1) Text book of strength of materials.- R. k. Bansal.
2) strength of materials - B. C. Punmia.
3) Theory and analysis of structures vol 1- A.P. Jain &B.K.Jain
4) Analysis of structures vol. 1—M.M. Ratwani &V. N. Vazirani

HISTORY OF ARCHITECTURE I

Subject Code No. : 234

Lecture Hours :04 -48

Studio Hours : Nil

Total: 04 per week -48

Term work :25 Marks

Practical exam : Nil

Theory exam : 100 Marks (03 Hrs)

Total : 125 Marks

Aim:--

Introduction to the architecture of the ancient world. To generate an understanding about the development of civilization and its architectural implications.

Objective :--

Visually intensive lectures using power point presentations to acquaint students with historic sites and buildings. Site visits and seminar presentations and model making.

Syllabus:--

1) Indus valley civilization : -- town planning, building layout , graineries , great bath, sewage system.
2) Mauryan architectural form:-- Patliputra, Town planning , textual references, kautilyan arthshastra and megasthene , fort architecture , forms of forts.
3) Ancient cave architecture:-- Buddhist caves, Chaitya Viharas and Stupas . cave temples of ancient India 1200 Caves out of which 900 hundred located in Maharashtra (caves of Ajanta and Ellora.) Satvahana , vakataka, & Rashtrakuta , structural temple architecture, earliest temples- tagarpur and chezrailla.
4) Structural temple styles, nagar dravida and vesara. Mahabalipuram Rathas, early chalukyan temple town Badami. Later chalukyan temples of hottal pangaon and Dharamapuri . Yadav temples and south Indian temples of chola , chora and pallava.
   Jain Architectural tradition, Jain temples towns of palitan and girnav.

CLIMATICALLY RESPONSIVE ARCHITECTURE

Subject Code No. : 235

Lecture Hours :04-48

Studio Hours : Nil

Total: 04 per week- 48

Term work :75 Marks

Practical exam : Nil

Theory exam: 50 Mark(2 Hrs)

Total: 125 mark

Aim:--

To enable the understanding of the technical basis of the environment that exists in or around a building and to integrate the requirements of climate in building and in relation to building function.

Objective:--

- To equip the student with the basic understanding of climate types in India and the impact on requirements of building design and site planning: to introduce them to the basoc science of building design and site planning for thermal comfort, day lighting and natural ventilation; familiarize them with the data, methods, principles, standards and tools for planning and designing for climate comfort.
- The student should be able to predict climatic conditions in a given building (simple residence) and redesign for given parameters

Syllabus:--

1) **Climate and human comfort:--**

Factors that determine climate of the place- components of climate – climate classifications for building designers in tropics-climate characteristics. Human body heat balance – human body heat loss – effects of climatic factors on human body heat loss effective temperature – human thermal comfort- use of c. Mahoney's tables.

2) **Design of solar shading devices:--**

Movement of sun locating the position of the sun –sun path diagram- overhead period – solar shading – shadow angles- design of appropriate shading devices.

3) Heat flow through building: --

Basic principles of heat transfer through buildings, performance of different materials .conductivity, resistivity, specific heat conductance.

4) Impact of air movement due to natural and built forms:--

The wind- the effects of topography on wind patterns- air current around the buildings- air movement through buildings – the use of fans- thermally induced air currents- stack effect- venture effect – use of courtyard.

5) Climate and design of buildings :--

Design strategies in the warm humid climates – hot humid climates – hot and dry climates and cold climates- climate responsive design exercises.

Term work:--

The student have to detailed appraisals/ analysis of climatologically performance of an existing residence or a work place ,followed by retrofitting or the same to improve climatologically performance. (file containing notes to be submitted)

Books:--

1) Manual of tropical housing and building – koenigaberger O. H. &Others
2) Man climate and architecture, Architectural sciences series- applied science publishers Ltd London – E.Givoni
3) Tropical Architecture - Tzonis Alexander.
4) Climate responsive architecture – Arvindkrishnan and others
5) Tropical sustainable architecture – Joo – HWA bay & Boon – lay ong.
6) Climatology – by oliver.

