DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

CIRCULAR NO. ACAD/NP/B.Arch.II Yr./Syllabus/11/2011

It is hereby informed to all the concerned that, the Hon'ble Vice-Chancellor has accepted the ***"New Syllabus of Second Year B. Architecture" under the Faculty of Engineering and Technology*** on behalf of the Academic Council under Section-14(7) of the Maharashtra Universities Act, 1994 as appended herewith.

This will be effective from the academic year 2011-2012 and onwards.

All concerned are requested to note the contents of this circular for their information and necessary action.

University Campus,
Aurangabad-431 004.
REF.NO.ACAD/NP/B.ARCH. /
2011/14430-48

Date:- 11-07-2011.

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Director,
Board of College and
University Development.

Copy forwarded with compliments to:-

1] The Principals, affiliated concerned Colleges,
Dr. Babasaheb Ambedkar Marathwada University.

Copy to :-

1] The Controller of Examinations,
2] The Superintendent, [Engineering Unit],
3] The Record Keeper,
Dr. Babasaheb Ambedkar Marathwada University.

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S-Cover Page IIIrd Year

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

New Syllabus of

Architecture

Second Year

[Effective from 2011-12 & onwards]

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

Syllabus for Second Year Arch. Course (Part I)

Teaching Scheme per Week					Examination Scheme				
Code No.	**Subject**	**Lecture Hours**	**Studio Hours**	**Total**	**Term Work**	**Pract Exam.**	**Theory Exam.**	**Total Marks**	**Duration**
211	Architectural Design - II	--	10	10	100	150	--	250	--
212	Architectural Building Construction & Materials - III	02	04	06	50	75	100	225	4 hours
213	Theory & Design of Structures - III	04	--	04	25	--	100	125	3 hours
214	History of Architecture - II	04	--	04	25	--	100	125	3 hours
215	Climatically Responsive Architecture	04	--	04	75	--	--	75	--
216	Site Planning - I	02	--	02	50	--	--	50	--
217	Environmental Science & Services - I	04	--	04	--	--	100	100	3 hours
218	Computer Application In Architecture - I	--	02	02	50	--	--	50	
		20	**16**	**36**	**375**	**225**	**400**	**1000**	

Note: Each Lecture / Studio Hour is of **50** minutes duration.

Subject Code No. 211 — **Architectural Design II**

Lecture Hours : NIL
Studio Hours : 10
Total : 10 Per Week

Term Work : 100 Marks
Practical Exam. : 150 Marks
Theory Examination : Nil

Aim:

To create an understanding of the inter-relationship amongst various elements of Architecture form, function, space planning, user perception &behavior.

Objective:

- To understand the characteristics of site and 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 2-D drawings, sketches and model.

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

Syllabus:

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

Note:

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

The students have to present the entire semester work for assessment at the practical exam(viva voce)

Reference books

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) Newferts Architects data, Blackwell 2002
4) Architectural graphic standards, Wiley 2000.
5) Site Engineering.

Subject Code No. 212 **Architectural Building Construction & Materials III**

Lecture Hours : 02
Studio Hours : 04
Total : 06 Per Week

Term Work : 50 Marks
Practical Examination : 75 Marks
Theory Examination : 100 Marks
(Four Hours)

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.

Objective:

To understand both in general and in 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 plywoods.
To understand the basic principles of timber staircases and R.C.C. stairs.

Syllabus:

Unit I: Methods of construction of manmade timber products such as plywoods, block boards. Laminated wood and gypsum products in fix partitions, wall paneling, false ceiling (timber/metal)

Unit II: Wooden ground and upper floors, terms defined, bridging joists, binding joists, binders, beams and girders, solid and herring-bone strutting, floor boards, ceiling joists etc.

Unit III: Staircases. Terms defined, tread riser, stringer, nosing, flights, landing, headroom, hand rail- balusters, newel post etc.
Types of stairs: straight, dog legged, open well, geometrical, circular, spiral, bifurcated, wooden stairs, basic knowledge of R.C.C. stairs.

