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S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HRS.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot							
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional			L	T	P	
1	AR211	Architectural Design – III	DC- 7	100	30	20	50	50	250	7	2	3	2(1.5)	**8**

PURPOSE: Design exercises that explore Architecture as responding to site conditions & personal issues such as occupation, life style, religion etc.Understanding of vernacular architecture its' social and physical environment

COURSE OUTCOME:-
After completion of this course student will be able to-

1. Identify and relate spaces responding to site condition and personal issues such as occupation, lifestyle, religion etc.
2. Design independent residential buildings in urban areas with concepts that respond to personal preference & taste, family lifestyle, culture & site conditions.
3. Develop an understanding of how design responds to site conditions such as size, shape, access, view, topography, landscape features etc.
4. Develop the capacity to design school buildings that respond to a particular educational philosophy, to generate concepts for various activities and explore the integration of classroom spaces with outdoor play areas.
5. Produce sketches, models and photographs for analysis and design.

Note: minimum four design problem s shall be introduces in the semester out of which, one major problem one small problem and two shall be time bound problem**.**

PROJECT 1 TOWN HOUSE / VILLA
Study of contemporary practices & design for town houses and villas in urban areas, to sensitize the students towards life style, individual preferences, space – activity relationship and exploration of how material, color, texture and light affect the quality of spaces is the main focus. It is also intended as an exercise in massing & configuration of façade elements such as the balancing of solids & voids, adoption of a system of proportioning and elements of contemporary detailing. This design exercise will also attempt to involve the student in the built form / open space relationship & explore the connectivity between indoor & outdoor spaces.

PROJECT 2: NUSERY / PRIMARY / SECONDARY SCHOOL
Case studies on contemporary trends in school design to know how various architects have responded to the design program, site conditions, student age group etc. The project aims to enlighten the student on how the school design responds to various education philosophy and grooming methods. The analysis of important functional aspects such as space adequacy, circulation in the built form and play areas, locating the various spaces according to functional adjacency and careful design of toilet areas is intended. The objective is to also optimize the variables of the physical environment such as thermal comfort, daylighting and noise control in design.

PROJECT 3 & 4: Time bound Problems of 6 hours to 48 hours. like housing for elderly, SOS village, transit housing, housing for training institute or similar projects based on community living and shared facilitie

REFERENCES:

1. Time saver standards for building types, DeChiara and Callender, McGrawhillcompany.
2. Neufert Architect's data, BousmahaBaiche& Nicholas Walliman, Blackwell science ltd.

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				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional			L	T	P	
2.	AR212	Building Construction –III	BSAE-6	50	30	20	20	30	150	5	2	1	2(1.5)	**6**

COURSE OUTCOME

After completion of this course student will be able to-

1. Study materials and systems, their properties and applications, and their intrinsic relationship to structural systems and environmental performance.
2. Study the timber construction techniques through site visit and market surveys.
3. Develop a fundamental understanding of the relationship of materiality to construction systems and techniques.
4. Understand the basic components of a buildingin timber with its construction details such as Roofs, Floor,staircase etc.
5. Examine the critical role of materials and methods for the design and construction of buildings.

UNIT 1. Timber floor:

- Single (ground) , Single (First) floors (Drawing sheet)
- Double floors (Drawing sheet)
- Framed or Triple floor(Drawing sheet)

UNIT 2. Timber staircase

- Introduction to staircase, Types of staircase (Drawing sheet)
- Straight flight timber staircase and joinery related (Sketches & Assignment)
- Dog legged staircase. (Drawing sheet)

UNIT 3. Timber Roofs:

- Study of various types of single roofs i.e. flat roof, lean to roof, double lean to roof, couple and close couple roof, collar roof. (Drawingsheet)
- Timer King post, Queen post. (Drawing sheet)
- Introduction to double or Purlin roofs, Basic information of the same only. (Sketches & Assignment)

UNIT 4. Timber Balcony and canopy (Drawing sheet)

UNIT 5. Shoring and underpinning

Note: There should be regular site visits to buildings under construction or constructed to explain the above topics. Use of audio-visuals should be stressed.
The Sessional shall be in the form of handmade drawings, and the evaluation will be through review system presented before the Faculty and Studio Incharge.

LIST OF TEXT AND REFERENCE BOOKS:

AR 212 - Construction Components of Sub & Super Structure

1. W.B. MCKAY, “Building Construction Vol.1 to IV Orient Longman.
2. R.CHUDLEY, :Building Construction Handbook Vol. 1 to 4 “British Library Catalouging in Publication Data 1990.
3. DR. B.C.PUNAMIA, “Building Construction”, A. Sauraby& Co. Pvt. Ltd.
4. R. BERRY, “Construction of Buildings”. The English Language Book Society London 1976.
5. MITCHEL, “ AdvanceBuilding Construction”, Allied Publishers Pvt. Ltd.

