

SEMESTER I

Sub code: BAP 101

L S C

Paper title: INTRODUCTION TO ARCHITECTURAL DESIGN-I

- 8 8

OBJECTIVE

- To familiarize students with architectural design process
- To sensitize students towards the interconnectedness of various elements of a context which impact the architectural design
- To develop understanding of interconnections between form, volume and function.

CONTENTS

Anthropometrics

- Study of anthropometrics and their relationship with the dimensions of objects of daily use.
- Determining space for activities such as living, dining, sleeping and conveniences.
- Measured drawing of a small building such as, a small house or office.

Study of Circulation

- Simple circulation/flow diagrams for small building projects

Spatial Organization

- Three dimensional organization of a variety of forms to create built forms, importance of shades and shadows in the entire composition, layout of repetitive units within a site to create interesting and functional compositions.

Design exercises

Evolution of plan in relation to physical, site considerations, selection of materials and construction, study of architectural design vis a vis the concepts of privacy, security, comfort and maintenance

- Single room design, such as self-occupied room, tea stall, guard room, canopy, boundary wall etc
- Design of small residential components, such as a kitchen, bathroom, bedroom etc.

Reference books:

1. Ching, F.D.K., "Design Drawing", Van Nostrand Reinhold. 1998
2. Neufert, P., "Architects" Data", 3rd Ed., Blackwell Science. 2000
3. Agkathidis, A., Hudert, M. and Schillig, G., "Form Defining Strategies: Experimenting Architectural Design", Wasmuth. 2007

Sub code: BAP 103

L S C

**Paper title: BUILDING MATERIALS AND
CONSTRUCTION TECHNOLOGY -I**

- 5 5

OBJECTIVE

- To familiarize students with basic building materials and their properties
- To make students understand how materials have can architectural application.

CONTENTS

Introduction to basic building materials

- Mud: Study of soil map of India, Type of soils, Making mud bricks, cob, adobe, Stabilization and use for walling and terracing.
- Bricks: Kinds, types, constituents and properties of brick earth, manufacturing of various types of bricks, decorative brickwork and jail work
- Stone: Study of stone map of India, Kinds, properties, varieties and their characteristics, stone masonry.
- Sand: Sources, classification and properties
- Lime and Cement: Sources, classification, properties and method of manufacturing, testing, mixing and uses

Foundations: Definition, safe bearing capacity of soils and methods of improving the depths and width of foundations, causes of failure and remedies, simple, steeped, combined and cantilevered footing, RCC footing and raft foundation. Foundation details upto plinth level

Walls: Masonry walls in bricks and stone, in various thicknesses. Brick bonds English, Flemish, Rat-trap etc. Tee and cross-junctions, corbelling. Different type of stone masonry . Brick jali walls

Damproofing

Different types of damp proof materials, their compositions and application, Constructional details of walls, floors, foundations etc. with particular emphasis of their damp proofing and natural ventilation.

Reference books:

1. Kumar, S.K., "Building Construction", 19th Ed., Standard Publishers Distributors. 2001
2. Allen, E. and Iano, J., "Fundamentals of Building Construction: Materials and Methods", Wiley. 2004
3. Mehta, M., Scarborough, W. and Armpriest, Diane, "Building Construction: Principles, Materials and Systems", Pearson Prentice Hall. 20

Sub code: BAP 105

L S C

Paper title: ARCHITECTURAL DRAWING -I

— 4 4

OBJECTIVE

- Introduction and familiarization with drafting tools and accessories.
- To give basic knowledge of good drafting and lettering techniques.
- To develop the understanding of scales in architectural drawings
- To develop comprehension and Visualization of geometric forms.
- To develop the understanding of representing three-dimensional objects on two-dimensional sheet.

CONTENTS

Introduction

- Drawing Instruments and their uses.
- Sheet layout and sketching.
- Lettering and dimensioning,
- Reduction and enlargement of drawings on different scales, representation of materials and architectural elements through architectural graphic symbols
- Pencil drawings, tonal value, variation flight, shading and texture techniques
- Brush control exercises in water, oil, poster, crayon and mixed media.

Scales and proportion

- Scales: Engineers scale, Graphical scale and Representation factor (R.F.)
- Scales on drawings. Types of scales: Plain scale and Diagonal scale.

Basic projections,

- Definition, Meaning & concept. Principles and Methods of projection.
- Orthographic projections
- Orthographic projection (Third angle projection) Planes of projection.
- Projection of points, lines & planes and solids.

Axonometrics, isometrics projections

- Definition, Meaning & concept. Principles and Methods of projection.
- Projection and three-dimensional views of solids and composition of solids

Reference books:

1. Bhatt, N.D. and Panchal, V.M., “Engineering Drawing – Plane and Solid Geometry”, 48th Ed., Charotar Publishing House. 1996
2. Griffin, A.W. and Brunicardi, V.A., “Introduction to Architectural Presentation Graphics”, Prentice Hall. 1998

Sub code: BAP 107

L P C

Paper title: ARCHITECTURAL GRAPHICS -I

- 4 2

OBJECTIVE

- To familiarize students to the principles and elements of design
- To encourage students to be observant of how design elements and principles are expressed in their environment
- To develop the understanding of how design principles and elements find expression in architectural design

CONTENTS

Principles and elements of design

- Two dimensional design elements, such as, point, line, direction, shape, size, colour and texture;
- Three dimensional design profiles of geometric forms and their arrangements in different compositions.
- Harmony and contrast in 2-D and 3-D design; interplay of light and shade on building blocks and their effect.
- Style, rhythm, balance, unity and order, Scale and proportion in architecture; Le Modular and other concepts.

Color theory

- Psychology of colour, colour mixtures, colour systems, colour organization, application of colour schemes, national and international standards on colours.

Study of elementary two-dimensional shapes

- Compositional exercises in 2D compositions in various materials and media.

Study of elementary three-dimensional volumes

- Study of elementary three dimensional form. Compositional exercises in 2D and 3D compositions and models in various materials and media.
- Ordering combination principles and their application in building through exercises in design of murals, screens and voids in walls

Reference books:

1. Bhatt, N.D. and Panchal, V.M., "Engineering Drawing – Plane and Solid Geometry", 48th Ed., Charotar Publishing House. 1996
2. Griffin, A.W. and Brunicardi, V.A., "Introduction to Architectural Presentation Graphics", Prentice Hall. 1998
3. Ciriello, M., "Architectural Design Graphics", McGraw-Hill. 2002
4. Ching, F.D.K., "Architectural Graphics", 4th Ed., John Wiley. 2003
5. Carpo, M., "Perspective, Projections and Design: Technologies of Architectural Representation", Routledge. 2008
5. Parmar, V.S., "Design Fundamentals in Architecture", Somaiya Publications, 1973

Sub code: BAP 109

Paper title: HISTORY OF ARCHITECTURE -I

L	S	C
2	-	2

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

- 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.**
- 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.**

OBJECTIVE

- Introduction to the architecture of the ancient world.
- To generate an understanding about the development of civilization and its architectural implications.

