

डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद.



परिपत्रक क्रमांक /अभ्यासक्रम विभाग/बी.आर्च./४८/२०१९

या कार्यालयाचे परिपत्रक क्र. SU/Engg/S.Y.Arch./२८/२०१८/१९९०७-१५ दिनांक ०१.१०.२०१८ अन्वये द्वितीय स्थापत्य पदवीचा अभ्यासक्रम सर्व संलग्नीत अभियांत्रिकी व स्थापत्य महाविद्यालयांना परिपत्रित करण्यात आला होता. या अभ्यासक्रमाच्या आराखड्यामध्ये ARC २२७ - LD (Landscape Design) या विषयाचे टर्म वर्कचे ७५ गुण नजरचुकीने दर्शविण्यात आलेले असून Viva चे गुण दर्शविण्यात आलेले नाहीत आणि एकुण गुण ७५ दर्शविण्यात आलेले आहेत. परंतु, टर्म वर्कचे गुण २५ असून Viva चे ५० गुण आहेत. करिता, मा. कुलगुरु महोदय यांनी त्यांच्या विशेष अधिकारात महाराष्ट्र सार्वजनिक विद्यापीठ अधिनियम २०१६ कलम १२(७) अन्वये विद्यापरिषदेच्यावतीने उपरोक्त बदल करण्यास मान्यता दिलेली आहे.

सदरील परिपत्रक सर्व विद्यार्थी, शिक्षक आणि शिक्षकेतर कर्मचारी यांच्या निर्देशनास आणून द्यावे व त्यानुसार कार्यवाही करण्यात यावी.

विद्यापीठ प्रांगण,
औरंगाबाद-४३१००४.

संदर्भक्र.अभ्यास.वि./२०१९/ 24332 - 4)

दिनांक :- ०३-०५-२०१९.

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उपकुलसचिव,
अभ्यासक्रम विभाग

या परिपत्रकाची एक प्रत माहिती तथा पुढील योग्य त्या कार्यवाहीस्तव अग्रेषित:-

- १) सर्व प्राचार्य/प्राचार्या/संचालक, संलग्न आर्किटेक्चर महाविद्यालये,
डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद.
- २) संचालक, परीक्षा व मूल्यमापन मंडळ, राजर्षी शाहू महाराज परीक्षा भवन,
डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद.
- ३) समन्वयक, एम.के.सी.एल. राजर्षी शाहू महाराज परीक्षा भवन,
डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद.
- ४) कक्ष अधिकारी, अभियांत्रिकी कक्ष, डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद.
- ५) जनसंपर्क अधिकारी, डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद
- ६) अभिलेखपाल (Record Keeper), डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद.

**DR. BABASAHEB AMBEDKAR
MARATHWADA UNIVERSITY,
AURANGABAD.**



Revised Syllabus of

Second Year

Bachelor of Architecture

UNDER THE FACULTY OF SCIENCE & TECHNOLOGY.

Effective From 2018-19 & Onwards/-

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY AURANGABAD
FACULTY OF SCIENCE AND TECHNOLOGY
PROPOSED STRUCTURE

BACHELOR OF ARCHITECTURE

SEM-III		CONTACT HR PER WEEK		EXAMINATION SCHEME						DURATI ON OF THEOR Y EXAM
SUB CODE	SUBJECT	L	S	HOME ASSIGN	THEORY	T.W	VIVA	TOTAL	CREDIT S	
	THEORY									
ARC 211	ABC-III	1	2	20	80			100	3	4
ARC 212	BUILDING MATERIALS III	2		10	40			50	2	2
ARC 213	TDS II	3		20	80			100	3	3
ARC 214	HA II	3		20	80			100	3	3
ARC 215	ESS I	3		20	80			100	3	3
	STUDIO									
ARC 216	ABC-III (Term work & Viva)		2			75	50	125	2	
ARC 217	CRA	1	1			50		50	1	
ARC 218	AD II (Term work & Viva)		14			150	100	250	6	
ARC 219	SP		2			75		75	1	
ARC 220	CAA I		2			50		50	1	
		13	23	70	380	400	150	1000	26	

Subject Code No. ARC 211

Architectural Building Construction - III

Lecture Hours :
Studio Hours : 02
Total : 03 Per Week

Home Assignments : 20 Marks
Practical Examination : 75 Marks
Theory Examination : 80 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: Different types of foundation, shallow & deep foundation, for different types of soils. Foundation of sloping site, failure of foundations.

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

Unit III: 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. T.W. flooring for badminton court, dance floor etc.