B) Materials:

Unit IV: Laminates and veneers.
Resin bonded plywood, Types of laminates, laminated wood, Insulating boards, Veneers from different varieties of timber and their characteristics.
Unit V: 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 finishes.

Unit VI: 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 buildings.

Unit VII: Plastics
Polymer types, thermosetting and thermoplastics, resins, common types of mouldings, fabrication of plastics, polymerization and condensation, plastic coatings, composite materials; classification , properties and uses- linoleum, plastic coated paper, polyurethane sheets, flexicon sheet , reinforced plastic, and PVC.

TERM WORK: At list 8 to 10 drawing sheet to cover Unite I,II &III and Notes on materials to be completed in files .

C) Notes :

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

Weightage of Marks:
Construction 70%
Material 30%

D) Reference Books :

1) Building Construction by McKay – Vol. I
2) Building Materials by S. C. Rangwalla
3) Barry : Construction of Buildings : Vol. I & II
4) Francis D.K.Ching : Building Construction
5) Bindra Arora : Building Construction
6) Building construction by Chudley
7) Architectural journals

Subject Code No. 213 **Theory and Design of Structures II**

Lecture Hours : 04
Studio Hours : NIL
Total : 04 Per Week

Term Work : 25 Marks
Practical Examination : Nil
Theory Examination :100 Marks
(Three Hours)

Aim:

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

Objectives:

- To enable a student to understand the basic concepts of shear force and bending movement 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 concept of indeterminate structure and its analysis.

Syllabus:

Unit I: 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.

Unit II: 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.

Unit III: Deflection of beams
Slope and deflection at a point- double integration method and Macaulay's method for simply supported and cantilever beams.

Unit IV: 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 a column section.

Unit V: 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%**

Recommended Reading:

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

Subject Code No. 214 — **History of Architecture II** (Indo Islamic period)

Lecture Hours : 04
Studio Hours : --
Total : 04 Per Week

Term Work : 25 Marks
Practical Examination : Nil
Theory Examination : 100 Marks
(Three Hours)

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:

Unit I : Introduction to Islamic Architecture

History of Islam –birth, spread and principles-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, geometry and light.

Unit II :Islamic Architecture in India & Imperial style-Delhi.

Advent of Islam into the Indian sub continent and its impact including the change in Architectural scene-Overview of development based on political history and the corresponding classification of 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.

Unit III : Islamic Architecture in the Provinces

Shift of power to the provinces and evolution of regional Architecture with their own influences, Geographic, cultural, Political etc. Gujarath, Malwa, Gulbarga, Bidar, Golkonda, Bijapur-Important examples from each region.

Unit IV : 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,Shahjehan,Aurangzeb - Important examples Decline of the Mughal Empire.

Term Work:

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

Books for Reference:

History of Architecture by Percy Brown
History of Architecture by Sir Bannister Fletcher
Satish Grower, Islamic Architecture in India
R.Nath, History of mughal Architecture Vol-I,II,III. Abhinav pub. New Delhi.
History of Architecture in India by Christopher Tadgell
The great ages of world Architecture by G.K.Hiraskar.

Subject Code No. 215 **Climatically Responsive Architecture**

Lecture Hours : 04 Term Work : 75
Studio Hours : -- Practical Examination : Nil
Total : 04 Per Week Theory Examination : NIL
(Three Hours)

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 basic 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:

Unit I: 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.

Unit II: 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.

Unit III: Heat flow through buildings
Basic principles of heat transfer through buildings, performance of different materials. Conductivity, resistivity, specific heat conductance .

Unit IV: 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- venturi effect-use of courtyard.

Unit VI: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 students have to do detailed appraisals / analysis of climatologically performance of an existing residence or a work place, followed by retrofitting or the same to improve climatological performance.(File containing notes to be submitted)

Reference books:

- Koenigaberger O.H. & Others- Manual of tropical housing and building.
- E.Givoni- Man climate and Architecture, Architectural sciences series-applied science publishers Ltd. London.
- Tropical Architecture by Tzonis Alexander.
- Climate responsive architecture by Arvindkrishnan and Others.
- Tropical sustainable Architecture Joo-HWA bay & Boon-lay ong.
- Climatology- by Oliver.