SITE PLANNING AND SURVEYING AND LEVELLING

Subject code No.: 236 — Term work : 50 Marks

Lecture Hours : 01-12 — Practical exam : 50 Marks

Studio Hours : 01-12 — Theory Exam : Nil

Total : 02per week- 24 — Total: 100 Mark

Aim:--

To enable the appreciation of site and its elements, and to equip students with the various type of techniques of site surveying as well as to introduce them to aspects of site planning and site analysis.

Objectives:--

- To teach various techniques of site surveying.
- To teach importance of site and its content in architectural creations.
- To orient the students to several influencing factors which govern the siting of building or group of building in given site.
- To teach the students the methodology of preparing a site analysis diagram . This will serve as a prelude to any architectural creation.

Syllabus:--

1) Definition of plot , site , land and region . Units of measurements. Reconnaissance and need for surveying – chain survey-compass survey, plane table and theodolite surveys – various equipments used.
2) Importance of site analysis – factors involved. Accessibility, size and shape of sites . conforming and nonconforming uses. Climate and topography , infrastructures available, sources of water supply and means of disposal systems ,Architectural and visual aspects preparation of analysis diagram.
3) Lie of the land , contours water shed , surface drainage.
4) Organization of vehicular and pedestrian circulation, types of roads ,hierarchy of networks, road widths and parking regulations, turning radii and street intersections.

Term work:--

Site observation report , field book with observations and reading / maps/ contour survey.

Books: 1) Site planning by Kelvin linch. 2) Surveying and leveling by B.C. Punmia.

ENVIRONMENTAL SCIENCE AND SERVICES I

Subject Code No. : 237

Lecture Hours :04-48

Studio Hours : Nil

Total: 04 per week -48

Term work : Nil

Practical exam : Nil

Theory exam : 100 Marks (03hrs)

Total : 100 Marks

Aim :--

The course is designed to familiarize the students with Building services that support the functioning of a building in the area of water supply and sewerage.

Objectives:--

- To study water quality, control and treatment and its distribution with in a building.
- To expose the students to water management concept.
- To understand the fundamentals of waste disposals from a building and the guidelines of planning of a sewerage system.
- To expose the students to waste management concept.
- To familiarize the students with equipments for management of waste water and usable water.

Syllabus:--

1) Water quality control and distribution system:--

Surface and ground water sources, water quality, nature of impurities- treatment-sterilization and distribution.

- Distribution systems in small town, layout-cold water line, hot water line design criteria for daily water requirements based on occupancy, various kinds of meters- tank capacity-pumping plant capacity, testing of water hardness, calculation of water consumption for residential flats, multistoried buildings, piping systems, piping material, plumbing fixtures-selection criteria-domestic hot water systems, solar water heating systems, applications and installations.

2) Water management concepts.:--

Different methods of harvesting rain water from roof and paved areas- waste water treatments, conventional, modern systems. Mandatory provisions with respect to plumbing arrangements in apartment buildings.

3) **Design of drainage and vent pipe :--**

System for low rise and high rise buildings, Building drain, sewer, gullies, inspection chambers, intercepting chambers, manholes, connection to public sewer cross connection etc.

Planning of bath room, toilet in domestic and multi storied buildings, standard type of sanitary fitting, caulking compounds, traps and joints

Flushing cisterns, septic tanks in relation to building, ventilation of sewer.

Layout of simple drainage system for all buildings, apartments, commercial buildings- gradient used in lying of drain and sewer, size of drain pipes and material used.

4) **Waste management concepts and sewerage disposals:--**

Primary secondary treatment, activated sludge, intermittent and trickling sand filter, sewerage treatment plants- layout of residential, commercial buildings, recycling reuse of water.

5) **Solid waste disposals.:--**

Refuse disposals collection and conveyance, disposal of town refuse, sanitary landfills, incineration vermiculture aerobic digestion for composed, anaerobic digestion for energy organic filter (Bio Gas) and rural energy systems.

