

S-20 & 21 June, 2017 AC after Circulars

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DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY



CIRCULAR NO.SU/Engg./B.Arch.Ist Yr./23/2017

It is hereby informed to all concerned that, the syllabus prepared by the Committee & recommended by the Dean, Faculty of Science & Technology **has accepted by the Academic Council at its meeting held on 20 & 21 June 2017 for Bachelor of Architecture First Year (Ist & IIInd semester) under Choice Based Credits & Grading System** as appended herewith.

This shall be effective from the Academic Year 2017-2018 and onwards.

All concerned are requested to note the contents of this circular and bring the notice to the students, teachers and staff for their information and necessary action.

University Campus,
Aurangabad-431 004.
REF.No. SU/B.ARCH./2017/*4632-44*
Date:- 26-07-2017.

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Hase Deputy Registrar,
Syllabus Section.

Copy forwarded with compliments to :-

- 1] **The Principals, affiliated concerned Colleges,
Dr. Babasaheb Ambedkar Marathwada University.**
- 2] The Director, University Network & Information Centre, UNIC, with **a request to upload this Circular on University Website.**

Copy to :-

- 1] The Director, Board of Examinations & Evaluation,
- 2] **The Section Officer, [Engineering Unit] Examination Branch,**
- 3] The Section officer, [Eligibility Unit],
- 4] **The Programmer [Computer Unit-1] Examinations,**
- 5] **The Programmer [Computer Unit-2] Examinations,**
- 6] The In-charge, [E-Suvidha Kendra],
- 7] The Public Relation Officer,
- 8] The Record Keeper,

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



Syllabus of

**BACHELOR OF ARCHITECTURE
FIRST YEAR
(IST & IIND SEMESTER)**

Under Choice Based Credits & Grading System

FACULTY OF SCIENCE & TECHNOLOGY

[Effective from the Academic Year 2017-18 & onwards]

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

BACHELOR OF ARCHITECTURE

SEM-I		CONTACT HR PER WEEK			EXAMINATION SCHEME				DURATION OF THEORY EXAM	
Sub Code	Subject	L	S	HOME ASSIGN	THEORY	T.W	Practical/VIVA	Total	Credits	
THEORY										
ARC 111	ABC-I	1	2	20	80			100	3	4
ARC 112	BUILDING MATERIALS-I	2		10	40			50	2	2
ARC 113	DFA-I	3		20	80			100	3	3
ARC 114	ECACA	3		20	80			100	3	3
ARC 115	ES	3		20	80			100	3	3
ARC 116	COMMUNICATION SKILLS	2				50			1	
STUDIO										
ARC 117	ABC-I (Term Work & Viva)	2			75	50	125	2		
ARC 118	ADG-I	1	3		75		75	2		
ARC 119	BD&VA (Term Work & Viva)		12			150	100	250	6	
ARC 120	WORKSHOP		2			50		50	1	
		15	21	90	360	400	150	1000	26	

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

SUB CODE	SEM-II SUBJECT	CONTACT HR PER WEEK			EXAMINATION SCHEME				DURATION OF THEORY EXAM
		L	S	HOME ASSIGN	THEORY	T.W	Practical/ Viva	TOTAL CREDITS	
ARC 121	THEORY ABC-II	1	2	20	80			100	3
ARC 122	BUILDING MATERIALS II	2		10	40		50	2	2
ARC 123	TDS I	3		20	80		100	3	3
ARC 124	DFA II	3		20	80		100	3	3
ARC 125	HA I	3		20	80		100	3	3
	STUDIO								
ARC 126	ABC-II (Term work & Viva)	2			75	50	125	2	
ARC 127	ADG-II	1	3			100		100	3
ARC 128	AD I (Term work & Viva)		14			150	100	250	6
ARC 129	MM		2			75		75	1
		13	23	70	380	400	150	1000	26

Subject Code No. ARC 111

Architectural Building Construction I

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

Term Work : Nil
Practical Examination : Nil
Home Assignment : 20 Marks
Theory Examination : 80 Mark
(Duration : Four Hours)

Objective :

The Course is designed to expose the students to the process of Building Construction, the different components of Buildings. The emphasis is on familiarization by direct handling and observation. The students shall be encouraged to acquire taste for good workmanship.