Subject Code No. 216 **Site Planning**

Lecture Hours : 02
Studio Hours : NIL
Total : 02 Per Week

Term Work : 50 Marks
Practical Examination : NIL
Theory Examination : Nil

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

Objective:

- 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 :

Unit I:
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.

Unit II:
Importance of site analysis-factors involved. Accessibility, size and shape of sites. Conforming and non conforming uses. Climate and topography, infrastructures available, sources of water supply and means of disposal systems, Architectural and visual aspects. Preparation of analysis diagram.

Unit III:
Lie of the land, contours water shed, surface drainage.

Unit IV:
Organization of vehiccular 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.

Reference books

1.Site planning by Kelvin Linch
2. Surveying and leveling by B.C. Punmia
3.Surveying and leveling by N.N.Basak

Subject Code No. 217 — **Environmental Science & Services I**

Lecture Hours : 04
Studio Hours : Nil
Total : 04 Per Week

Term Work : Nil
Practical Examination : Nil
Theory Examination : 100 Marks
(Three Hours)

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.

Objective:

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

Syllabus:

Unit I: Water quality control and distribution system

Surface and ground water sources, water quality, nature of impurities-treatment-sterilization and distribution.
Distribution systems in small towns, lay outs-cold water lines, hot water lines, 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 / multistoried buildings, piping systems, piping materials, plumbing fixtures-selection criteria-domestic hot water systems, solar water heating systems, application and installations.

Unit II: Water management concepts

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

Unit III: Design of drainage and vent pipes

system for low rise and high rise buildings, building drains, sewers, gullies, inspection chambers, intercepting chambers, man holes, connection to public sewers, cross connections etc.
Planning of bath rooms, toilets in domestic and multistoried buildings, standard type of sanitary fittings, caulking compounds, traps and joints.
Flushing cisterns, septic tanks in relation to buildings, ventilation of sewers.
Layout of simple drainage system for small buildings, apartments, commercial buildings-gradient use in lying of drains and sewers, size of drain pipes and materials used.

Unit IV: Waste management concept and sewerage disposal.
Primary – secondary treatment, activated sludge, intermittent and trickling sand filters, sewerage treatment plants- layout for residential / commercial buildings, recycling-reuse of water.

Solid waste disposal
Refuse disposal, collection and conveyance, disposal of town refuse, sanitary landfills, incineration, vermiculture, aerobic digestion for compost, anaerobic digestion for energy organic filter(biogas) and rural energy systems.

Books for Reference:

1. S.C. Rangwala water supply and sanitary engineering.
2. Gharpure, sanitary engineering and water supply.
3. Barry vol-V , sanitation and water supply.
4. B.C. Punmia – building construction

Subject Code No. 218 **Computer Applications I**

Lecture Hours : Nil
Studio Hours : 02
Total : 02 Per Week

Term Work : 50 Marks
Practical Examination : Nil
Theory Examination : Nil

Aim:
The course imparts basic knowledge of computers to upgrade the general understanding and ability in computing the realm of Architecture.

Objectives:

- To enable the students to make the audio visual presentations, processing and other basic computer skills/knowledge transferred.
- Knowledge of basic software required for Architectural applications, MS-office, Photo editing techniques, Use of World Wide Web.

Course contains:

Unit I:
Introduction to type's of computer Software and hardware. Concept of bits, Bytes. Information of Architecture related software's and its uses.

Unit II:
Introduction to MS-office, Word and documentation, Excel spread sheets, Power point presentations and animation, Movie making software such as windows movie maker, Printing settings for different software.

Unit IV:
Introduction to Photo editing software's and print settings.

Unit V:
Introduction and details of various internet explorer and its uses. Use and processing of search engines on World Wide Web.

Reference books:

Sagman- Microsoft office for windows.