BOOKS:--

1) Water supply and sanitary engineering by S.C.Rangwala.
2) Sanitary Engineering and water supply by Gharpure
3) Sanitation and water supply by Barry Vol .V
4) Building constructions By B.C. Punmia

COMPUTER APPLICATIONS I

Subject Code No. : 238

Lecture Hours : 01-12

Studio Hours : 2-24

Total: 03 per week -36

Term work : 50 Marks

Practical exam : Nil

Theory exam: Nil

Total : 50 Marks

Aims :--

The course imparts basic knowledge of computer to up grade the general understanding and ability in computing the realm of Architecture.

Objectives:--

- To enable the students to make the audio visual presentation, processing and other basic computer skills- knowledge transferred
- Knowledge of basic software required for Architectural application, M.S. Office, Photo Editing techniques, use of world wide web.

Syllabus:--

1) Introduction to type's of computers software and hard ware. Concept of bits, Bytes. Information of Architecture related soft ware and its uses
2) Introduction to M.S. Office, World, Excel, Power point presentation, introduction to M.S.O.S. Printing setting for different soft ware
3) Introduction to Photo Editing soft ware and print setting.
4) Introduction and details of various internet explorer and its uses. Use of Processing of search engines on w w w

BOOKS:--

1) Sagman -Micro soft office for windows

ELECTIVE

Subject Code No. : 239

Lecture Hours : 02-24

Studio Hours : 04-48

Total: 06 per week- 72

Term work : 100 Marks

Practical exam :Nil

Theory exam : Nil

Total: 100 Marks

1) Section of solids :--

Section plans, sections, true shape of a section.

Section of solid Prism, Pyramid, cylinders, cone, spheres

2) Developments of surfaces:--

Introduction and methods of development of surfaces

Development of Lateral surfaces of right solids like cubes, Prisms, Cylinders.

Methods of drawing the development of the lateral surface of a pyramid and cone etc.

3) College Project

Seminar , Guest Lectures, Site visit and Study tours.

Teaching scheme for second year B. Arch. Course (part II)Semester IV

Subject	Teaching scheme			Examination scheme				
	Lecture Hours	Studio hours	total	Term work	pract Exam.	Theory exam	Total marks	Duration
Architectural Design III	Nil	120	120	100	50	100	250	12 hours
Architectural Building Const. and materials -- IV	24	48	72	50	75	100	225	4 HOURS
Theory and Design structures III	48	Nil	48	25	Nil	100	125	3 Hours
History of Architecture	48	Nil	48	25	Nil	100	125	3 Hours
Landscape design	24	24	48	25	50	Nil	75	--
Environmental science & Services II	48	Nil	48	Nil	Nil	100	100	3 Hours
Computer application in Architecture II	Nil	24	24	50	Nil	Nil	50	----
Elective	24	24	48	50	Nil	Nil	50	--
College project	24	24	48	50	Nil	Nil	50	--

SECOND YEAR SYLLABUS (IV-Semester)

ARCHITECTURE DESIGN IV

Subject Code No : 241

Lecture Hour: Nil

Studio Hour :10-120

Total: 10 Per Week-120

Term Work: 100 Marks

Practical Exam:50 Marks

Theory Examination :100(12 Hours)

In two days

Total : 250 Marks

Aim :

To create a holistic understanding of the socio-cultural, geographic and climate related aspects that shape the built environment as well as to expose the students towards the design of simple community oriented buildings.

Objective:

- Organization of functional activities in relation to user requirement and the site.
- Relating a system of horizontal and vertical circulation , open spaces, parking etc.
- Responding to socio economic factors such as income levels, privacy, territoriality, interactions(between the spaces, and the users) etc.
- Considering materials, structure and services in relation to the design proposal.
- Integration of plan forms and three dimensional composition (spatial organization). Detailing for the physically differently abled and elderly.

Syllabus

Design of small buildings of more than one activities/ function such as - Guest house, student's hostel, small hotel, holiday resort, row houses, block of flats and residential complexes at a small scale, housing for specific communities in urban and rural areas.

Note:

At least two major projects and two minor/ time problems should be given. The final submission shall necessarily include model for at least one of the two major problems.