Unit IV: Staircases- Terms defined, tread riser, stringer, nosing, flights, landing, headroom, hand rail- balusters, newel post etc.

Unit V: Types of stairs: straight, dog legged, open well, geometrical, circular, spiral, bifurcated, wooden stairs, basic knowledge of R.C.C. stairs.

Unit VI: Finishing of R.C.C Staircase with T.W treads , Types of Tiles, rise with M.S railing with T.W. loadrail , fixing metal etc.

Submission – The students shall submit drawing sheets covering all the units as directed by teacher.

Subject Code No. ARC 212

Building Materials- III

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

Home Assignments: 10 Marks
Practical Examination : NIL
Theory Examination : 40 Marks
(Two Hours)

Aim : This course is to provide an understanding of different materials for finishing for understanding line walls, planes,

Objective: To understand both in general type of finishing with latest materials available & their application. The students are encouraged to do materials surveys & make presentations.

Unit I: Laminates and veneers -

Resin bonded plywood, Types of laminates, laminated wood, Insulating boards, Veneers from different varieties of timber and their characteristics.

Unit II: 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 III: Glass and glass products -

Composition and fabrication of glass, Types of glass, wired glass, Fiber glass, Rock wool, Glasscrete blocks, Structural glass, their properties and uses in buildings.

Unit IV: 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.

C) Notes :

Students shall be encouraged to do market surveys of the materials as stated above.

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

Submission-

Home assignments shall cover all the units as per the syllabus.

Subject Code No. 213

Theory and Design of Structures II

Lecture Hours : 03
Studio Hours : NIL
Total : 03 Per Week

Home Assignments: 20 Marks
Practical Examination : NIL
Theory Examination :80 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 contraflexure **(simple problems only)**

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 for **square & round columns.**

Unit III: Deflection of beams -

Slope and deflection at a point- double integration method and Macaulay's method for simply supported and cantilever beams **(simple problems only)**

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 statical indeterminacy for beams and frames- concept of analysis (no problems)

Term Work :

Home assignments as per syllabus with examples is given by the faculty.

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
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Subject Code No. 214

History of Architecture II
(Indo Islamic period)

Lecture Hours : 03
Studio Hours : NIL
Total : 03 Per Week

Home Assignments: 20 Marks
Practical Examination : Nil
Theory Examination : 80 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;

Unit II :Principles, structure, material and methods of construction, elements of decoration, color, geometry and light.

Unit III :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.

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

Unit V : 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 VI : 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.

*** Home assignments shall covering all the units as per the syllabus directed by the faculty.**

Books for Reference:

History of Architecture by Percy Brown

History of Architecture by Sir Bannister Fletcher

Satish Grover, 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

Environmental Science & Services I

Lecture Hours : 03
Studio Hours : Nil
Total : 03 Per Week

Home Assignments: 20 Marks
Practical Examination : Nil
Theory Examination : 80 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-treatmentsterilization 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,

Unit I: 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 III: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 IV: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 laying of drains and sewers, size of drain pipes and materials used.

Unit V: 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.

Unit VI: 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.

Home Assignments –

- 1) Home assignments to cover all the topics.
- 2) Submission of sheets as per the direction of the teacher.

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. ARC 216		Architectural Building Construction - III
Lecture Hours : NIL	Term Work: 75 Marks	
Studio Hours : 02	Practical Examination : 50 Marks	
Total : 02 Per Week	Theory Examination : NIL	

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: Different types of foundation, shallow & deep foundation, for different types of soils. Foundation of sloping site failure of foundation.

Unit II: Methods of construction of manmade timber products such as plywood's, block boards. Laminated wood and gypsum products in fix partitions, wall panelling, false ceiling (timber/metal) T.W. flooring for badminton court, dance floor etc.

Unit III: 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 IV: Staircases. Terms defined, tread riser, stringer, nosing, flights, landing, headroom, hand rail- balusters, newel post etc.

Unit V: Types of stairs: straight, dog legged, open well, geometrical, circular, spiral, bifurcated, wooden stairs, basic knowledge of R.C.C. stairs.

Unit VI: Finishing of R.C.C Staircase with T.W treads&risers with M.S & T.W.loadrail

Submission – The students shall submit drawing sheets covering all the units as directed by teacher.

Subject Code No. 217

Climatically Responsive Architecture

Lecture Hours : 01
Studio Hours : 01
Total : 02 Per Week

Term Work : 50
Practical Examination : NIL
Theory Examination : NIL
(Two 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: Climatic Zones of India –Design strategies 1) Hot & dry climate 2) Warm Humid 3) Composite 4) Temperate 6) Cold. Climatic zones to be shown in the Map.