The course is visualized as having two essential components namely methods of construction and building workshops which may be conducted within the college or at specific venue out side.

The principles and practices shall be applied in the studio for meaningful working details and drawings.

A. Construction:

- i) Components of a building: Structural and functional components.
- ii) Masonry: Standard terms in brick, different types of bricks bonds in brick-work (English, Flemish, Garden wall bond, Rat Trap Bond), Brick Pillars & Piers.
- iii) Different types of stone Masonry, the function of through stone/ Headers, Bonder stone Composite Masonry etc.
- iv) Foundations: Simple footings in bricks. Thumb rules. Foundations for load-bearing walls. Uncoursed rubble masonry in foundation and plinth. Damp proof course, brick steps, Isolated R.C.C. footings plinth beams etc. Bearing Capacity of Soil. Methods to find out the Bearing Capacity.
- v) Principles of construction of various types of arches, lintels, perforated brick walls.
- vi) Panelled Doors in timber, flush doors, joints in frames, styles, rails, panels. Fixtures and Fastenings.

Notes:

College shall undertake site visits of construction projects.

Books for References:

1. Building Constructions by Mckay.
2. Arora & Bindra: Text book of building construction.
3. Barry: The constructions of Buildings.
4. Francis D.K. Ching: Building Construction Illustrated.
5. Chudley: Building Construction.

Subject Code No. ARC 112

Building Material I

Lecture Hours : 02
Studio Hours : 00
Total :02 hrs. Per Week

Term Work : Nil
Practical Examination : Nil
Home Assignment : 10 Marks
Theory Examination : 40 Marks
(Duration of Exam : Two Hours)

Objective :

The Course is designed to expose the students to different types of building Materials. The Students shall be encourage to do market survey of building material and make a presentation of the same by book study and market survey.

A. Construction:

- i) Mud, clay & Bamboo for use in building.
- ii) Manufacture of Bricks, different types and their properties. Principles of construction of walls in bricks, stone and hollow concrete block.
- iii) Stones : Different types of stones for construction. Quarrying of stone, dressing of stone, Natural Bed, properties of stone etc.
- iv) Lime : Classification and importance of lime in construction.
- v) Sand : Classification, uses, qualities of sand and bulking of sand.
- vi) Timber: Classification of trees, Characteristics of good timber, defects in timber, uses in building construction. Industrial timber like plywood, block board, particle board and other products available in the market.

Notes:

- 1. College shall undertake site visits of construction projects.
- 2. Journal for notes on building materials and reports on site visits.
- 3. Home assignments as per syllabus.

Books for References:

- 1. Building Constructions by Mckay.
- 2. Arora & Bindra: Text book of building construction.
- 3. Barry: The constructions of Buildings.
- 4. Francis D.K. Ching: Building Construction Illustrated.
- 5. Chudley: Building Construction.

Subject Code No. ARC 113

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

Design Fundamentals in Architecture I

Term Work : Nil
Practical Examination : Nil
Home Assignment: 20 Marks
Theory Examination : 80 Marks
(Duration of Exam : Three Hours)

Objective :

The study of this subject aims to make the students familiarize with the basics in the study and logical solution of the Architectural Design problems by using the knowledge foundation course for the ensuing design problems in the coming years.

Syllabus :

- 1) A brief description of architecture as an occupation. Architecture is to be compared with visual and temporal arts. Architecture and Science and Technology. Architecture with reference to Social Science. The work of an Architect compared to that of an Artist / Sculptor / Technologist. Total scope of architecture.
- 2) The concept of beauty. Philosophical and psychological view. Meaning of Art. Basic principles of visual perception. Form and its visual properties.
- 3) The concept of mass. Mass and space. Types of spaces. Indoor space and outdoor space. Space in buildings. Relation between man and space. Defining spaces and the degree of enclosure. Organization of spaces.
- 4) Fenestration and character of facade. Forms and their different types (Man made and from Nature). Articulation Of Forms.
- 5) Proportion. Its application and advantages in architecture. Application of order. Golden proportion. Modular, with examples from history of architecture. Scale and its application in architecture and advantages. Application of Human Scale and generic scale in architecture.
- 5) Ordering principles. Their need and application in architecture. Seven lamps of architecture. Its significance. Principles of colour and their application and advantages in buildings.