The student will have to present entire semester work for assessment at the viva-voce exam.

Reference book

1. Time sever standards for building types , Mc Graw Hill Professional 2001
2. Time sever standards for interior design and space planning , Mc Graw Hill Professional 2001
3. Neuferts Architects data, Blackwell 2002
4. Architectural graphic standards, Wiley2000

Subject Code No. : 242

Lecture Hour: 02 -24

Studio Hour :04-48

Total: 06 Per Week -72

Term Work: 50 Marks

Practical Exam:75 Marks

Theory Examination :100 (04 Hrs)

Total : 225 Marks

Aim

To provide an understanding of construction using concrete as well as to expose students to the current research in concrete construction and detailing.

Objective:

- To introduce construction of building components in reinforced cement concrete.
- To expose the student to the advance construction systems developed by research institutes in the country and the detailing of the same.

Syllabus:

Unit I: Concrete construction

Construction of simple framed building in RCC.

Types of foundations (strip foundation, raft, isolated, combined and continuous) construction details.

Construction details of RCC frames-beams, columns, slab, precast frames.

Construction details of openings; concrete lintels, sunshades, arches, shading devices screen walls, pergolas.

Continuous flat slab, waffle slab, coffered slab.

Unit II : Designing construction method for concrete staircases.

RCC staircase-different type, reinforcement details, dog legged, straight flight, folded steps, spine beam staircases and fixing details of handrails and balusters.

Unit III: Advanced construction system developed by research institutes in India.

Design and detailing of building of building material components developed by research organization by CBRI etc.

B) Materials:

Unit IV: Ferrous metals, steel and steel alloys.

IRON ORE ; definition, introduction, manufacture of iron ore, type-pig iron, wrought iron and caste iron –their properties and uses.

Steel

Definition, properties, manufacturing and casting, heat treatment, mechanical treatment, market forms of steel; fire protection of steel and its uses. Various categories of steel and their suitability in construction.

Unit V : Innovations in steel and steel industry

Study of codes standards accepted industrial practices and procedures regarding the performance, expectation and acceptance criteria for steel, stainless steel in building industry.

Unit VI : Non ferrous metals

Aluminum and aluminum alloys, manufacture, properties, durability and uses.

Aluminum products-extrusions ,foils, casting, sheet etc.

Other non ferrous metals-copper, lead, Zink -manufacture, grades, forms, sizes

Different processes for protection of non ferrous metals and products like, anodizing power coating , painting, stove-enameling , chromium plating.

C)Notes:

Exercises of the above through case studies and drawings, at least 8 sheets to be completed during semester.

Weightage of Marks:

Construction 70%

Material 30%

D) Reference Books:

1) M.S. Shetty, Concrete technology

2) Dr. B. C. Punmia , A text book of building construction .

3) R. Chudley, Construction technology

4) Steel designers handbook

5) Bindra, Arora: Building Construction

6) Engineering materials by S. C. Rangwala

Subject Code No. :243

Lecture Hour: 04-48

Studio Hour: Nil

Total: 04 Per Week 48

Term Work: 25Marks

Practical Examination: Nil

Theory Examination: 100 (03 Hrs)

Total: 125 Marks

Aim

This course focuses on structural design of different elements of building in R. C. C.

Objectives:

- To inform about the methods of design through working stress and limit stress methods
- To use the above two methods for the design of concrete beams and slabs under various conditions.
- To use the limit state method for design of concrete staircases.
- To study the theory of columns by working out problems.

Syllabus:

Unit I : Introduction to RCC design , design philosophies. Working stress and limit state method, singly reinforced beams. Analysis and design using both working stress and limit state method.

Unit II: Situation when doubly reinforced beams are used, analysis and design of doubly reinforced beams, using limit state method only.

Unit III : Introduction, analysis, and design of T beams using limit state method only. Design of shear reinforcement for all types of beams (limit state method only)

Unit IV : Introduction and design of one and two way reinforced slabs (simply supported, restrained continuous) by limit state method only.

Unit V : Design of axially loaded RCC columns and columns subjected to bending moment about 1 and two axis using limit state method only.