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				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional			L	T	P	
3.	AR213	Graphics -III	SEC- 4	-	-	-	50	50	100	6	2	-	4	**4**

COURSE OUTCOME:-

After completion of this course student will be able to-

1. The prime objective of this course is to introduce the fundamental concepts of computer systems, hardware and software and to develop basic skills in programming,
2. Application of Information Technology tools and technical in Architecture.
3. Introduction and the use of software available for architectural applications.
4. CONTENTS:
5. Introduction
6. Introduction of various software available for Architectural presentation such as Photoshop & Sketch up
7. Basic commands for 2-D, 3-D Graphics.
8. Learning of software like Photoshop & Sketch up.
9. Understanding the basic composition in 2D, 3D and prepare attractive compositions using software's.

VISUAL COMMUNICATION

Photoshop: Creating and saving images, basic image editing, Photoshop toolbox and tools, using layers, special effects.

REFERENCES:

1. User manual & tutorials of Google Sketch Up software.
2. Photoshop CS Bible – Deke McClelland.
3. Adobe Photoshop 7.0 classroom in a book – Adobe creative team.

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				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional			L	T	P	
4.	AR214	Surveying &Leveling	BSAE-7	50	30	20	-	-	100	3	1	2	-	**3**

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Interpret the booking for field notes
2. Apply the fundamental of chain and compass surveying for field survey
3. Work out the contour surveying with the help of leveling instrument
4. Determine the triangulation with the help of Theodolite and total station.
5. Define and classify the various types of modern survey
6. Perform survey of the site and will learn how to make layout of building.

Course Content:

UNIT-1

Aspects of surveying for the Architect. Surveying instruments classification by function. Useful data and formulae.

UNIT-2

Scales-Plain scale, diagonal scale, comparative scale, shrunk scale, vernier scale.

UNIT-3

Study, test, degree of accuracy, use and care of surveying instruments and accessories.

UNIT-4

Site survey techniques: Chain surveying, compass surveying, plain table, and theodolite.

UNIT-5

Leveling and contouring.

Note: Class work and field work of the above subject should be oriented towards the layout of buildings. Students should also be taken to site visits for explaining the practical aspects of surveying.

LIST OF TEXT AND REFERENCE BOOKS:

1. T. P. KANETKAR & S.V. KULKARNI, “Surveying &Leveling”, Pune VidyarthiGriha Pub.
2. DR. B.C. PUNAMIA, “Surveying Vol.1”, Laxmi Pub.
3. SHAHANE AND IYENGAR, “A Text book of Surveying &Leveling”, Engineering Book Co.
4. BERNARD H. KNIGHT, “Surveying and leveling for students”.

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5.	AR215	History of Architecture-II	DC- 8	50	30	20	-	-	100	4	2	2	-	**4**

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Understand the development of occidental, henceforth mentioned as Western architecture along time scale, with the help of chronological development of civilizations across the globe
2. Learn different styles of Western architecture of different prominent civilizations of west till the advent of Industrial Revolution
3. Understand the evolution of architectural form & space with reference to Technology, Style and Character
4. Analyze social, political, religious, climatologic and financial factors and understand how they have influenced architecture
5. Draw sketches as the principal method of learning - about the prehistoric world, Ancient Egypt, West Asia, Greece, Rome, Medieval times and Renaissance period.

UNIT-1 GREEK ARCHITECTURE

Evolution of City states in Greece, the Hellenic & Hellenistic art & architecture, Evolution of the classical orders & the features of the Greek temple, the building of the Acropolis with one outstanding example of Doric (Parthenon), Ionic (Erechtheon) & Corinthian. Public architecture: Theatre of Epidaurus and Agora, Optical illusions in Greek architecture.

UNIT-2 ROMAN ARCHITECTURE

Formation of Roman republic & Empire & influence of geology, culture & lifestyle. Roman architectural character using concrete, marble, travertine etc& masonry types used for walls. Tuscan & Composite orders, Roman forums and basilicas – methods of Vault & Dome construction with examples of Pantheon, Thermae of Caracalla, Colosseum, & Basilica of Constantine.

UNIT-3 EARLY CHRISTIAN& BYZANTINE ARCHITECTURE

Spread of Christianity, the evolution of early Christian Church form from the Roman basilica (St.Clemente), Centralized plan concept (St.San Vitale, Ravenna). The creation of eastern & western roman empire, the development of domes &pendentive, Byzantine architectural character with study of St.Sophia (Hagia Sophia) at Istanbul.

UNIT-4 ROMANESQUE & GOTHIC ARCHITECTURE IN FRANCE, ITALY & ENGLAND

Romanesque period: Monastic orders & development of Craft and merchant guilds, Influences & architectural character of Romanesque churches in Italy (Pisa complex), France (Abbey AuxHommes) and England (Tower of London)- Development of vaulting.

Development of Gothic architecture in France, evolution of Gothic Cathedral & structural system using vaulting & flying buttress, the example of Notre dame cathedral at Paris. Gothic architecture in Italy & the example of Milan cathedral. Development of English gothic vaulting & the example of Westminster Abbey at London.

UNIT-5 RENAISSANCE ARCHITECTURE IN EUROPE

Idea of rebirth and revival of classical architecture & the development of art & science. Italian renaissance character: Early renaissance & the example of Palazzo Ricardi, Brunelleschi & urban renaissance style exemplified at the Florence cathedral and High renaissance period. Michelangelo &St.Peters cathedral at Rome. The villa architecture of Palladio exemplified at Villa Capra, Vicenza. French renaissance during classical & rococo period – examples of Chateau de Chambord & Louvre Palace.

English Renaissance – works of Sir Christopher Wren (St.Paul Cathedral, London) & Inigo Jones (Banqueting House at Whitehall)- Domestic architecture during Elizabethan, Jacobean & Georgian period.

REFERENCES:

1. Sir Banister Fletcher, A History of Architecture, CBS Publications (Indian Edition), 1999.
2. Spiro Kostof – A History of Architecture – Setting and Rituals, Oxford University Press, London, 1985.
3. Leland M Roth; Understanding Architecture: Its elements, history and meaning; Craftsman House; 1994.
4. Pier Luigi Nervi, General Editor – History of World Architecture – Series, Harry N. Abrams, Inc.Pub., New York, 1972.
5. S.Lloyd and H.W. Muller, History of World Architecture – Series, Faber and Faber Ltd., London, 1986.
6. Gosta, E. Samdstrp, Man the Builder, Mc.Graw Hill Book Company, New York, 1970.
7. Webb and Schaeffer; Western Civilisation Volume I; VNR: NY: 1962.
8. Vincent Scully: Architecture; Architecture – The Natural and the Man Made : Harper Collins Pub: 1991.

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6.	AR216	Structure-III	BSAE-8	50	30	20	-	-	100	3	2	1	-	**3**

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Understand the fundamentals of stability of any built structure in steel structures and various factors of steel structure designing.
2. To develop a feel for structural principles of steel structures in design.

Course Content:

UNIT1. Steel work connections: Riveted connections, Bolted and pinned connections, Welded connections.

UNIT 2. Design of Tension members: Types of tension members, permissible stresses, Design of members subjected to axial tensions and bending. Tension splices, lug angles.

UNIT 3. Design of compression members: Types of compression members, failures, end conditions, effective length, design by I.S. Code method. Strength of compression members, splices, encased columns.

UNIT 4. Design of flexural members: Beams simple and built up, plate girder, criteria of design, and design of laterally supported and laterally unsupported beams.Webcrippling and web buckling.

UNIT 5.Design of roof trusses: To determine the forces in members due to various loads, types of roof trusses, components of roof trusses, purling, lateral bracing of end trusses, roof covering.

Note: i) Sessional work should include design and analysis of simple elements as stated above with drawings.
ii) Steel table & I.S. code 800 is permitted in examination.

LIST OF TEXT AND REFERENCE BOOKS: AR214 - **Analysis of Structures – Steel Structures**

1. L.S. Negi, “Design of Steel Structures”, Tata McGraw Hill.
2. Arya &Ajamani, “Design of Steel Structures”, Nemchand& Bros. Roorkee.
3. M. Raghupathi, “Design of Steel Structures”, Tata McGraw Hill.
4. P. Dayaratnan, “Design of Steel Structures”, Wheeler & Company Ltd.
5. I.S 800-1984, BIS

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7.	AR217	Climatology	BSAE-9	50	30	20	-	-	100	2	1	1	-	**2**

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Understand basic Elements and types of climate and how they have influenced architecture
2. understanding of climatic data
3. Principles and application of solar passive architecture
4. Analyze the issues related with the design of human habitat, its components and space standards.

Course Content:

UNIT 1 :Introduction to the elements of climate and its types with reference to tropical climate,tools for measurement and understanding of climaticdata.

UNIT 2 :Climate balance in built environment. Human thermal comfort, thermal comfort factors,heat gain and loss, u-values for well and roofs and indices.

UNIT 3:Principles and application of solar passive architecture including natural ventilation and air movement design in buildings for thermal comfort,

UNIT 4: Principles and application of shading devices as per orientation and sun path diagrams. Visual comfort, day light design.

UNIT 5: Response to climate by man and building,Study of building materials and construction techniques of energy efficient building design for tropical climate

LIST OF TEXT AND REFERENCE BOOKS:

1. O.H. KOENIGSBERGER," Manual of Tropical Housing & Building – I", Orient Longman.
2. MARTINEVANS, "Housing Climate & Comfort", Architectural Press, London.
3. B.GIVONI, "Man, Climate & Architecture", Applied Science Banking Essex.
4. A.KONYA, "Design Primer for Hot Climate", Architecture Press London.
5. G.Z. BROWN & MARK DEKAY – Sun Wind & Light Architecture Design Strategies.
6. R. VICTOR WOLGAY, "Design with Climate.