SECOND

SEMESTER

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

Syllabus for Second Year Arch. Course (Part II)

Teaching Scheme per Week					Examination Scheme				
Code No.	**Subject**	**Lecture Hours**	**Studio Hours**	**Total**	**Term Work**	**Pract Exam.**	**Theory Exam.**	**Total Marks**	**Duration**
221	Architectural Design - III	--	10	10	100	50	100	250	12 hours
222	Architectural Building Construction & Materials - IV	02	04	06	50	75	100	225	4 hours
223	Theory & Design of Structures III	04	--	04	25	--	100	125	3 hours
224	History of Architecture - III	04	--	04	25	--	100	125	3 hours
225	Landscape Design	02	02	04	25	50	--	75	--
226	Environmental Science & Services - II	04	--	04	--	--	100	100	3 hours
227	Computer Application In Architecture - II	--	02	02	50	--	--	50	--
228	Seminar	--	02	02	50	--	--	50	--
		16	**20**	**36**	**325**	**175**	**500**	**1000**	

Note: Each Lecture / Studio Hour is of **50** minutes duration.

Subject Code No. 221	**Architectural Design III**
Lecture Hours : NIL Studio Hours : 10 Total : 10 Per Week	Term Work : 100 Marks Practical Exam. : 50 Marks Theory Examination : 100 (12 Hrs)

Aim:

To create a holistic understanding of the socio-cultural, geographic and economic 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 requirements and the site.
- Relating a system of horizontal and vertical circulation, open spaced, parking etc.
- Responding to socio economic factors such as income levels, privacy, territoriality, interactions etc.
- Considering materials, structure and services in relation to the design proposal.
- Integration of planned forms and three dimensional compositions(spatial organization), Detailing for the physically differently abled and elderly.

Syllabus

Guest house, students' 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 such as houses for the aged, weavers' housing.

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 students have to present entire semester work for assessment at the practical exam.

Reference books

6) Time Sever Standards for building types, Mc Graw Hill Professional 2001
7) Time Sever Standards for interior design and space planning, Mc Graw Hill Professional 2001
8) Newferts Architects data, Blackwell 2002
9) Architectural graphic standards, Wiley 2000.
10) Site Engineering.

Subject Code No. 222 Architectural Building Construction & Materials IV

Lecture Hours : 02 Term Work : 50 Marks
Studio Hours : 04 Practical Examination : 75 Marks
Total : 06 Per Week Theory Examination : 100 Marks
(Four Hours)

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 students 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 buildings in RCC.
Types of foundations(strip foundation, raft, isolated, combined and continuous) construction details.
Construction details of RCC frames- beams, columns, slabs, precast frames.
Construction details of apertures; concrete lintels, sunshades, arches, shading devices, screen walls, pergolas.
Construction principles and details for RCC slabs; one way slab, two way slabs, continuous flat slab, waffle slab, coffer slab.

Unit II: Designing construction methods for concrete staircases.

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

Unit III: Advance construction systems developed by research institutes in india.

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

B) Materials:

Unit IV: Ferrous metals, steel and steel alloys.

IRON ORE; definition , introduction, manufacture of iron ore, types- 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 protections of steel and its uses.

Unit V: Innovations in steel and steel industry.
Study of codes standards accepted industrial practices and procedures regarding the performance, expectations 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, castings, sheets etc.
Other non ferrous metals- copper, lead, zink-manufacture, grades, forms, sizes.
Different processes for protection of non ferrous metals and products like, annodising, 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. 223 **Theory and Design of Structures III**

Lecture Hours : 04 Term Work : 25 Marks
Studio Hours : NIL Practical Examination : Nil
Total : 04 Per Week Theory Examination :100 Marks
(Three Hours)

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: Situations 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 limit state design.
3. S.Ramamrutham and R. Narayanan, Design of RCC structures.

Subject Code No. 224 **History of Architecture II**

Lecture Hours : 04
Studio Hours : --
Total : 04 Per Week

Term Work : 25 Marks
Practical Examination : Nil
Theory Examination : 100 Marks
(Three Hours)

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 Architecture.