Home Assignment : As per syllabus prepare the journal file/of all home assignments.

Books for Reference :

- 1) Time Saver Standards
- 2) Neufart's Data
- 3) Form, Space and Order by Ching
- 4) V.S.Prammer-Design Fundamentals in Architecture
- 5) Paul Alan Johnson – The Theory of Architecture – Concept and Theories. Van Nostrand Reinhold Company 1994.
- 6) Steel Eiler Rasmussel – Experiencing Architecture, MIT Press 1964.

Subject Code No. ARC 114

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

Early Civilization: Art, Culture & Architecture

Term Work : Nil
Practical Examination : Nil
Theory Examination : 80 Marks
Home Assignment : 20
(Duration of Exam : Three Hours)

Objective:

The study of this subject is intended to understand the process of evolution and development in social, economical and cultural environment of man.

To gain knowledge of the development of the architectural form with reference to Technology, style and character in the pre-historic world and in ancient Egypt, West Asia, Greece & Roam.

Syllabus :

1) PRE- HISTORIC AGE –

Introducing concepts of culture and civilization – Palaeolithic and Neolithic culture- Art forms and evolution of shelter – agricultural evolution and its impact on culture and civilization.

2) ANCIENT RIVER VALLEY CIVILIZATION : Egypt

Landscape and culture of ancient Egypt – History – Religious and funerary beliefs and practices- Monumentality – Tomb architecture ; Evolution of the pyramid from mastaba- temple architecture, mortuary temples and cult temples. Great pyramid of Cheops, Gizeh, Temple of Ammon Ra, Karnak- Temple of Abu Simbel(rock-Cut).

3) ANCIENT RIVER VALLEY CIVILIZATIONS : MESOPOTAMIA

Urbanization in the furtile crescent – Sumerian,Babilonian, Assyrian, and Persian culture- Evolution of City states and their character – law and writing – theocracy and architecture-

4) evolution of the ziggurat – palaces.

Ziggurat of Ur, Urnamu – Palace of Sargon, Khorsabad.- Palace at Persipolis.

5) CLASSICAL PERIOD : GREECE

Landscape and culture of Greece – Minoan and Mycenaean cultures – hellinic and Hellenistic cultures – Greek character, Greek democrosy- greek city planning – architecture in archaic and classic periods – domestic architectures, public buildings ; Agora, Stoas, Theatrons , Stadias –Greek temples- Evolution and classification – Parthenon & Erechthion – orders In architecture ; Doric , ionic columns- optical illusions in architecture.

6) CLASSICAL PERIOD : ROME

Roman history : republic and empire – Roman relision and roman temple – roman character – lifestyle – roman urban planning – art and architecture as imperial propogenda ; forums and basilicas – domestic architecture – structural forms, materials and techniques of construction – orders in architecture; Tuskan and Composit.

Rome : Forum romanum and other Imperial forums, encloser and manipulation of space ; Pantheon – Public building ; circus maximus, Thermae of Caraculla.

Home Assignment : As per syllabus prepare the journal/file/of all home assignments.

Books for Reference :

- a. Sir Banister Fleture : History of Architecture : University of London.
- b. Spiro Kostof – History of Architecture - Setting and Rituals – Oxford Press
- c. Leland Emroth – Understanding Architecture - Its Elements ,Meaning.

Subject Code No.ARC 115	Environmental Science
Lecture Hours : 03	Term Work : Nil
Studio Hours : Nil	Practical Examination : Nil
Total : 03 hrs. Per Week	Home Assignment : 20 Marks
	Theory Examination : 80 Marks
	(Duration of Exam : Three Hours)

Objective :

- 1) To provide an overview of natural resources , various eco systems and its characteristics and conservation of biodiversity.
- 2) To create an awareness about impact of human activities such as pollution and its consequences.
- 3) To stress the importance of environmental protection and sustainable development.