Unit VI: Design of staircase (dog legged only), using working stress method. Design of lintels and cantilever beams and slabs using limit state method only.

Unit VII: Design of RCC isolated footings for columns (square and rectangular) by working stress method only.

Term Work:

File to be submitted with solved problems and notes.

Weightage of marks:

A-section-50%

B-section-50%

Recommended Reading:

1. R.K. Bansal, Text book on strength of materials.
2. A.K. Jain reinforced concrete limits state design.
3. S. Ramamrutham and R. Narayanan, Design of R.C.C. Structures.

HISTORY OF ARCHITECTURE II

Subject Code No. : 244

Lecture: Hours 4- 48

Studio Hours : Nil

Total : 04 Per Week 48

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 Asia particularly India through the evolution of Islam as a religion and the cultural and the contextual determinants that produced the architecture.

Course objective:--

- To understand Islamic Architecture as evolving within specific cultural context including aspects of society, religion politics, climate.
- To gain knowledge of the development of architectural form with reference to technology, style and character in the Indian context. Through the evolution of the mosque and tomb of the various phases of the Islamic rule in the country.
- To gain knowledge of the expertise of the Mughal rulers in city building and garden design

Syllabus:--

1) **Introduction to Islamic architecture:--**

History of Islam—birth, spread and principals—Islamic Architecture as rising from Islam as a social cultural and political phenomenon – evolution of building types in terms of form and function: mosque tomb, minaret, palace, character of Islamic architecture; principles, structure, material and methods of construction , elements of decoration ,color , and light

2) **Islamic architecture in India & Imperial style- Delhi.:--**

Advent of Islam into the Indian sub continent and its impact including the change of Architectural scene – overview of development based on political history and the corresponding classification of Architecture – Islamic Architecture- Islamic Architecture in India and influences.

Establishment of Delhi sultanate- evolution of Architecture under the slaves : Khalji , Tughlaq, Sayyed and Lodhi dynasties- important examples of each period.

3) Islamic Architecture in the provinces:--

Shift of power to the provinces and evolution of regional architecture with their own influences , Geographic , cultural , political etc. Gujarat , Malwa, Gulbarga, Bidar, Golkonda, Bijapur, - important examples from each region.

4) Mughal architecture:--

Mughals in India , political and cultural history- synthesis of Hindu Muslim culture, evolution of Architecture of Mughal cities and gardens under the mughal rulers , Babur Humayun, Akbar , Jahangir, Shahajehan, Aurangzeb—important examples decline of the Mughal Empire .

Term work:--

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

Books:--

1) History of architecture by Percy Brown.u
2) History of architecture by sir Bannister Fletcher.
3) Satish Grower , Islamic Architecture in India.
4) R. Nath , History of Mughal Architecture in India vol 1,2,3 . Abhinav pub. New Delhi
5) History of architecture in India by Christopher Tadgell.
6) The great ages of world Architecture by G. k. Hiraskar.

LANDSCAPE DESIGN

Subject Code No: 245

Lecture Hour: 02 -24

Studio Hour: 02 -24

Total: 04 per Week -48

Term Work: 25Marks

Practical Examinations: 50

Theory Examinations: Nil

Total: 75 Marks

Aim

To familiarize student with landscape architecture and ecology.

Objective:

- To familiarize student with the various element of landscape architecture and the principles of landscape design.
- To provide an overview of ecological balance and impact of human activities and stress the need for environmental protection and landscape conservation.
- To develop and strengthen the competence in dealing with the analytic, artistic and technical aspects of designing open spaces at different scales.

Syllabus:

Unit I: Introduction to ecology

Interdependence of the various systems in the biosphere, Study of eco-systems in urban and rural habitats. Introduction to architecture and environment related issues. Introduction to landscape and planning.

Unit II: Introduction to major and minor landscape elements .

Role of landscape elements in landscape design. Plant material- characteristic features . Introduction to planting design. Basic principles and elements of urban landscape. Introduction to street furniture.

Unit III: Modification of site topography

Grading methods of estimation earth volumes/ layout of drainage and other utilities/ layout of roads and pedestrian paths/ materials and their care, a method of planting.