Unit II: 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 III: 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. Orientation of building , shading by neighbouring building, shading by vegetation, shading by overhangs, louvers& texture facade, shading of roofs & walls.

Unit IV: Heat flow through buildings

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

Unit V: Impact of air movement due to natural and built forms.

Ventilation Techniques -

1. Climate 2. Wind direction 3. Area of fenestration & location 4. Size of inlet and outlet openings 5. Volume of the room.

Wind Tower–

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 climatological performance of an existing residence or a work place, followed by retrofitting of the same to improve climatological performance.

Submission shall as per the directions of the teacher.

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.ARC 218

Architectural Design II

Lecture Hours : NIL
Studio Hours : 14
Total : 14 Per Week

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

Aim:

To create an understanding of the inter-relationship amongst various elements of Architecture form, function, space planning, user perception & behaviour and environmental (Climatic & socio-geographic) aspects of architectural Design.

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) Design Projects -

To focus on multi functional and multi cellular built environments, such as Nursery School, Library, Canteen, Primary Medical centre, Branch Bank, Creeche, Community Hall, Health Club, Hobby Centre for children existing approximately 300 – 500 sq.mtr each. The Students shall be encouraged to do case studies of an existing built environment of the problem given requirements & areas can be worked out by the students themselves with the guidance of the faculty.

Sessional Work –

Minimum two Architectural assignments with multicellular dual level spaces approximately 300 – 500 sq.mtr & communicated effectively through architectural graphics 2 dimensional & 3 dimensional sketches, models & narrative. Additional one Eskee (Time Problem) of short duration.

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. 219

Site Planning

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

Term Work : 75 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. Plane table surveys, accessories used in plane table, methods of locating objects, methods of table orientation. Advantages and disadvantages

Unit III:

Lie of the land, contours characteristics, contour interval, direct & indirect methods of contours, block contours surveys, longitudinal & cross sections.

Unit IV:

Organization of vehicular and pedestrian circulation, types of roads, hierarchy of networks, road widths and parking regulations, turning radii and street intersections.

Term Work :Based on files, measurement sheet internal in field book.

- 1)Calculation of area of field(chain & cross staff survey)
- 2) Compass Survey.
- 3)Plane table survey.
- 4)Block contour survey.
- 5)Profile Levelling.

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. 220

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.
Submission – As per the directions of the faculty.
Audio – video presentations etc.

SECOND SEMESTER

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY AURANGABAD
FACULTY OF ENGINEERING AND TECHNOLOGY
STRUCTURE

SEM-IV		CONTACT HR		EXAMINATION SCHEME						DURATION OF THEORY
SUB	SUBJECT	L	S	HOME	THEORY	T.W	VIVA	TOTAL	CREDITS	
ARC 221	THEORY ABC-IV	1	2	20	80			100	3	
ARC 222	BUILDING MATERIALS IV	2		10	40			50	2	4
ARC 223	TDS III	3		20	80			100	3	2
ARC 224	HA III	3		20	80			100	3	3
ARC 225	ESS II	3		20	80			100	3	3
	THEORY CUM STUDIO							100	3	3
ARC 226	ABC-IV (Term work & Viva)	1	2			75	50	125	2	
ARC 227	AD III	1	14			25	50	75	2	
ARC 228	AD III (Term work & Viva)					150	100	250	6	
ARC 229	CAA II		2			50		50	1	
ARC 230	SEMINAR		2			50		50	1	
		13	23	70	380	350	200	1000	26	

Subject Code No. 221

Architectural Building Construction IV

Lecture Hours : 01
Studio Hours : 02
Total : 03 Per Week

Term Work : 20 Marks
Practical Examination : NIL
Theory Examination : 80 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

1) Construction of simple framed buildings in RCC. Residential, Commercial, Institutional etc.

Unit II :Types of foundations(strip foundation, raft, isolated, combined and continuous) construction details,Pile Foundations,Types of Pile foundation.

Unit III :Construction details of RCC frames- beams, columns, slabs, precast frames.

Unit IV :Construction details of apertures; RCC lintels, sunshades, arches, shading devices, screen walls, pergolas.

Unit V :Construction principles and details for RCC slabs; one way slab, two way slabs, continuous slab, waffle slab, coffer slab.

Unit VI: 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.

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

Note - Home assignments covering all the units as per syllabus.

Subject Code No. 222

Building Materials - IV

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

Home Assignments : 10 Marks
Practical Examination : NIL
Theory Examination : 40 Marks
(2 Hours)

Aim

To provide an understanding of different material used in R.C.C. & Innovative in steel & steel industry.