Syllabus :

- 1) Natural resources and associated problems. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles. Concept, Structure and function of an eco system. Energy flow of eco system. Introduction, types, characteristic features, structure and function of various eco systems.
- 2) Bio diversity: genetic, Species and eco system diversity. Bio geographical classification of India. Value of bio diversity. Endangered and Endemic species of India. Conservation of biodiversity.
- 3) Environmental pollution: definition, causes, effects and control measures of: Air pollution, Water pollution, Soil pollution, Marine pollution, Noise Pollution, Thermal Pollution, Nuclear pollution.
- 4) Role of an individual in prevention pollution. Disaster management: Floods, Earthquake, Cyclone, And Landslides.
- 5) Social issues: sustainable development, Urban problems related to energy, Water conservation, Rain water harvesting, Water shade management and global warming. Environmental protection Act. Public awareness.
- 6) Human population: Population growth,Population explosion,environment and human health, Human rights, Value Education. HIV/AIDS, women and child welfare, role of information technology in environment and human health.

Home Assignment : As per syllabus prepare the journal/file/of all home assignments.

Books for Reference:

- 1) Miller T.G. Jr., Environmental sciences, Wadsworth Publication Company.
- 2) Cunningham, W.P.Cooper, T.H.Gorhani, E & Hepworth, MT 2001, Environmental encyclopedia, Jaico publication house, Mumbai.

Subject Code No. ARC 116	Communication Skills
Lecture Hours : 02	Term Work : 50 Mark
Studio Hours : --	Practical Examination : Nil
Total : 02 hrs. Per Week	Theory Examination : Nil

The objective is to give the students the required proficiency in English Language. The students should be able to communicate correctly what they know. Exercises shall be conducted for the following :

Skimming, scanning, inferring, predicting and responding to context. Guessing the meaning of words from contexts – note making and vocabulary extension.

Listening and understanding – recorded structured talks and classroom lectures – understanding the links between different parts of speech. Practice in notes taking.

Feature of an effective speech – practice in speaking fluently – dialog practice – simple social exchanges – short extempore talk – effective sentences.

Cohesive paragraphs – clear and concise writing – introduction to technical writing - definition, description, instruction – summary writing practice.

Use of library– role of bibliography – table of contents ,index etc – use of dictionary.

Term work : Presentations in the class based on the above.

Books for reference :

- 1) Technical English Language
- 2) Business Correspondence.
- 3) John Kirkman: Good style writing for science and technology
- 4) E & FN Spon: an imprint of Chapman & Hall 1992.

Lecture Hours : 1

Studio Hours : 03

Total : 4 hrs. Per Week

Term Work : 75 Marks

Practical Examination :Nil

Theory Examination :Nil

Objective :

The course is designed to train the students in geometrical drawings and drafting techniques. The ability to present elements of design in graphic form. Learning to observe measure and draw to scale plans and elevations of simple objects like furniture etc.

Syllabus :

- 1) Introduction to the concept of scale. Plane geometry. Construction of planes, circles, curves, tangent and regular polygons, octagons, hexagons etc. Introduction to orthographic projections and first angle projection. Orthographic projections of objects and methods of drawing them. Introduction to projectional drawings.
- 2) Projectional drawings of solids, right prism, right pyramid, right cylinder, and right cone. Section lines in different angles and drawing of the section.
- 3) Introduction to methods of developments. Parallel line development, radial line development and approximate development. Development of oblique solids.
- 4) Classification, line of intersection, line or generator method and section plane method. Exercises related to intersection of simple solids, such as prisms, pyramids, cylinders and cones.
- 5) Drawing to a Scale. Measured drawings of simple furniture objects such as table, stool, chair etc. Drawing representation format for presentation methods and techniques of measuring buildings and their details. Detailing in terms of construction, ornamentation etc.