Course 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 northan, central and southern Italy, eg. Pisa cathedral(central Italy). French Romanesque-for eg. Abbey-Aux Homes at Caen.
British romanasque-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 architecture, characteristics of Italian gothic architecture for eg.-Milan cathedral.

Unit III : Birth of Renaissance and its impact
Architectural style of early Renaissance , characterestics 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.Charecteristics 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 by Percy Brown
History of Architecture by Sir Bannister Fletcher

Subject Code No. 225 **Landscape Design**

Lecture Hours : 02
Studio Hours : 02
Total : 04 Per Week

Term Work : 25 Marks
Practical Examination : 50
Theory Examination : Nil

Aim:
To familiarize students with landscape architecture and ecology.
Objective:

- To familiarize students with the various elements 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 architecture. 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 estimating earth volumes/ layout of drainage and other utilities/layout of roads and pedestrian paths/materials of construction of paving/creation and maintenance of water bodies/selection of plant ,materials and their care, method of planting.

Unit IV: Basic principles of landscape design
Factors to be considered, components involved and study of contemporary landscape architecture.

Unit IV: Gardens

Japanese gardens; history, development features, elements and types of japnse gardens.

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

Term 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 books

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

Subject Code No. 226	**Environmental Science & Services II**
Lecture Hours : 04	Term Work : Nil
Studio Hours : Nil	Practical Examination : Nil
Total : 04 Per Week	Theory Examination : 100 Marks
	(Three Hours)

Aim:
To provide technical knowledge to integrate 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 students with various building and interior arrangements which lead to better hearing conditions.
- To familiarize the students 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-tone structure.

Unit II: Sound transmission and absorption
Outdoor noise levels, 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
Types of noises, transmission of noise, transmission loss, noise control and sound insulation, remedial measures and legislation.

Unit IV: Constructional measures,
Walls/ partitions, floors/ ceilings, window/doors, insulating fittings and gadgets, mechine mounting and insulation of machinery.

Unit IV: Acoustics and building design
Site selection, shape, volume, treatment for interior surfaces, basic principles in designing open air theaters, cinemas, broadcasting studios, concert halls, classrooms, lecture halls, schools, residences, call 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 making it 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 Architectural acoustics

Subject Code No. 227 **Computer Applications II**

Lecture Hours : Nil
Studio Hours : 02
Total : 02 Per Week

Term Work : 50 Marks
Practical Examination : Nil
Theory Examination : Nil

Aim:
The course imparts basic knowledge of computers to upgrade the general understanding and ability in computing the realm of Architecture.

Objectives:
To enable the students to make Architectural drawings in Auto-Cad software latest version and related Architectural software's and printing settings.

Course contains:

Unit I:
Introduction to Auto-Cad designing and drafting.
Enable and familiarize the students with printing commands and export and import settings in the software.

Note: Submission of a small residential Auto-Cad drawing.

Reference books:

Auto cad designing.

Sub Code No. 228 **Seminar**

Lecture Hours: Nil
Studio Hours: 02
Total per Week: 02

Term Work: 50 Marks

Practical Examination: Nil
Theory Examination: Nil

Objective:
To widen the sphere of knowledge of the students beyond the regular core subjects. To develop the techniques of preparation and presentation of study of any given topic. To explore the topic of interest for Dissertation.

Methodology:
The student shall take up a topic related to the field of Architecture, or any other allied subject. The list of topics for the Seminar shall be announced by the College Authorities. The student may, however, choose any other topic, with prior approval.
After studying the topic, the collected data shall be presented as a **Seminar**, on scheduled time.

Note: Some topics for study

1. Vernacular Architecture
2. Sustainable development
3. Earthquake resistant design
4. Shop interiors
5. Art appreciation
6. Energy efficient Architecture
7. Hospital services
8. Glass in Architecture
9. Courtyard planning in Indian context
10. Building Automation

Term Work:
The format for the submission shall be decided by the College Authorities, prior to presentation. The performance criteria shall be based on quality of contents, nature of delivery and report.