- More function of Ferrous metal, steel & steel alloys.
- Study of Non – Ferrous metals.

Unit I: 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.

Unit II: Steel

Definition, properties, manufacturing and casting, heat treatment, mechanical treatment, market forms of steel, fire protections of steel and its uses.

Unit III: 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 IV: Non ferrous metals

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

Unit V: 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.

Notes :

Home assignments covering all the units as per syllabus.

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 ARC -223

Theory and Design of Structures III

Lecture Hours : 03
Studio Hours : NIL
Total : 03 Per Week

Term Work : 20 Marks
Practical Examination : Nil
Theory Examination : 80 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. (**Only Theory**)

Unit II: Situations when doubly reinforced beams are used, analysis and design of doubly reinforced beams, using limit state method only. (**Simple problems 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) (**Simple problems only**)

Unit IV: Introduction and design of one and two way reinforced slabs(singly 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. (**Theory only**)

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

Term Work;

Home assignments shall cover all the units as per syllabus.

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 III

Lecture Hours : 03
Studio Hours : --
Total : 03 Per Week

Home Assignments: 20 Marks
Practical Examination : Nil
Theory Examination : 80 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 northern, central and southern Italy, eg. Pisa cathedral (central Italy). French Romanesque-for eg. Abbey-Aux Hommes 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 architecture, 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 Bramante 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 Inigo Jones,

Christopher Wren's contribution towards Renaissance architecture with st.Paul's , London as eg.

Note - Home assignments shall cover all the units as per syllabus. Submission of sketches being with sketches of important building.

Books for Reference:

History of Architecture by Percy Brown

History of Architecture by Sir Bannister Fletcher

Subject Code No. 225**Environmental Science & Services II**

Lecture Hours : 03
Studio Hours : Nil
Total : 03 Per Week

Home assignments : 20 Marks
Practical Examination : Nil
Theory Examination : 80 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, machine 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 of an existing auditorium, Seminar Halls & presentation of the same.

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. 226

Architectural Building Construction IV

Lecture Hours : Nil

Studio Hours : 02

Total : 02 Per Week

Term Work : 75 Marks

Practical Examination : 50Marks

Theory Examination : NIL

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. Residential, Commercial, Institutional etc.

Unit II : Types of foundations(strip foundation, raft, isolated, combined and continuous) construction details, Pile Foundation, Types of Pile foundation.

Unit III : Construction details of RCC frames- beams, columns, slabs, precast frames.

Unit IV : Construction details of apertures; RCC lintels, sunshades, arches, shading devices, screen walls, pergolas.

Unit V : Construction principles and details for RCC slabs; one way slab, two way slabs, continuous slab, waffle slab, coffer slab.

Unit VI: 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.

Note – The students shall submit sheets covering all above units as per the directions of the teacher.

Subject Code No. 227

Landscape Design

Lecture Hours: 01

Studio Hours: 01

Total: 02 Per Week

Term Work: 25 Marks

Practical Examination: 50 Marks

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, Industrial landscape (latest trends), The effect of the landscape on the psychology of man.

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. Case study of existing building with proper landscaping, presentation of the same.

Unit IV: Gardens

Japanese gardens; history, development features, elements and types of Japanese gardens. Mughal gardens in India, history, influences, development features and elements of Mughal gardens.

Term Work:

Students should have to prepare a landscape plan of their design project of 3rd semester. The submission of landscape projects as directed by the faculty.

Reference books

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

Subject Code No. 228

Architectural Design III

Lecture Hours : NIL
Studio Hours : 14
Total : 14 Per Week

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

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.
- Study of a settlement of semi urban type community in an urban location & the analysis & documentation with respect to life style of occupants, climatic & to topographical response semi-public built & open spaces and associated architectural character.

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.

Syllabus

- 1) Graphic documentation and analysis of settlement study & along with a short written report with one design assignment related to the settlement studies.
- 2) Minimum two architectural design projects other than the one mention above multicellular, multilevel spaces such as Primary School, Hostels, Resorts, Sports facility, Medical facility etc. approximately 1000 – 1200 sq.mtr.

Subject Code No. 229

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. Softwares include 1) Auto – Cad 2) Google Sketchup 3) Auto – Cad Revit 4) 3D – Max.

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 including plan, sections, elevations, site plan etc. with a 3D view.

Reference books:

Auto cad designing.

Sub Code No. 230

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
 11. Art in Public spaces
 12. Architectural Photography.
-

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.