Unit IV: Basic principles of landscape design

Factors to be considered, components involved and study of contemporary landscape architecture.

Unit V: Gardens

Japanese gardens , history , development features, elements and type of Japanese gardens.

Mughal gardens in India , history influences, development features and element of mughal gardens.

Team Work:

Files to be submitted with notes on landscape design and landscape design of small residential building and an institutional building. Site visit/case studies/herbarium/sketches etc.

Reference book:

1. Landscaping for small spaces
2. Landscape Graphics
3. Site engineering for landscape Architects
4. New landscape Architecture

ENVIRONMENTAL SCIENCE AND SERVICES II

Subject Code No :246

Lecture Hour: 04-48

Studio Hour: Nil

Total: 04 Per Week 48

Term Work: Nil

Practical Examination: Nil

Theory Examination: 100 Marks (03 Hrs)

Total : 100 Marks

Aim:

To provide technical knowledge to integrated sound control in relation to building function.

Objective:

- To understand the science behind acoustical design.
- To expose students to understand noise control, sound transmission and absorption.
- To familiarize the student with various building and interior arrangements which lead to better hearing conditions.
- To familiarize the student with the basic principles of acoustic design for spaces and building types which require good hearing conditions.

Syllabus:

Unit I : Fundamentals

Sound waves, frequency, intensity, wavelength, measure of sound , decibel scale, speech and music frequencies, human ear characters structure.

Unit II : Sound transmission and absorption

Outdoor noise level, acceptable indoor noise levels ,sonometer, determinate of density of building material, absorption coefficient and measurement, choice of absorption material, resonance, reverberation, echo exercises involving reverberation time and absorption coefficient.

Unit III : Noise control and sound absorption

Type of noises, transmission of noise, transmission loss, noise control and sound insulation, remedial, remedial measures and legislation.

Unit IV :Constructional measures

Walls/ partition , floors/ceiling, window/door, insulating fitting and gadgets, machine mounting and insulation of machinery.

Unit V : Acoustics and building design

Site selection, shape, volume, treatment for interior surfaces, basic principles in designing open air theaters , cinemas, broadcasting studio, concert hall, classrooms, lecture halls, schools, residences, cell centers, office buildings. Sound reinforcement systems for building types.

Note: Students shall be encouraged to do market survey of acoustic materials. One exercise of designing and auditorium by using different forms in planning and marketing if acoustically efficient. Case studies/site visits.

Books for Reference:

1. V. J. Smith, R.J. Peters and others, Acoustics and noise control.
2. David eagle. Concepts in Architectural acoustics.
3. Cyrill Harris Architecture acoustics.

COMPUTER APPLICATION IN ARCHITECTURE II

Subject Code No: 247

Lecture Hour: Nil

Studio Hour: 02 -24

Total: 02 Per Week -24

Term Work:50

Practical Examination: Nil

Theory Examination: Nil

Total : 50 Marks

Introduction

Introduction of various software available, for Architectural application, like Auto CAD, Revit, Microstation, Archicad, etc.

Basic commands for 2-D AutoCAD

Learning basic 2D commands their function and application.

Working on layer and colors.

Understanding of Text, and dimension styles etc, supported with suitable exercise.
Understanding complex commands like Pline, spline, x-refs, Attributes, Model space etc,

At least one working plane, elevation and section should be completed.

Basic commands for 3D

Introduction of basic 3D commands.

Different type of modeling in Auto CAD.

Exercise on wire mesh modeling.

ELECTIVE

Subject Code No :248

Lecture Hour: 02-24

Studio Hour: 02-24

Total: 04 Per Week -48

Term Work: 50

Practical Examinations: Nil

Theory Examination: Nil

Total : 50 marks

- Rules and regulation of corporation
- Building by laws

COLLEGE PROJECT

Subject Code No. : 249

Lecture Hours : 2-24

Studio Hours: 2-24

Total : 04 per week -48

Term work :50 Marks

Practical exam : Nil

Theory exam : Nil

Total : 50 Marks

Seminar, Guest lecturers, Site visits and Study tours.