Term Work shall consist of

- 1) Sketchbook containing exercises based on topics given above.
- 2) Imperial size daring sheets on topics given above. (Minimum ten sheets)

Books for Reference :

- 1) Engineering Drawing by N. D. Bhatt
 - 2) Building Drawing by Shah, Kale, Patki
 - 3) Descriptive Geometry by S. H. Mulik.
 - 4) Francis Ching-Architectural Graphics-Van Nostrand Reinhold Company.N.Y. 1964.
 - 5) C.Leslie Martin: Architectural Graphics: The Macmillan Company. NY 1964
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Subject Code No.ARC 119

Lecture Hours : Nil
Studio Hours : 12
Total :12 hrs. Per Week

Basic Design & Visual Arts

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

Objective :

The study of this subject aims to make the students familiar to basics of architectural Art. It also enables the students to understand generation of geometrical forms and importance of Visual Arts and its relation to Architectural Design. The students are expected to acquire knowledge of visual designing and its application in architecture. The students are taught to develop skills in free hand drawing and rendering. Different media are used for visual expression.

Syllabus :

- 1) Exercises in points and lines. Organisation of a large number of identical geometric shapes to obtain symmetrical and asymmetrical patterns. Family of shapes, and developing of various shapes from a given geometric shape. Working out composition with such developed shapes.
- 2) Exercises on Planes and Forms. Organising a large number of geometric shapes to express a given theme. Combining different geometric shapes and making a larger shape and using many such units, and expressing a design. Introducing value and colour.
- 3) Textural Qualities. To achieve centre of interest in design using different textural elements. Development of geometrical pattern by division, subtraction and addition or overlapping and to express them with the use of colours. Expressing a given theme in geometric pattern.
- 4) Spatial Forms. Models, sculptures in different materials to understand the evolution of three-dimensional forms and dissimilar forms. Subtractive model out of given geometric form.
- 5) Study of Linearity. Models with linear members such as match-sticks, straws, ice-creams, spoons etc to understand architectural forms, and structural forms.
- 6) Visual composition. Posters with a given theme. Collage with a given theme.
- 7) Study of solid forms: This assignment shall include making of sculpture out of solid cubes, pyramids, cylinders and other geometrical shapes and forms. These shall be finished with colour schemes and texture schemes.
- 8) Exercises on the study application of Anthropometrics. Information with respect to furniture and other activities.

Visual Arts

- 9) Balance. Unity. Pattern. Emphasis. Movement. Rhythm and contrast. Exercises on the above to explain these conditions.
- 10) Freehand drawing experiences to be introduced to develop visual perception and thinking by drawing still life objectives and furniture etc.
- 11) Outdoor exercises for sketching buildings, streets, rows of buildings, trees, human figures in various activities. Use of various sketching materials like pencils, pen, ink, charcoal etc.

Notes:

Term work shall consist of drawing sheets covering all the above items. i.e. 1) to 11)

Books for Reference:

- 1) V.S.Prammer: Design Fundamentals in Architecture: Somaiya Publications Pvt. Ltd. New Delhi 1973.
- 2) Francis D.K.Ching: Architecture: Form, Space and Order: Van Nostrand Reinhold Company.
- 3) John Mills: The Technique in Sculpture: BT Batsford Ltd. New York.
- 4) Caldwell Peter – Pen & Ink Sketching: BT Batsford. London. 1995.
- 5) Drawing-A creative Process: Francis D.K.Ching. Van Nostrand Reinhold Company. New York 1990.

Subject Code No. ARC 120

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

Workshop

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

Objective :

The students of Architecture need basic knowledge of various operations in carpentry. The objective of this subject is to make the students aware of various carpentry activities like marking, sawing, planning, chiseling, drilling, molding etc. the students shall be introduced to various nails, screws, adhesives, nut bolts etc. exercise on simple joints Like, tongue and groove joint. Mortice n tenon joint. Dove tail joint. Mitre joint etc.

Exercise for working on mild steel grillwork, joints in steel, process of welding etc.

The students shall prepare a practical notebook also, showing the names, descriptions, and uses of the tools and equipments for carpentry.

Term work:

Preparation of minimum 5 utility articles each, involving the use of the above operations.

Books for Reference:

Engineering Drawing by N. D. Bhatt

Subject Code No. ARC 121

Architectural Building Construction II

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

Term Work : Nil
Practical Examination : Nil
Home Assignment : 20 marks
Theory Examination : 80 marks
(Duration : Four Hours)

Objective :

To understand method of construction using natural timber, plywood etc.

1. Window Types : Panelled, Pivoted, Top Hung, Louvered, Glazed Windows, French Windows, Bay Windows, Corner Windows.
2. Door Types : Glazed, Sliding, Sliding – Folding, Louvered.
3. Ventilator : Top Hung, Bottom Hung, Pivoted, Louvered, Glazed.
4. Hardware and Fastenings for Doors and Windows.
5. Roof Trusses : Lean-To-Roof, Couple Roof, Collar Roof, King Post and Queen Post Roof Trusses.

C) Notes :

College shall arrange regular site visits on construction sites.

Home Assignment : As per syllabus prepare the journal/file/of all home assignments.

D) Reference Books :

- 1) Building Construction by McKay – Vol. I
- 2) Barry : Construction of Buildings : Vol. I & II
- 3) Francis D.K.Ching : Building Construction
- 4) Bindra Arora : Building Construction

Subject Code No. 122

Building Material II

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

Term Work : Nil
Practical Examination : 40 Marks
Home Assignment : 10 marks
Theory Examination : Nil
(Duration of Exam : Two Hours)

Objective :

The course is design to expose the students for different types of building materials. The emphasis is on familiarization by direct handling and observation. The students shall encourage to acquire test for good quality products.

B) Materials :

1. Cement different types of cements, testing of cements, storage of cement and its uses.
Importance of cement in building constructions.
2. Plain Cement Concrete. Ingredients of concrete. Types of concrete. Uses and Proportions. Curing methods.
3. Qualities of good concrete. Reinforced Cement Concrete. Light-weight Concrete. Methods of Guniting.
4. Floor Finishes - Brick, Stone, Concrete, Timber. Various artificial tiles. Indian Patent Stone.
5. Roofing Materials – Asbestos Cement Sheets, Galvanised Iron Sheets, Manglore Tiles, Pan Tiles, Slates etc.
6. Different styles of Plastering and Pointing.

C) Notes :

Students have to be encouraged to do market survey of different types of floor finishes and roofing materials.

D) Reference Books :

- 1) Engineering Materials by S. C. Rangwalla

Subject Code No. ARC 123

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

Theory and Design of Structures I

Term Work : Nil
Practical Examination : Nil
Home Assignment : 20 marks
Theory Examination : 80 Marks
(Duration of Exam : Three Hours)

Course Objectives :

To help the students understand the basic principles of structural behavior and requirements of buildings, with emphasis laid, more on exposition of principles involved, rather than situational intricacies and computational rigor.

Syllabus :

- 1) Elasticity – Stress and Strain - Types of Stresses - Elastic Limit - Hooks Law – Modulus of Elasticity (young's modulus) – deformation of a body due to force acting on it - stresses in composite bars – relation between elastic constants, introduction to strain energy.
- 2) Centralized – Centre of Gravity of simple figures – C.G. by geometrical considerations – solid bodies – C.G. with cut-out holes.
- 3) Moment of Inertia – Theorems of M.I. of parallel and perpendicular axis - M.I. of a circular section, hollow section, M. I. of composite sections – modulus of section.
- 4) Beams and support conditions – Types of supports, shear force and bending moment diagrams for simply supported beams, cantilevers, overhanging beams with concentrated, uniformly distributed and uniformly bearing loads.
- 5) Theory of simple bending – Stress distribution at a cross section due to bending moment and shear force – moment of resistance – bending stresses in sections.
- 6) Statically determinate plane trusses, perfect and imperfect frames – deficient and redundant frames – analytical methods for finding out the forces – method of joints.

Home Assignment : As per syllabus prepare the journal file/of all home assignments.

Recommended Reading :

- 1) Strength of Materials by Khurmi R. S.
- 2) Applied Mechanics and Strength of Materials by Khurmi R. S.
- 3) Vazirani and Ratwani, Analysis of Structures, Khanna Publishers

Subject Code No.ARC 124

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

Design Fundamentals in Architecture II

Term Work : Nil
Practical Examination : Nil
Home Assignments : 20 marks
Theory Examination : 80 Marks
(Duration of Exam : Three Hours)