CONTENTS

Unit 1

Prehistory and Introduction to Three Age System.

- Stone age (Paleolithic and Neolithic Systems); Cave Dwellings in Europe: Lascaux, Chapelle-Aux-Saints; First attempts at Marking Nature: Terra Amata, Skara Brae, the megaliths, obelisks. Compositions such as Stone Henge; Beginnings of Agriculture and Settled Life, First Settlements like Jericho, CatalHuyuk.

Unit 2

River Valley Civilizations in Egypt and Mesopotamia;

- Growth of Settlements, Religious and Social Architecture. Egypt: Social systems, religious beliefs, science and writing; Evolution of Tomb Architecture: Mastabas, Pyramids at Saqqara, Meidum and Giza; Mortuary Temples: Hatshepsut; Cult Temples: at Luxor and Karnak. Mesopotamia: the Sumerians, Babylonians, Assyrians and the Persians; their Art, Intellectual Achievements and Developments in Law; the Ziggurats at Ur, ChogaZanbil, etc.; the cities of Ur, Babylon, Khorsabad and Persepolis.

Unit 3

Bronze Age Indus Valley Civilization in India and China:

- Town Planning, Trade and Commerce; Mohenjodaro and Harappa. Early Iron Age Civilization in India: the coming of the Aryans and Vedic Age; Epic Age; development of Hinduism Religious and Caste systems, Wooden Origins of Indian Architecture: Forest Dwellings, Kutiya and Grama.
- River Valley Civilization in China: Dynasties such as the Shang, Chou, Ch'in, Ming, etc.; Political History, philosophy, and scientific achievements; palaces like the Imperial Palace, Forbidden city; Altars and Temples; Imperial Tombs.

Unit 4

Collapse of some civilizations;

- Causes of collapse with suitable examples; economical, environmental, social and cultural, natural disaster, overpopulation or resource depletion, lack of loyalty to a central power structure and result in an oppressed lower class rising up and taking power from a smaller wealthy elite, Foreign Invasions, Sub-replacement fertility.

- Changes occurring with collapse, Reversion/Simplification, Incorporation/Absorption, Obliteration and other causes.

Reference books:

1. Tadgell Christopher, A History of Architecture in India – From the Dawn of Civilization to the End of the Raj. Pub. Phaidon Press Ltd., London, 1990.
2. Fletcher Sir Banister, A History of Architecture. Pub. Butter-worth Heinemann Ltd. London (UK), Indian collaboration- CBS Pub. Delhi. First Pub. 1896, 19th edition 1987.
3. Arjun Dev, The Story of Civilisation, Vol. I (Old) NCERT History Textbook for Class IX.
4. Kostof Spiro, A History of Architecture – Settings and Rituals. Pub. Oxford University Press, N.Y., 1995.
5. Hiraskar G.K., The Great Ages of World Architecture. Pub. Dhanpat Rai Pub. Ltd., Delhi. 1994.
6. Diamond, J. "Collapse: How Societies Choose to Fail or Succeed", Viking Press, 2005.
7. Brown Percy, Indian Architecture- Buddhist and Hindu Periods. Pub. D.B.Taraporevala and Sons Co. Pvt. Ltd., Bombay.

Sub code: BAP 111

L S C

Paper title: STRUCTURES-I

3 - 3

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

- 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.**
- 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.**

OBJECTIVE

- To understand basic principles of structural mechanics which are relevant to simple design elements.
- To understand structural behaviour of building elements

CONTENTS

Unit 1:

Applied Mechanics-I

- Nature Study: Study of structure in nature
- Centre of Gravity: Definition, CG of plane figures (I, T, L, C, O), CG of hollow and box sections
- Moment of Inertia: Definition, MI of plane figures about principal axes (rectangle, triangle, circle), Parallel axis theorem, MI of simple plane figures (I, T, L, C, O, hollow and box sections)

Unit 2:

Applied Mechanics-II

- Statics: Forces, Composition and Resolution of forces, Parallelogram law of forces, Lami's theorem, Moment and couple, Conditions of equilibrium
- Concept of Elasticity: Hooke's Law, Stress and strain, Elasticity, Plasticity, Modulus of elasticity, Elastic limit, Stress/strain curve for mild steel, Poisson's ratio
- Introduction to Temperature Stresses

Unit 3:

Building Structures-I

- Building Systems: Concept of load bearing wall and framed systems
- Building Components: Concept of distributing system, supporting system, opening system, spanning system
- Spanning systems: Form-active and vector-active systems

Unit 4:

Building Structures-II

- Historical perspective: Evolution of structures through time
- Equations of Equilibrium: Statically determinate, Statically indeterminate, Support conditions
- Loads: Loads as forces, Types of loads (Dead, Live, Wind, Finishing, Snow, Earthquake, Blast, etc)

Reference books:

1. Kumar, A., "Stability Theory of Structures", Tata McGraw Hill Co. Ltd. 1985
2. Prakash Rao, D.S., "Structural Analysis", University Press. 2007
3. Jain, A.K., "Strength of Materials and Structural Analysis", 2nd Ed., Nem Chand & Bros. 2008

Sub code: BAP 113

Paper title: CLIMATOLOGY AND ENVIRONMENTAL STUDIES –I

L	S	C
2	-	2

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.

2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.

OBJECTIVE

- The broad intent of the course is to develop the student's insight into the effect of climate and the incumbent of ecology of the site, in term of its effect of building design and detailing.
- The course is intended to develop a special insight into the current situation of urban immigration, climate change, environmental stress and pollution and help the student develop strategies to combat there. This could be developed both by looking around the site and by looking inside the proposed building itself, i.e., through its service design for water, electricity and space conditioning.

Unit 1

Introduction to Climatology;

- Relationship between Architecture and Climatology; Global Warming and the Need for Climate responsive building; Building as a third skin. Climate and weather; Global weather; Seasonal changes, Factors responsible for changes.
- Climatic-Tropics, climatic zones, macro climate, elements of climate, sun, temperature, wind, precipitation, and climatological data needed for planning of buildings.
- Human Comfort, Human heat balance and comfort; thermal comfort, heat stress, effective temperature, bioclimatic analysis, individuals' variation. Concept of Adaptive Comfort

Unit 2

Micro climate

- **Air Temperature: Factors that influence air temperature – latitude, altitude, seasons, water, trees, areas etc.;** inversion of temperature, thermal diffusivity, thermal conductivity and heat transmission through building elements.
- Solar Radiation and its variations over the year.
- Wind: Study of diurnal and seasonal variations, heating and cooling, effect of topography; effect of wind on location on industrial areas, airports and other land uses and road patterns; Promoting and inhibiting air movement in and around buildings, wind eddies, size and positions; effect of wind on design and siting of buildings. Understanding Wind Rose diagrams
- Precipitation and humidity: Water vapour, relative humidity, condensation, rain, fog, snow and architectural responses to them.

Unit 3

Introduction to environmental studies

- The Multidisciplinary nature of environmental studies, Definition, scope and importance, Need for public awareness, man, environment and ecosystem; Renewable and non-renewable resources: Natural resources and associated problems with case studies.

- Ecosystems -Concept of an ecosystem, Structure and function of an ecosystem. Producers, consumers and decomposers. Energy flow in the ecosystem. Ecological succession. Food chains, food webs and ecological pyramids. Introduction to different ecosystems

Unit 4

Introduction to Sustainable development

- Biodiversity and its conservation-Definition: genetic, species and ecosystem diversity. Biogeographically classification of India ,Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values, Threats to biodiversity Conservation of biodiversity: in-situ, Ex-situ conservation of biodiversity.
- Environmental Pollution, -Definition, Causes, effects and control measures of : Air pollution, Water pollution, Soil pollution,. Noise pollution, Thermal pollution, Nuclear hazards Solid waste Management. Role of an individual in prevention of pollution. 2
- Disaster Management: Floods, earthquake, cyclone and landslides.

Reference books:

1. Bansal, N.K., Hauser, G. and Minke, G., "Passive Building Design: A Handbook of Natural Climatic Control", Elsevier Science. 1994
2. Givoni, G., "Climatic Considerations in Building and Urban Design", Van Nostrand Reinhold. 1998
3. Hausladen, G., "Climatic Design: Solutions for Buildings that can Do More with Less Technology", Birkhauser. 2005
4. Drake, S., "The Third Skin: Architecture, Technology and Environment", UNSW Press. 2007

Sub code: BAP 116

L P C

Paper title: ARCHITECTURAL WORKSHOP TECHNIQUES - II

- 4 2

OBJECTIVE

- To equip students with the basic skills necessary to represent their ideas in a rudimentary model format using simple materials like paper, thermocol, hardwood, Metals, glass fiber etc.
- Introduction to the various tools and equipment available for executing these exercises.
- To familiarize students with joinery details

CONTENTS:

- **Architectural Modelling**
 - General information about various materials and tools to be used in model making.
 - Development of the skill to use the tools with precision to obtain desired results in model making
- **Introduction to types of model**
 - Block models, detailed model, construction model and interior models etc.
- **Introduction to various materials**
 - Experimentation with these materials for different geometries and scales of models.
- **Presentation in models**
 - Methods of presentation in various types of models

Reference books:

1. Parmar, V.S., "Design Fundamentals in Architecture", Somaiya Publications. 1973
2. Morgan, C.L., "Jean Nouvel- The Elements of Architecture", Thames & Hudson. 1998
3. Kieran, S. and Timberlake, J., "Elements of a new Architecture", Princeton Architectural. 2008

SEMESTER II

Sub code: BAP 102

Paper title: ARCHITECTURAL DESIGN-II

L	S	C
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OBJECTIVE

- To impart an understanding about the design of small buildings with respect to site, landscape and climate. Preferably design exercise for cold climatic zone
- Introduction to Vernacular architecture, how local geo climatic and socio economic factors shape architectural design.
- Densitization of student towards designing in different climatic zones

CONTENTS

Proxemics.

- Study of human use of space and the effects that population density has on behavior, communication, and social interaction through exercises. Impact of Proxemics of architectural design
- Sensitization towards application of principles of climatology.

Study of Vernacular architecture

- A visit to rural organic settlement (introduction to vernacular architecture) with repetitive composition with site orientation, prevailing wind direction and the use of local building materials.
- Measure drawing of a historical building or any other building of architectural importance

Minor Design Problem/Time problem

Minor design problems such as a small weekend cottage, monument, food kiosk in a park

Minor Design Problem/Time problem

- Major design problem such as a house in a rural setting with focus on climatology and local materials and techniques. The structure may be load bearing type. Interrelation of design to construction, structures, climatology and building material
- Development of understanding of load bearing structures for G+ 1 structure.

Reference books:

1. Agkathidis, A., Hudert, M. and Schillig, G., "Form Defining Strategies: Experimental Architectural Design", Wasmuth. 2007
2. Watson, D. (Editor), "Time-saver Standards for Architectural Design: Technical Data for Professional Practice", 8th Ed., McGraw-Hill. 2005
3. Bansal, N.K., Hauser, G. and Minke, G., "Passive Building Design: A Handbook of Natural Climatic Control", Elsevier Science. 1

Sub code: BAP 104

L S C

**Paper title: BUILDING MATERIALS AND CONSTRUCTION
TECHNOLOGY-II**

- 5 5

OBJECTIVE

- To familiarize students with basic building materials and their properties
- To make students understand how can materials have architectural application.

CONTENTS

Doors and Windows

- Doors: Types of doors, construction techniques, decorative panel doors, glazed doors, flush doors, doors with fanlight, and calculation of woodwork, frameless doors,
- Windows: Detail of timber frames & shutters, fixed shutters, Calculation of woodwork. Frameless window details

Roofing systems

- Flat, curved, sloping roofs
- Timber roofs: Method of construction including terracing details; lean to roof, closed couple roof, collar roof for small spans and nail joineries.
- Large timber trusses (12 meter span).
- Cost effective roofing techniques

Arches and Lintels

- Elementary principles of Arch construction. Definition of various technical terms and Types of Arches. Construction of Brick and Stone Arches.

Building Materials

- Timbers of India, Forest cover, Timber sawing and seasoning, timber products, roof tiles, and sheets, Introduction to secondary elements door, windows, railing and sunshades, staircase etc.
- Identification of basic woods like teak, sal, sheesham, mango, eucalyptus etc.

Reference books:

1. Kumar, S.K., "Building Construction", 19th Ed., Standard Publishers Distributors. 2001
2. Allen, E. and Iano, J., "Fundamentals of Building Construction: Materials and Methods", Wiley. 2004
3. Mehta, M., Scarborough, W. and Armpriest, Diane, "Building Construction: Principles, Materials and Systems", Pearson Prentice Hall. 2008
4. Rangwala, S.C., "Building Construction", 19 th Ed., Charotar Publishing House. 2001
5. Mckay, W.B., Building Construction, Vols. I, Longman. 2005
6. Mckay, W.B., Building Construction, Vols. II, Longman. 2005
5. Mckay, W.B., Building Construction, Vols. III, Longman. 2005

Sub code: BAP 106

L S C

Paper title: ARCHITECTURAL DRAWING - II

- 4 4

OBJECTIVE

- To introduce the students to graphic treatment of two-dimensional drawings.
- To develop perception and presentation of simple architectural forms and building.
- To sensitise students to application of sciography in development of solar passive architecture
- To familiarize the students with preparation of perspectives by innovative methods.
- To introduce the students with perspectives of interiors.

CONTENTS

Section of Solids:

- Section plans, Sections, True shape of a section.
- Section of solids (Prisms, Pyramids, Cylinders, Cones, Spheres.)

Perspective

- Definition of perspective technique (picture plane, stationary point etc) and their role in drawing perspectives,
- One point, two point perspectives of geometrical shapes leading to perspectives of built forms, exercises in parallel, angular and bird's eye views.
- Difference with metric projections.
- Anatomy of perspective: Station point, Eye level, Cone of vision, Picture plane,
- Horizon line, Ground line, Vanishing points,
- Types of perspectives: One point, Two point, Three point
- Perspectives of simple and complex blocks
- Perspectives of Residences.

Development of surfaces

- Introduction and Methods of development of surfaces.
- Development of lateral surfaces of right solids like Cubes, Prisms, Cylinders.
- Method of drawing the development of the lateral surface of a pyramid & Cone.

Sciography

- Introduction/ Meaning of sciography
- Projection of sciography in plan and elevations

Reference books:

1. Bhatt, N.D. and Panchal, V.M., "Engineering Drawing – Plane and Solid Geometry", 48th Ed., Charotar Publishing House. 1996
2. Griffin, A.W. and Brunicardi, V.A., "Introduction to Architectural Presentation Graphics", Prentice Hall. 1998
3. Ciriello, M., "Architectural Design Graphics", McGraw-Hill. 2002

Sub code: BAP 108

L P C

Paper title: ARCHITECTURAL GRAPHICS AND ART APPRECIATION-II - 4 2

OBJECTIVE

- To introduce the students to graphic treatment of two-dimensional drawings.
- To develop perception and presentation of simple architectural forms and building.

CONTENTS

Art and Architecture

- Understanding of relevant terms – architecture, design art, fine art, visual art, architectural design and other types of design; comparisons of aesthetics in art and architecture.
- Relevant exercises

History of Art:

- Art through ages, architecture as art, milestones in art from the Prehistoric, Paleolithic, Neolithic, Classical, Medieval, Renaissance and modern periods. Indian art heritage, Indus valley to present day.

Art consciousness

- Aesthetics, perception, symbolism, expression, style, fashion, appropriateness and values. Critical appraisal of examples from the visual as well as performing arts.

Presentation Techniques:

- Introduction to represent different textures and finishes in plan and elevation.
- Graphical representation of furniture, automobiles, human figures, etc. in plans and elevations and 3 dimensions. Preparation of presentation drawing

Reference books:

1. Bhatt, N.D. and Panchal, V.M., "Engineering Drawing – Plane and Solid Geometry", 48th Ed., Charotar Publishing House. 1996
2. Griffin, A.W. and Brunnicardi, V.A., "Introduction to Architectural Presentation Graphics", Prentice Hall. 1998
3. Ciriello, M., "Architectural Design Graphics", McGraw-Hill. 2002
4. Ching, F.D.K., "Architectural Graphics", 4th Ed., John Wiley. 2003
5. Carpo, M., "Perspective, Projections and Design: Technologies of Architectural Representation", Routledge. 2008
5. Rasmusson, S.E., "Experiencing Architecture", Chapman and Hall Ltd, 1964
7. Licklidan, H., "Architectural Scale", The Architectural Press. 1966
8. Ching, F.D.K., "Architecture Theoretician", Wiley. 2007
6. Fisher, T., "Architectural Design and Ethics: Tools for Survival", Architectural Press. 2008

Sub code: BAP 110

Paper title: HISTORY OF ARCHITECTURE-II

L	S	C
2	-	2

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

- 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.**
- 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.**

OBJECTIVE

- Introduction to the architecture of the Iron Age.
- To generate an understanding about the development of Iron Age architecture and its architectural.

CONTENTS

Unit 1

Early Iron Age Civilizations in Greece:

- Minoan, Mycenaean and Classical Greek Minoan and Mycenaean: Palace at Knosos, the Lion Gate, the appearance of the Megaron. Classical Greek: Developments in philosophy: Socrates, Aristotle, Plato; science; literature; Greek City states;
- Evolution of the Temple; the Orders; the Parthenon, Temple of Zeus, Temple of Athena; Polis and Acropolis.

Unit 2

Early Iron Age Civilizations in Rome:

- Political, social, philosophical and military developments.
- Structural and Engineering Achievements: the arch, Vault and the dome; Developments of the orders;
- Temples: Pantheon; Arenas: Colloseum; Thermae: Caracalla; Aqueducts; the forum and the basilica

Unit 3

Beginning of Buddhist and Jain Architecture in India

- Philosophy and teachings; the Hinayana and Mahayana Sects and their contribution to the development of architecture in India. Ashokan School, Buddhist Rock Cut Architecture: the Chaityas and Viharas at Ajanta and Ellora; the Stupa: Form and Evolution; Buddhist Architecture in Gandhara.

Unit 4

Early Iron Age Civilisations in India

- Beginning of Hindu Temple Architecture under the Guptas and Chalukyas. Appearance and Evolution: Experiments at Badami, Aihole of examples such as Ladh Khan, Durga, Maleguti.

Reference books:

1. Watkin, D., "A History of Western Architecture", Thames and Hudson. 1986
2. Fletcher, B., "A History of Architecture", 20th Ed., Butterworth Heinemann. 1996
3. Moffet, M., Fazio, M. and Wodehouse, L., "A World History of Architecture", McGraw-Hill. 2008

Sub code: BAP 112

Paper title: STRUCTURES-II

L	S	C
2	-	2

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.

OBJECTIVE

- Understanding the Supporting and Distribution Systems (In Timber And/Or Masonry)

Unit 1:

Axial load -I

- Columns: Definition, Understanding through nature and history, Analysis, Design in masonry and timber using relevant BIS codes
- Walls and Piers: Definition, Understanding through nature and history, Analysis, Design in masonry using relevant BIS codes

Unit 1:

Axial load -II

- Foundation: Definition, Understanding through nature and history, Analysis, Design in masonry using relevant IS codes

Unit 3:

Eccentric and lateral load-I

- Columns: Understanding eccentric and lateral load, Analysis due to combined axial and eccentric loading, Design in masonry and timber using relevant IS codes
- Walls and Piers: Understanding eccentric and lateral load, Analysis due to combined axial and eccentric/ lateral loading, Design in masonry using relevant IS codes

Unit 4:

Eccentric and lateral load-II

- Foundation: Understanding eccentric and lateral load, Analysis due to combined axial and eccentric/ lateral loading, Design in masonry using relevant IS codes

Reference books:

1. Dayaratnam, P., "Brick and Reinforced Brick Structures", Oxford & IBH Publishing Co. 1997
2. Arya, A.S., "Masonry and Timber Structures Including Earthquake Resistant Design", Nem Chand Bros. 2001

Sub code: BAP 114

L S C

Paper title: CLIMATOLOGY AND ENVIRONMENTAL STUDIES II:

2 - 2

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

- 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.**
- 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.**

OBJECTIVE

To sensitize the student about passive techniques

CONTENTS

Unit 1

- Understanding Solar Geometry & Building Orientational principles through Physical Models and through modeling software, for.e.g. Ecotect, Revit, Google Sketchup and other solar tools.
- Study in relation to Sciography exercises in the Design Studio

Unit 2

- Understanding solar radiation and its effects on various kinds of surfaces (walls, roofs, Paved surfaces).
- Calculation of solar radiation on building surfaces, solar charts. “Solar Heat gain coefficient” for fenestration systems. Types of Shading Devices for buildings.

Unit 3

- Opaque building elements and heat transfer through these surfaces/elements. U& R values for Building envelope elements. “Traditional and Modern” Insulation, Heat Absorbing and Reflective materials for walls, roofs and fenestrations.

Unit 4

- Passive Architectural Design Principles in various climates. Case studies of Buildings and visits to Solar Passive structures and preparation and discussion of visit reports.
- Design Exercise on small scale climatically responsive house/shelter together with modeling of solar insolation and exercises on shading devices. This can also be carried out in the Corresponding Architectural Design Studio

Reference books:

1. Bansal, N.K., Hauser, G. and Minke, G., “Passive Building Design: A Handbook of Natural Climatic Control”, Elsevier Science. 1994
2. Givoni, G., “Climatic Considerations in Building and Urban Design”, Van Nostrand Reinhold. 1998
3. Hausladen, G., “Climatic Design: Solutions for Buildings that can Do More with Less Technology”, Birkhauser. 2005
4. Drake, S., “The Third Skin: Architecture, Technology and Environment”, UNSW Press. 2007

Sub code: BAP 116

L P C

Paper title: ARCHITECTURAL WORKSHOP TECHNIQUES - II

- 4 2

OBJECTIVE

- To equip students with the basic skills necessary to represent their ideas in a rudimentary model format using simple materials like paper, thermocol, hardwood, Metals, glass fiber etc.
- Introduction to the various tools and equipment available for executing these exercises.
- To familiarize students with joinery details

CONTENTS

Carpentry

- Tools and equipments, cutting and making of various joints, uses of various types of joints

Metal Work

- Tools and equipment, making of various joints using welding, sheet metal work

Application of Laminates

- Application of laminates/veneers on different types of timber surfaces, i.e. Teak and commercial wood e.g block boards, particle boards etc

Masonry

- Simple exercises in setting out, brick laying and wall finishes, shuttering and concreting

Reference books:

1. Parmar, V.S., "Design Fundamentals in Architecture", Somaiya Publications. 1973
2. Morgan, C.L., "Jean Nouvel- The Elements of Architecture", Thames & Hudson. 1998
3. Kieran, S. and Timberlake, J., "Elements of a new Architecture", Princeton Architectural. 2008

SEMESTER III

Sub code: BAP 201

Paper title: ARCHITECTURAL DESIGN-III

L	S	C
-	10	10

OBJECTIVE

- To foster understanding about the impact of geo climatic context on the elements of built spaces.
- To develop sensitivity to shapes, forms and built volumes.
- Introduction to Vernacular architecture, how local geo climatic and socio economic factors shape architectural design.

CONTENTS

Settlement Study

- Site visit for a settlement study in composite climate.

Minor Problem/time Problem

- Minor project based on settlement study.
- Understanding how physical environment and socio- cultural factors, and local materials and construction help in evolution of vernacular architectural design .Study of part of village or town, involving measured drawings and topography survey.

Major Problem

- Major project: small public building with repetitive elements (school, small hospital, office, housing) activity in a non urban setting, or a situation without urban regulatory controls. The project would address the study of built form and its relationship to the site, surroundings and the climate. Design proposals shall be based on the site and basic climate analysis.
- The design problem would induce students to experiment with built and open spaces. Introduction to other role players in the Architectural process viz; the client and the user.
- Exercises relating documenting personal needs into behavioral pattern and using it to develop designs.

Reference books:

1. Ching, F.D.K., "Design Drawing", Van Nostrand Reinhold. 1998
2. Neufert, P., "Architects" Data", 3rd Ed., Blackwell Science. 2000
3. Norberg-Schulz, C., "Principles of Modern Architecture", Andreas Papadakis. 2000
4. Watson, D. (Editor), "Time-saver Standards for Architectural Design: Technical Data for professional Practice", 8th Ed., McGraw-Hill. 2005

Sub code: BAP 203

L S C

Paper title: BUILDING MATERIALS AND CONSTRUCTION

- 5 5

TECHNOLOGY- -III

OBJECTIVE

- To familiarize students with basic building materials and their properties
- To make students understand how can materials have architectural application.

CONTENTS

Building materials

- Composite materials: R.C.C. and R.B.W, Use of Bamboo for Reinforcement., Water proofing materials and systems for basement, Ferrocement, steel, laminated timber, brick cladding

Metal doors

- Doors: Different types of doors in steel, Aluminium and Glass. Sliding, Sliding and folding, revolving doors. Fire proof and Sound proof doors. Types of Rolling Shutters.

Metal windows

- Windows: Different types of windows in Steel, Aluminium and Glass. Sliding windows in Steel and Aluminium.

Staircases

- Staircases: Different types of staircases, Special staircases in steel. Fire Escape Stair Cases.

Reference books:

1. Kumar, S.K., "Building Construction", 19th Ed., Standard Publishers Distributors. 2001
2. Rangwala, S.C., "Building Construction", 19 th Ed., Charotar Publishing House. 2001
3. Mckay, W.B., Building Construction, Vols. I, Longman. 2005
4. Mckay, W.B., Building Construction, Vols. II, Longman. 2005
5. Mckay, W.B., Building Construction, Vols. III, Longman. 2005

Sub code: BAP 205

L P C

Paper title: COMPUTER AIDED DESIGN TECHNIQUES-I

- 4 2

OBJECTIVE

- To familiarize students with basic computer use
- Brief description of various hardware and software
- Basic knowledge of various operating systems ie windows, Linux etc
- Basic introduction to software available for architectural applications

CONTENTS

Introduction to Computers (Hardware & Software)

- Brief Description of various Hardware and Software.
- Basic knowledge of different operating systems i.e. Windows, Unix, Linux etc.
- Introduction of various software available for documentation, presentation & drawing purposes.
- Familiarizing the use of scanners, printers plotters etc.

Commonly Used Software

- Microsoft Word, Microsoft Power Point , Microsoft Excel, Adobe Page Maker

Introduction to Architectural Software

- Introduction of various software available for Architectural application, like Auto CAD, Architectural desktop, Revit, Micro station etc. Stress should be given on Auto CAD.

Additional Software & its application in Architecture

- Basic learning of software like Photoshop and Corel
- Understanding of basic composition in 2D and prepare compositions using software.
- Brief Description of various Hardware and Software.
- Basic knowledge of different operating systems i.e. Windows, Unix, Linux etc.
- Introduction of various software available for documentation, presentation & drawing purposes.
- Familiarizing the use of scanners, printers plotters etc.
- Microsoft Word, Microsoft Power Point , Microsoft Excel, Adobe Page Maker
- Introduction of various software available for Architectural application, like Auto CAD, Architectural desktop, Revit, Micro station etc. Stress should be given on Auto CAD.
- Basic learning of software like Photoshop and Corel
- Understanding of basic composition in 2D and prepare compositions using software.

Reference books:

1. Groover M, "Computer Aided Design and Manufacturing", Pearson Education; 1 edition (2003)

Sub code: BAP 207

Paper title: HISTORY OF ARCHITECTURE - III

L	S	C
2	-	2

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

- 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.**
- 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.**

OBJECTIVE

- To generate understanding about the Buddhist, Hindu, Islamic and European Renaissance architecture

CONTENTS

Unit 1

Architecture of Buddhist origin and associations in India Sri Lanka Far Eastern Countries

- Tibet China Japan Viharas Chaityas and Stupas and Monasteries North Indian Temple architecture (circa 6th –12th C),.

Unit 2

Important temples in North and Central India.

- Temples of Orissa. Khajuraho etc. South Indian temple architecture under the Chalukyas, Pallavas, Cholas, Pandyas and important temples like Meenakshi, Brihadishwara etc.

Unit 3

Architecture of Medieval & Modern Western World -I

- Introduction to Islamic architecture: Islam and its philosophy, its implementation in various building types such as mosque, tomb, fort and their elements like domes, minarets, arch etc.

Unit 4

Architecture of Medieval & Modern Western World -II

- Orthodox Christian, Byzantine &, Venice, Constantinople Romanesque Ecclesiastical Gothic Architecture in Continental Europe and England. Great Cathedrals - Notre Dam, Canterbury, etc.

Reference books:

1. Percy Brown, INDIAN ARCHITECTURE (Islamic Period) Pub. D.B.Taraporevala and Sons Co. Pvt. Ltd., Bombay.
2. Satish Grover, ISLAMIC ARCHITECTURE IN INDIA. Pub. Galgotia Pub.Co., New Delhi, 1996.
- 3 Tadgell Christopher, A History of Architecture in India – From the Dawn of Civilization to the End of the Raj. Pub. Phaidon Press Ltd., London, 1990.
4. Fletcher Sir Banister, A History of Architecture.Pub. Butter-worth Heinemann Ltd. London (UK), Indian collaboration- CBS Pub. Delhi. First Pub. 1896, 19th edition 1987

Sub code: BAP 209

Paper title: STRUCTURES - III

L	S	C
3	-	3

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

- 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.**
- 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.**

OBJECTIVE

- To learn about Spanning Systems (In Timber And/Or Masonry)

CONTENTS

Unit 1

Trusses:

- Definition, Understanding through nature and history, Forces in members
- Method of joints, Method of sections

Unit 2

Stresses in Trusses

- Bending Stress in Trusses: Bending equation, bending stresses in symmetrical and asymmetrical sections. Design in timber using relevant IS codes
- Shear stress distribution in various sections

Unit 3

Beams:

- Simply supported and cantilever, Understanding through nature and history, Analysis,

Unit 4

Deflection in Beams

- differential equation of deflected beam,
- Double integration method
- Macaulay's method
- Statically determinate beams and propped cantilever
- Moment area method
- Conjugate beam method

Reference books:

1. Heller Robert and Salvadori Mario, Structures In Architecture: The Building Of Buildings, Prentice Hall Inc., 1963.

Sub code: BAP 211

L S C

Paper title: THEORY OF DESIGN - I

2 - 2

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

- 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.**
- 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.**

OBJECTIVE

- The courses in Design theory aims to evolve a conceptual framework for intelligent appreciation of Architecture and to develop a vocabulary for discussing design ideas.

CONTENTS

Unit 1

The genesis of indigenous architecture:

- The genesis of indigenous architecture, its geographical and cultural sign posts. Evolution of ideals and design principles in modern architecture. Influences governing the formation of attitudes as a prelude to the act of design. The translation of design ideas into architectural expression.

Unit 2

Architecture as socially useful discipline:

- The concept of measuring, function, style, type, social purpose and ideology, the relationship of architecture to the sciences, arts, economics and politics. Study of selected writing and buildings in monumental and vernacular scales. Manmade design at all levels including objects of daily use.
- Design methodology: Design as a multi-variety problem solving process.

Unit 3

Design Evaluation and Criticism:

- Value judgments in design. Appreciation of designer skills, theories of perception and variability of perception.

Unit 4

Issues in Contemporary architecture

- Theoretical issues in contemporary architecture, Seminars on the works of selected Indian and International Architects and related topics.

Reference books:

1. Rasmusson, S.E., "Experiencing Architecture", "Chapman and Hall Ltd. 1964
2. Licklidan, H., "Architectural Scale", The Architectural Press. 1966
3. Ching. F.D.K., "Architecture Theoretician", Wiley. 2007
4. Fisher, T., "Ärchitectural Design and Ethics: Tools for Survival", Architectural Press. 2008

Sub code: BAP 213

L S C

Paper title: BUILDING SERVICES-I:

2 - 2

WATER SUPPLY AND SANITATION

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

- 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.**
- 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.**

OBJECTIVE

- To introduce water supply and sanitation with emphasis on sustainability

CONTENTS

Unit 1

Water supply:

- Sources of water supply.
- The Water Crises
- Impurities of water and systems of water supply.
- Various kinds of water meters.
- Water storage tanks, their capacity and location. Calculation of water consumption based on types of building occupancies. Water Balance.
- Domestic hot and cold water supply systems. Solar Hot water heating systems for domestic and industrial usage
- Size of pipes and their joining details. Connections of different sanitary fittings like ferrule, stopcocks, bibcocks etc.
- Efficiency in Watering of Landscape & Crops, Drip Irrigation ,Hydroponics)
- Stormwater drainage, Rainwater Harvesting & Groundwater Recharge

Unit 2

Sanitation:

- Basic principles of sanitation and disposal of waste matter from buildings.
- Dry and wet carriage systems.
- Sanitary fittings- washbasins, WC's, bathtubs, sink, urinals, bidets, flushing cistern, traps etc. Low flow fixtures and Waterless fixtures with calculation of flow rates and water usage.
- Various types of joints, manholes and septic tanks. Proper location and ventilation of intercepting chambers and inspection chambers.
- Drainage systems- separate, combined and partially combined systems.
- Single stack system. One pipe and two pipe systems.
- Testing of house drains. Gradients used in laying drains and sewers.
- Self-cleaning and non-scouring velocities for drain pipes.
- Size of drainpipes and materials used.
- Innovative and Cost Effective Sanitation concepts. E.g. EcoSAN.
- Rural & Distributed Sanitation Concepts

Unit 3

Concept of waste water recycling

- Methods of treating waste water- STP's and ETP's, conventional methods, improvised methods, additives,
- Conserving Water- overview & Zero discharge concepts and calculations for the same.
- Methods of water conservation

Unit 4

Plumbing Layouts exercises

- Exercises in layout of simple drainage systems for small buildings. Planning of bathrooms and lavatory blocks in domestic and multi-storied buildings. Exercises can also be clubbed with design studio project.

Reference books:

1. Bureau of Indian Standards. 1995
2. Pachauri, A.K., "Water Supply and Sanitary Installation, Design, Construction and Maintenance", New Age International Ltd. 1999
3. Manas Handbook of Plumbing, Manas Publishers.

Sub code: BAP 215

L P C

Paper title: ADVANCED SURVEYING AND LEVELING

- 2 1

OBJECTIVE

- To introduce the student with different surveying.
- To acquaint the student with various types and techniques of surveying

CONTENTS

Introduction

- Introduction to surveying, understanding land topography and its relevance in Architecture.
- Types of surveys in practice. Introduction to survey equipment.
- Principles of survey, equipment required selection of station, methods of taking offsets. Booking the field notes, obstacles in chaining, errors in chaining, chaining on sloping ground and reciprocal ranging.

Compass Surveying

- The prismatic compass, its construction and uses. Other types of compasses.
- Reduced and whole circle bearing, magnetic declination, effects of local attraction. Compass traverse and balancing the closing error.

Leveling and Contouring

- Different types of levels, their temporary and permanent adjustment, leveling staff. Book of the readings and reduction of levels. Errors in leveling. Curvature and refraction reciprocal leveling profile, leveling cross sections.
- Plane Tabling: Equipment and methods. Two points and three points problems.
- Contouring: Characteristics of contour lines, direct and indirect methods of contouring and interpolation of contours. Interpretation and preparation of contour maps. Site modeling with total station. Exercises in setting out of building works.

Theodolite Surveying

- Theodolite Surveying: Theodolite, its temporary and permanent adjustment, measuring of magnetic bearings, horizontal and vertical angles. Theodolite traverse and balancing the closing error. Total station theodolite
- Tacheometric Surveying: General instruments, different systems of tacheometric measurements, stadia method, Subtense method.

Reference books:

1. Schofield, W. and Breach, M., "Engineering Surveying", 6th Ed., Butterworth-Heinemann. 2007
2. Chandra, A. M., "Surveying", New Age Publishers. 2002

SEMESTER IV

Sub code: BAP 202

Paper title: ARCHITECTURAL DESIGN-IV

L	S	C
-	10	10

OBJECTIVE

- To develop an understanding that designing is a process not just an end product.
- To develop a holistic understanding of how socio-cultural-economic and geo climatic factors shape architecture.
- To sensitize students towards a more user centric design process of building and open spaces.
- To develop an understanding of data collection and analysis of physical and demographic factors
- Experimentation with shapes and forms to evolve sensitivity to built volumes.

CONTENTS

Major Design project

- The project would address the study of built environment and its relationship to the site, surroundings and climatic setting. Design proposals to be responsive to climatic and physical settings. The design problem would induce students to experiment with built and open spaces.
- Site analysis at the beginning of each design problem. This would develop sensitivity to existing site conditions and context and help students evolve design directives to guide the design process.
- Block models at every design stage for three- dimensional visualization.
- The project would involve the study of simple repetitive type of spaces like schools, hostels, shops and offices. The focus would be on the evolution of form through a detailed site analysis.

Architectural Detailing

- Detailing of selected areas to introduce a working understanding of services.
- Integration of design ideas with structural feasibility.
- Evolving working solutions for parking and circulation patterns.

One time problem of a small community building

Reference books:

1. Neufert, P., "Architects" Data", 3rd Ed., Blackwell Science. 2000
2. Watson, D. (Editor), "Time-saver Standards for Architectural Design: Technical Data for professional Practice", 8th Ed., McGraw-Hill. 2005
3. Ballard Bell, Victoria and Rand, P., "Materials for Architectural Design", Laurence King. 2006

Sub code: BAP 204

L S C

Paper title: BUILDING MATERIALS AND CONSTRUCTION

- 6 6

TECHNOLOGY-IV

OBJECTIVE

- To familiarize students with building materials and their properties
- To make students understand how can materials have architectural application.

CONTENTS

Secondary building materials

- Glass and glass products, manufacturing: Plain, sheet, plate, textured, laminated, wired and shock resistant glass. Glass blocks, glass tiles, mirrors, heat reflecting glasses and Glass wool.
- Plastics, Nylon, PVC, Bakelite, Polythene, glass fiber reinforced plastic.
- Paints and surface finishes: Composition, properties and methods of application of different types of paints: Oil, synthetic enamels, acrylic and other plastic emulsions and formulations, interior and exterior grade paints. Cement based paints.

Roofing

- Roofing: Different types of roofing systems- investigation of roofing systems in vernacular traditions of India. Pitched timber roofs, Steel roofs

Lift well details

- Necessary details of lift and lift well

Partitions:

- Construction of partition in timber and timber products, gypsum boards etc. for use in offices and restaurants.

Reference books:

1. Ghulati, S.K. and Datta, M., "Geotechnical Engineering", Tata McGraw Hill. 2005
2. Varghese, P.C., "Foundation Engineering", Prentice-Hall of India. 2005
3. Ranjan, G. and Rao, A.S.R., "Basic and Applied Soil Mechanics", New Age International (P) Ltd. 2007
4. Murthy, V.N.S., "Soil Mechanics and Foundation Engineering", CBS. 2007

Sub code: BAP 206

L P C

Paper title: COMPUTER AIDED DESIGN TECHNIQUES-II

- 6 3

OBJECTIVE

- Introduction and use of software available for Architectural Applications

CONTENTS

Architectural Softwares

- Introduction of various software available for Architectural application, like Auto CAD, Architectural desktop, Revit, Micro station etc. Stress should be given on Auto CAD.

2D CAD Drawings

- Basic commands for 2D AutoCAD. Learning basic 2D commands their function and application.
- Working on layers and colors.
- Understanding of Text, and dimension styles etc, supported with suitable exercise. Understanding complex commands like Pline, spline, xrefs, Attributes, Model space & Paper space etc.

2D exercises

- Exercises in working plan, elevation and section.

3D CAD Drawings

- Basic commands for 3D Introduction of basic 3D commands.
- Walk through exercises.
- Different types of modeling in Auto CAD.
- Exercise on modeling.

Reference books:

1. Groover M, "Computer Aided Design and Manufacturing", Pearson Education; 1 edition (2003)

Sub code: BAP 208

Paper title: HISTORY OF ARCHITECTURE-IV

L	S	C
2	-	2

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.

2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.

OBJECTIVE

- Introduction to the architecture of the ancient world.
- To generate an understanding about the development of civilization and its architectural implications.

CONTENTS

Unit 1

Islamic architecture in India.

- Brief Chronological introduction to dynasties in North India, Slaves Khaljis, Tughlaqs, Lodhisani Mughals.
- History written in terms of “Styles” indicating dynastic and regional variations Morphologies: Functional Typologies, Mosque Tomb and Garden Pavilion Forts Palaces with examples
- The Quwwat-ul-Islam Mosque: Qutab-Minar Tughlaq - Alai Darwaza: Tomb of Ghiasud-din Tughlaq.
- Gujarat – Jami Masjid in Champaner, Bijapur - Gol Gumbad & Ibrahim Rauza

Unit 2

Mughal Period Babur and Humayun

- Tomb gardens/pleasure gardens, Akbar – Fatehpur Sikri, Shahjahan – Taj Mahal (Agra), Jami Masjid (Delhi)
- Exchanges between Islamic Traditions and Local building practices like Rajasthan and other Regions including the Ganga Yamuna Doab.
- The Riparian Ghat structures of North and Central India

Unit 3

Early Renaissance in Europe

- Advent of Renaissance in Europe and impact on Architecture.
- Late Mughal, Lucknow Nawabi and Early European/Colonial period Architecture in India. Early to High Renaissance, St. Maria Del Fiore, (Florence),

Unit 4

Late Renaissance in Europe

- Late Renaissance, Baroque Michelangelo, Palladio, St. Peters (Rome). St. Paul's (London). Neo-Classical Architecture.
- Renaissance to Revival in England as background to British Colonial Architecture in India.

Reference books:

1. Taddell Christopher, A History of Architecture in India – From the Dawn of Civilization to the End of the Raj. Pub. Phaidon Press Ltd., London, 1990.
2. Fletcher Sir Banister, A History of Architecture. Pub. Butter-worth Heinemann Ltd. London (UK), Indian collaboration- CBS Pub. Delhi. First Pub. 1896, 19th edition 1987.
3. Arjun Dev, The Story of Civilisation, Vol. I (Old) NCERT History Textbook for Class IX.
4. Kostof Spiro, A History of Architecture – Settings and Rituals. Pub. Oxford University Press, N.Y., 1995.
5. Hiraskar G.K., The Great Ages of World Architecture. Pub. Dhanpat Rai Pub. Ltd., Delhi. 1994.
6. Brown Percy, Indian Architecture- Buddhist and Hindu Periods. Pub. D.B.Taraporevala and Sons Co. Pvt. Ltd., Bombay.

Sub code: BAP 210

Paper title: STRUCTURES-IV

L	S	C
2	-	2

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.

OBJECTIVE

- To understand spanning Systems (In Timber And/Or Masonry)

CONTENTS

Unit 1

Beams

- Propped cantilever, fixed beams, continuous beam, Understanding through nature and history, Analysis (equation of flexure and area-moment theorem and slope-deflection, Moment distribution method)

Unit 2

Design of Beams

- Design of beams in timber using relevant IS codes
- Design of masonry beams using relevant IS codes

Unit 3

Frames and Portals:

- Definition, Understanding through nature and history, Analysis (Moment distribution method), Design in masonry and timber using relevant IS codes

Unit 4

Arch, Vault, Dome:

- Definition, Understanding through nature and history, Analysis, Design in masonry using relevant IS codes

Reference books:

1. Kumar, S.K., "Building Construction", 19th Ed., Standard Publishers Distributors. 2001
2. Rangwala, S.C., "Building Construction", 19 th Ed., Charotar Publishing House. 2001
3. McKay, W.B., Building Construction, Vols. I, Longman. 2005
4. McKay, W.B., Building Construction, Vols. II, Longman. 2005
5. McKay, W.B., Building Construction, Vols. III, Longman. 2005

Sub code: BAP 212

L S C

Paper title: SPECIFICATIONS, QUANTITIES AND ESTIMATION

2 - 2

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.

2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.

OBJECTIVE

- To equip students with the necessary technical knowledge for calculating estimates and detailed costing for small to medium scale projects.
- To equip students to develop estimates for non scheduled items of work
- To apply knowledge in Small-scale projects to be undertaken to understand costing principles and terms.

CONTENTS

Unit 1

Specification

- Writing of Specification for Quantities. Items of work and Materials.
- specifications for non standard item of work

Unit 2

Estimates

- Systems-Systems of taking quantities and estimating for all trades involved in construction of medium complexity project
- Classification of areas -Plinth area, Covered area, Floor area, Carpet area and Projection area.
- Types of Estimates -Preliminary, Detailed. Methods of taking out quantities for building works.

Unit 3

Preparation of Bill of Quantities (BOQ).

- Mode of measurements of quantities. Market rates of labor and building materials. Labor turnout and norms for consumption of basic materials.

Unit 1

Schedule of rates and Tenders

- CPWD, PWD, Cost Index. Analysis of rates for common items of work like Cement concrete, Brick work, Painting etc. Methods for preparation and submission of preliminary estimates and detailed estimates.
- Tender -Tender notices and tender documents. Types of tendering in practice. Process of tendering. Preparation of tender notes/ documents and comparative statements Award of Tenders

Reference books:

1. Dutta B.N., Estimating and Costing in Civil Engineering, UBS Publishers Distributors Ltd, New Delhi, 1992.
2. Delhi Schedule of Rates, PWD Publications

Sub code: BAP 214

L S C

Paper title: BUILDING SERVICES-II:

2 - 2

ILLUMINATION AND ELECTRICAL DESIGN

INSTRUCTION TO PAPER SETTER MAXIMUM MARKS: 60

- 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 20 marks.**
- 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 10 marks.**

OBJECTIVE

- To teach the schematic layout of simple electrical, illumination, lift and fire fighting system for domestic and office buildings.
- To sensitize students towards energy conserving design and detailing

CONTENTS

Unit 1

Introduction

- Thermal, Mechanical and Electrical Energy and its generation and inter-conversion.
- Energy Efficiency in Electrical systems.

Unit 2

Electrical Services

- Laws of electrical circuit, Ohm's and Kirschoff's laws and basic principles.
- Circuits- series and parallel.
- Common domestic installations- water heater, radiator etc.
- Wires- specifications and carrying capacity and calculation of electrical loads.
- Types of switches, sockets and fixtures.
- Distribution boards, circuit breakers, fuses, electrical meters, Low side and high side panels, transformers, DG sets, Substations and their Sizes / layouting
- Power factor correction devices

Unit 3

Electrical Installations

- