II Semester (CBGS) For batches admitted in July, 19 (w.e.f. July, 2019) as per COA

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HRS	Contact Periods per week			Total Credits
				Theory Block			Practical Block							
				End Sem.	Mid Sem.	Quiz/ Assignment /Sessional	End Sem.	Lab work & Sessional			L	T	P	
1.	AR121	Architectural Design – II	DC- 3	100	30	20	50	50	250	7	2	3	2(1.5)	**8**

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Learn architectural design fundamentals (Relationship between people to built forms
2. & built forms to environment)
3. Classify different functional spaces and analyze their space requirements.
4. Compile data required for architectural designing.
5. Identify the human standards of design based on ergonomics.
6. Innovate, modify and evaluate an existing space.
7. Analyze and study, pre-design process, design process & conceptualization stages in design.
8. Experimental learning of design communication skills – verbal, script & graphics
9. Design objects based on the concept of space and form

PROCESS:

- Fragment the pre design process and help students build formats/templates for analysis. Guide to derive architectural design data through various studies
- Guide to program and to understand the causes for architectural spaces Guide to understand context & its influences
- Guide to learn and experiment the design process
- Guide to conceptualize the design/evolution of architecture Guide to document the design project

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**.**Learning the basic principles of space making and form building through intensive design studio practice.

PROJECT 1 : SINGLE SPACE DESIGN
Enlighten the student on the design project overview & the design process to be followed through relevant presentations.

Present an analytical discourse on an identical architectural design project covering

1. Architectural elements & relevant architectural terms
2. Space planning (response to user & purpose with logic & application of standards)
3. Material, form & structure
4. Aesthetics & visual perceptions

PROJECT 2: SMALL SCALE MULTI-SPACE DESIGN

Enlighten the student on the design project overview & the design process to be followed through relevant presentations.

Present an analytical discourse on an identical architectural design project covering

a) Architectural, elements, spaces & terms
b) Noted projects & architects
c) Space planning (response to user & purpose with logic & application of standards)
d) Site planning (contextual response, response to the natural environment, response to views + general site planning guidelines)
e) Material, form & structure
f) Aesthetics & visual perceptions.

PROJECT 3 & 4: Time bound Problems of 6 hours to 48 hours.

REFERENCES:

1. Mike W.Lin, Drawing & Designing with confidence – A step by step guide, John Wiley &sons,USA,1998

2. CrissB.Mills, Designing with models : A Studio guide to making & using architectural models, Thomson & Wadsworth, USA,2000.

3. DeChiara and Callender, Time saver standards for building types, Mc Graw hill company
4. BousmahaBaiche& Nicholas Walliman, Neufert Architect's data, Blackwell science ltd.
5. Ramsey / Sleeper,National Architectural graphic standards, The American Institute of Architects

6. Space Planning Basics - Mark Karlen

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				End Sem.	Mid Sem.	Quiz/ Assignment /Sessional	End Sem.	Lab work & Sessional			L	T	P	
2.	AR122	Building Construction -II	BSAE- 4	50	30	20	50	50	200	5	2	1	2(1.5)	**6**

COURSE OUTCOME

After completion of this course student will be able to-

1. Classify the types of corrosion of ferrous and non-ferrous metals and respective preventive measures..
2. Study and compare the material and construction techniques through site visit and market surveys.
3. Develop a fundamental understanding of the relationship of materiality to construction systems and techniques.
4. To study more about doors, windows, different types of materials and their use in construction.
5. Examine the critical role of materials and methods for the design and construction of buildings.
6. Produce detail construction drawings sets of building components and construction techniques.

UNIT 1: DOORS (TIMBER): Timbers doors Study of various types of wooden joint. Different types of doors as per their utility, function., Details of single and double leaf ledged and battened doors , legged braced door, framed braced and battened door Paneled door, flush door, composite door etc.

UNIT 2: WINDOWS& VENTILATORS (TIMBER): , Different type of windows as per their utility and functions.Casement window and side hug, top hug, fixed light of different size and shape.
Sliding pivoted (horizontal and vertical) folding and bay windows.
Combined doors and windows and ventilators
.

UNIT 3: DOORS (METAL) PRESSED STEEL AND 'Z' SECTION: With and without fanlight.

UNIT 4: WINDOWS (METAL) PRESSED STEEL AND 'Z' SECTION: Top and side hung, fixed, pivoted,
louvers, ventilators and fanlight.

UNIT 5: MISCELLANEOUS: Jamb casing, architrave, pelmet, mouldings, skirting and window boards, door and window fixtures..

Note: Sessional shall be done as drawing sheets and occasional visits to construction sites. Minimum 8 sheets shall be prepared out of which two may be in the sketch form (scaled).

LIST OF TEXT AND REFERENCE BOOKS:

AR123 - Building Construction-I

1. W.B. MCKAY, “Building Construction Vol.1, 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, “ Advance Building Construction”, Allied Publishers Pvt. Ltd.

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				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work& Sessional			L	T	P	
3.	AR123	Graphics – II	DC- 4	50	30	20	20	30	150	6	2	2	2	**5**

COURSE OUTCOME:-

1. After completion of this course student will be able to-
2. Develop the skill of representation in advance drawing techniques involving perspective, sciography and Measured Drawing.
3. Effectively visualize their design ideas from various angles and present on paper.
4. Acquire knowledge of the various drawings which effectively communicate their ideas as designers

UNIT-1 ELEMENTS AND PRINCIPLES OF PERSPECTIVE DRAWING

Principles of perspective drawings and understanding of all relevant terms like Picture Plane, Centre line of vision, Eye Level, Height Line, Vanishing Points, Cone of Vision, Station Point, Horizon line, Ground line etc.Basic principles of perspective drawing , Various types of perspectives - One point perspective, Two point perspective and three point perspective

Exercise on two point exterior perspectives of simple objects and their combination by changing positions of picture plane and stand point in form of Worm's eye view, Normal eye view and Birds eye view.

UNIT-2 TWO POINT PERSPECTIVE VIEW OF BUILDINGS

Construction of Two point perspective grid.

Exercise on Two point Perspective of building Interior by Direct projection Method / Approximate Method. Exercise on Two point Perspective of building exterior by Direct projection Method / Approximate Method. Exercise on Sectional perspective

UNIT-3 ONE POINT INTERIOR PERSPECTIVE

Construction of One point perspective grid

Exercise on One point Interior view of any room viz Bed Room, Kitchen, Drawing room etc. by Direct projection Method / Approximate Method

UNIT-4 SCIOGRAPHY

1. Principles of Shades and shadows - Techniques of drawing shades and shadows of lines, planes, solids and Architectural Building Elements.
2. Exercise on Shade and shadow of typical building on Elevation and Site Plan
3. Exercise on Shades and Shadows in perspective.

Measured drawing of single storied building(s) : To measure and draw the Ground Floor Plan along with plot boundaries, four side elevations, two sections, block plan, site plan of existing single storied building (maximum of 100.0 sq. m. Plinth area). In addition to this drawings shall be prepared based on examples of buildings by giving a sketch design (maximum of 100.0 sq. m Plinth area).

Exercises to include application of shade and shadow in site plan, elevation and exterior perspective.

REFERENCES:

Robert W.Gill, “Perspective From Basic To Creative”, Thames and Hudson, London, 2006

1. Francis D.K Ching, “Architectural Graphics- Fifth Edition”, John Wiley and Sons, New Jersey,2009.
2. John Montague, “Basic perspective Drawing A Visual Approach”, John Wiley and Sons, NewJersey, 2009.
3. MilindMulick, “Perspective”, Jyotsna prakashan, 2006
4. Ernest Norling, “Perspective Made Easy”, Dover publications, 1999
5. M.G. Shah & C.M. Kale, “Principles of Perspective Drawing”, Asia publishing House, 1965

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				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional			L	T	P	
4.	AR124	Workshop – II	SEC-3	-	-	-	20	30	50	4	-	-	4	**2**

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Develop the ability to appreciate the three dimensional implications of design and techniques of model making.
2. Critique the property of different materials for various products for designing and model making.
3. Review requirements and critique the design consideration of complementing field of architecture and designing such as photography and set designing.
4. Incorporate basics of rendering, presentation skills &model making with various materials
5. Design a functional model for real life situation.

UNIT-1 MODEL MAKING

Use of clay, Plaster of Paris, metal scrap, metal sheets, jute fibre etc. for study of forms through models. Making models of the various structural systems used in buildings like Space frames – using Match sticks, wires. Different forms of shell roofs using POP, Clay, Soap Tensile structures using fabric.

UNIT-2

Development of surfaces of simple and composite forms using paper, Thermocol, wire, Wax, acrylic, sheets and similar materials. Introduction to metallic sections, joinery tools, joinery processes and working with them. Bonds in masonry based on the programme of building construction to make the various forms of masonry structures. Mixing of concrete, preparation of various objects

UNIT-3 INTRODUCTION TO MODEL MAKING AND BLOCK MODELLING

Introduction to concepts of model making and various materials used for model making Preparation of base for models using wood or boards. Introduction to block models of buildings (or 3D Compositions) involving the usage of various materials like Thermocol, Soap/Wax, Boards, Clay etc.

UNIT-4 DETAILED MODELLING

Making a detailed model which includes the representation of various building elements like Walls, Columns, Steps, Windows/glazing, Sunshades, using materials like Mount board, Snow-white board, and acrylic sheets. Representing various surface finishes like brick/stone representation, stucco finish etc. Various site elements– Contour representation, Roads/Pavements, Trees/Shrubs, Lawn, Water bodies, Street furniture, Fencing etc.

UNIT-5 PHOTOGRAPHY

Introduction to photography, use of camera, techniques in architectural photography.

REFERENCES:

1. BENN, the book of the house ,Errnest Benn limited London
2.Jannsen, Constructional Drawings & Architectural models, Kari Kramer Verlag Stuttgart, 1973.
3. Harry W.Smith, The art of making furniture in miniature, E.P.Duttor Inc., New York, 1982.
4. Thames and Hudson Manual of Rendering with Pen and Ink-Robert W Gill.

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				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional			L	T	P	
5.	AR125	History of Architecture- I	DC- 5	50	30	20	-	-	100	3	2	1	-	**3**

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Acquire basic concepts regarding the historical and architectural development in ancient India and worldas this is an integrated expression of art, culture, vernacular material and techniques of the place.
2. Understand the diverse artistic and architectural expressions with regard to the historical context in which they are developed.
3. Utilize visual and verbal vocabularies of Indian, Egyptian, west Asiatic and Eastern Architecture.
4. To gain information about the evolution of architectural form & space with reference to Technology, Style and Character using sketches as the principal method of learning - about the prehistoric world, Ancient Egypt, and origin or architecture in Indian context.
5. Develop an appreciation of varied cultures and the resulting architectural productions which are unique in time and place & suitable to the lifestyle of its people.

UNIT-1 RIVER VALLEY CIVILIZATIONS OF INDIA

Pre historic civilization, Neolithic & Paleolithic.Indus Valley Civilization: culture and pattern of settlement.- Aryan civilization – theories and debates of origin- origins of early Hinduism - Vedic culture - Vedic village and rudimentary forms of bamboo and wooden construction - origins of Buddhism and Jainism

UNIT-2 BUDDHIST ARCHITECTURE

Evolution of Ashoka's School of art and architecture - Examples – Ashokan Pillar at Sarnath and Sanchi stupa. Chaitya hall and Vihara - Buddhist rock cut architecture Examples - Chaitya hall at Karli, Viharas at Nasik.

UNIT-3 EGPYTIAN ARCHITECTURE

Study of the influences & architectural character of ancient Egypt with relevant examples of Tomb & Temple structures (Cult and Mortuary temples), Mastaba – development and typical components of Pyramids – Complex of Zoser, Pyramid of Cheops and Cephren

UNIT-4 WEST ASIATIC ARCHITECTURE

Study of Mesopotamian architecture, Urbanization in the Fertile Crescent – Sumerian, Babylonian, Assyrian and Persian (with examples of Ziggurat, Sargon palace & Palace of Persepolis).Mayan Civilization- Ceremonial platforms, palaces, pyramids and temples.

UNIT-5 INTRODUCTION TO SOUTH EAST ASIAN AND EAST ASIAN ARCHITECTURE

Study of architectural character of south Asian countries- Burma, Thailand, Cambodia etc. Study of relevant examples like Angkor wat Cambodia etc.
Introduction to Chinese architecture and typical examples of Pagoda, Pylons, Great Wall of China, temples etc.
Introduction to Japanese architecture, its characteristic features and typical examples Pagoda, temples, monasteries, tea house etc.

TEXT BOOKS:

1. SATISH GROVER, "The Architecture of Indian (Buddhist & Hindu)"
2. A VOLWANSEN, "Living Architecture (Indian)", Oxford & IBH London
3. Pier LuigiNervi, General Editor, "History of World Architecture – Series"

REFERENCE BOOKS:

1. PERCY BROWN, "Indian Architecture (Buddhist & Hindu), Taraporewala& Sons, Bombay.
2. CHRISTOPHERTADGILL, "History of Architecture in India", Phaidon Press.
3. History Of Architecture by SirBannisterFletcher
4. The Story Of Architecture by PatrickNuttgens
5. Space, Time And Architecture by Siegfried Gideon

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6.	AR126	Structure -II	BSAE-5	50	30	20	-	-	100	3	2	1	-	**3**

COURSE OUTCOME:-

After completion of this course student will be able to-

1. Identify the concept of various structural elements and system
2. Illustrate the use of different structural systems in building industry
3. Analyze the structural geometry based on strength and stability criteria
4. To critically appraise the built environment based on specific structural system
5. It also delivers the basic principles of structural mechanics & how bending moment and shear force diagrams are used to analyze simple structural behavior.

UNIT 1: Fixed and continuous beams: Relation between free B.M. diagram fixed B.M. diagram, fixed beam subjected to couple, continuous beam, Clapeyron's theorem of three moments.

UNIT 2: Moment distribution and, slope deflection methods: fixed and continuous beams only.

UNIT 3. Study of types of structures: load bearing framed, rigid jointed, pin jointed, determinate, indeterminate.

UNIT 4: Loads of stresses: Dead load, live load, wind load, earth quake forces, soil and hydrostatic pressure, load combinations, factor of safety, permissible
Stresses, standard specification and codes of practice.

UNIT 5: Analysis and stability of retaining walls: rectangular and trapezoidal only.
Note: Sessional work shall include assignments/tests on the above topics along with the drawings.

LIST OF TEXT AND REFERENCE BOOKS:

AR125- Structure-II

1. C.S. REDDY, "Basic Structural Analysis", Tata McGraw Hill.

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				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional			L	T	P	
7.	AR127	Theory of Design	DC- 6	50	30	20	-	-	100	2	2	-	-	**2**

COURSE OUTCOME:-

1. After completion of this course student will be able to-
2. Learn the theoretical aspects of design and understand how it could be manifested in architectural design.
3. Understand the ideologies from works of architects and planners.
4. Develop awareness of the natural and built environments (past and present) through critical observation.
5. Analyze and derive ideas from abstract thinking.
6. Develop a critical approach to architectural thinking and the ability for students to criticize their own work.
7. Learn the design communication skills to enable to put forth the design ideas in graphics and literature.

UNIT-1 PRIMARY ELEMENTS IN ARCHITECTURE

Geometry in Architecture - points, lines and shapes.-Linear elements -planar elements and volumetric elements. Patterns in nature and building design.Order to chaos. Regularity and irregularity.

UNIT-2 FORM AND SPACE

Elements of spatial definition – form defining space - elevated base plane, depressed base plane-vertical and horizontal elements defining space -depth and density of space - spatial juxtaposition and interpenetration – spatial characteristics of elementary shapes - qualities of architectural space - degree of enclosure. Analysis of works of F.L Wright and Le Corbusier.

UNIT-3 ORDERING PRINCIPLES AND MEANING IN ARCHITECTURE

Ordering Principles-Axis -Symmetry -Hierarchy - Datum -Rhythm -Repetition - Transformation - Measure and balance – spaces on human scale - proportion -- Golden Section, Le modular, Fibonacci series – Renaissance Theories - anthromorphism and architecture - Figure and ground, positive and negative spaces.

UNIT-4 CONCEPTS IN ARCHITECTURAL DESIGN

Concept – types- Ideas and Intent in design - Intuitive, contextual, Iconic, Experiential, Symbolic, Modular. Ideologies and philosophies of architects'. Case Studies. Importance of graphics in architectural design. Study of site plans, city plans, conceptual drawings. Interpretation of architects' conceptual sketches and the respective buildings. Vernacular Architecture. Western & Indian Philosopher.

UNIT-5 RESPONSIVE AND RESPONSIBLE ARCHITECTURE

Phenomena of perception – looking, listening, feeling and moving through architecture – light and shade – Architecture as Making Frames -, Environmental-Energy based design.

REFERENCES:

1. Francis D.K.Ching, Architecture-Form, Space and Order, Van Nostrand Reinhold Company, New York, 2007.
2. Simon Unwin, Analysing Architecture, Rouledge, London, 2003.
3. V.S.Pramar, Design Fundamentals in Architecture, Somaiya Publications Private Ltd., New Delhi, 1973.
4. Peter von Meiss -Elements of architecture - from form to place, Spon Press 1992.
5. Steen Eiler Rasmussen - Experiencing architecture, MIT Press, 1964.