- 1) Human Activities. The need for appropriate space and environment for performing the activities efficiently. The impact of built environment on the activity. The architect's role in the creation of a built environment.
- 2) Form and Function : The relationship between form and function in nature and man-made objects with examples.
- 3) Pattern of circulation and space taken by circulation routes. Five different types of circulation patterns. Path and space relationship. Access to buildings and types of entrances.
- 4) Impact of climate on buildings. Comfort factor. Building and site relationship. Site and surroundings. Positive and negative spaces.
- 5) Building materials and its impact on the aesthetics of a building. Form of a Building. Construction techniques and structural concepts .Relationship between form, materials and aesthetics. Examples to be quoted from history of architecture.
- 6) Culture, its values and aspirations of the user, and his built environment. Examples from history of architecture. Styles of architecture. Trends in architecture, and the factors that cause them.

Home Assignment : As per syllabus prepare the journal/file/of all the home assignments.

Books for Reference :

- 1) Form, Space and Order by Ching
- 2) Time Saver Standards
- 3) Neufert's Data
- 4) Design Fundamentals in Architecture by Prammer.

Subject Code No. ARC 125

Lecture Hours : 03
Studio Hours : 00
Total : 03 hrs. Per Week

History of Architecture I

Term Work : Nil
Practical Examination : Nil
Home Assignment : 20 marks
Theory Examination : 80 Marks
(Duration of Exam : Three Hours)

Course Objective:

- To understand Indian Architecture as evolving within specific cultural contexts, including aspects of society, revision, politics and climate.
- To gain knowledge of development of architectural form with reference to technology / style and character in the Indus valley civilisation, Vedic period and manifestation of Buddhist and Hindu architecture in various parts of country.

Syllabus:

- 1) **Ancient India:** Indus Valley Civilization, culture and pattern of settlement – Aryan Civilisation – Origins of early Hinduism – Vedic culture – origins of Buddhism and Jainism.
- 2) **Buddhist Architecture:** Evolution of Buddhism, Buddhist thought, art and culture – Hinayana and Mahayana- Interaction of Hellenic and Indian ideas in northern India – evolution of building typologies – the stupa, vihara, and the chaitya hall- symbolism of the stupa.
Ashokan pillar, Sarnath – rock-cut caves barabar – sanchi stupa – rock cut architecture in ajantha and Ellora, karla – viharas at Nashik, Rani Gumpa.
- 3) **Evolution of Hindu Temple Architecture:** Hindu forms of worship – evolution of temple form – meaning, symbolism, ritual and social importance of temple – categories of temple – elements of temple architecture – early shrines of the gupta and chalukyan periods.
Ladakhan and durga temple, aihole – papanatha, virupaksha temples, pattadakal, kailasnath temple Ellora.
- 4) **Temple Architecture – Southern India:** Brief history of south India – Dravidian order – evolution and form of gopuram.
- 5) Rock cut productions under pallavas, shore temple mahabalipuram, and kailasnath temple, Kanchipuram – Temple gateways of Madurai and Chidambaram – temple towns: madurai, shrirangam and kanchipuram.
- 5) **Temple Architecture- Northern India:** Temple architecture of gujrat, orissa, Madhya Pradesh, and rajasthan – their salient features – lingaraja temple bhuvaneshwar – sun temple konark, somnath temple gujrat, surya kunda mathura – khajuraho Madhya Pradesh, and dilwara temple moun tabu.

Home Assignment : As per syllabus prepare the journal/file/of all home assignments.

Books for Reference:

History of Architecture by Percy Brown
History of Architecture by Sir Bannister Fletcher

Subject Code No. ARC 126

Architectural Building Construction(term work and Viva) II

Lecture Hours : Nil

Term Work : 75 Marks

Studio Hours : 02

Practical Examination : 50 Marks

Total : 02 hrs. Per Week

Theory Examination : Nil

Objective :

To understand method of construction using natural timber, plywood etc.

1. Window Types : Panelled, Pivoted, Top Hung, Louvered, Glazed Windows, French Windows, Bay Windows, Corner Windows.
2. Door Types : Glazed, Sliding, Sliding – Folding, Louvered.
3. Ventilator : Top Hung, Bottom Hung, Pivoted, Louvered, Glazed.
4. Hardware and Fastenings for Doors and Windows.
5. Roof Trusses : Lean-To-Roof, Couple Roof, Collar Roof, King Post and Queen Post Roof Trusses.

C) Notes :

College shall arrange regular site visits on construction sites.

D) Reference Books :

- 1) Building Construction by McKay – Vol. I
- 2) Barry : Construction of Buildings : Vol. I & II
- 3) Francis D.K.Ching : Building Construction
- 4) Bindra Arora : Building Construction

Subject Code No. ARC 127

Architectural Design & Graphics II

Lecture Hours : 01

Studio Hours : 03

Total : 04 hrs. Per Week

Term Work : 100Marks

Practical Examination :Nil

Theory Examination: Nil

Syllabus :

- 1) Introduction to building terminology of various parts of a building. Learning to observe, measure, draw to scale the plan of a simple built up form, visualizing the sectional plans and developing wall sections through openings.
- 2) Drawing and developing elevations, sections and sectional elevations from a given drawing of adequate complexity.
- 3) Introduction to Sciography. Shadows of points, lines and shapes. Shades and shadows of simple two-dimensional plans. Shades and shadows of cubes, pyramids, prisms, cones, cylindrical forms and combination of these forms.
- 4) Shades and shadows of complex built forms, building plans and elevations.
- 5) Perspective: Scientific method, Characteristics of perspective drawing, concepts and methods of perspective drawing. One point and two point perspective of simple geometrical shapes like cube, prism, combination of shapes, simple one, two, and three point perspective of building interiors and exteriors. Adding of figures, trees, furniture etc. Applying general techniques.
- 6) Perspective short cut method: Introduction of short cut method, adding of figures, trees, furniture etc. Shades and shadows and applying rendering techniques.
- 7) Measured Drawing Documentation: Documentation of a complete building of special interest in terms of history, building construction, architectural excellence or technology.

Term Work shall consist of Imperial size drawing sheets on the topics given above.
(Minimum Twelve Sheets)

Reference Books :

- 1) Engineering Drawing by N. D. Bhatt
- 2) Rendering with Pen and Ink
- 3) Building Drawing by Shah, Kale, Patki
- 4) Descriptive Geometry by S. H. Mulik

Subject Code No.ARC 128

Lecture Hours : 00
Studio Hours :14
Total :14 hrs. Per Week

Architectural Design (Term work & Viva) I

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

Objective:

Development of space visualisation. Application of materials to simple architectural forms. Application of the knowledge gained in other subjects and basic design to design of buildings of single/simple activity.

Contents

- 1) Anthropometry : Study of human dimensions, concept of percentile in Indian standards, space required for various simple activities, circulation spaces.
- 2) Form and Space : Volumes, Elements of volumes, Enclosure of space, semi enclose spaces, defining space by elements, light as factor of shape, colour, texture and form, view, visual relationship. Properties of forms and their impact on spatial experience.
- 3) Elements of built form : a) Basic elements: walls, floors, windows, doors, staircase, façade etc. b) support elements : courtyards, balconies, canopy, patio, sit outs, water bodies, pergola. C) Relevance of all such elements on architectural expression and spatial quality.
- 4) Principles of Design : Basic principles of spatial organisation, symbiosis of form and function concept, generation conversion and diversion thinking in design.
- 5) Furniture and Facilitation : Need of furniture, as an aid to enhance activities, study of various furniture in isolation and combination.
- 6) Climate and Design : Orientation, Climatic co-ordination and architectural elements like chajja's, fins and fenestration etc.

Term work:

Assignments on each head with presentation lecture and site visit. Design of simple single activities spaces like residence, nursery, canteens etc.

Reference books

- 1) Time Sevev Standards for building types, Mc Graw Hill Professional 2001
- 2) Time Sevev Standards for interior design and space planning, Mc Graw Hill Professional 2001
- 3) Newferts Architects data, Blackwell 2002
- 4) Architectural graphic standards, Wiley 2000.

Subject Code No. ARC 129

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

Model Making

Term Work : 75 Marks
Practical Examination : Nil
Theory Examination : Nil

The students are encouraged to do working models of their design projects during their sketching stages and submit their final models after their design projects have been completed.

Term work:

Models to be submitted of their design projects.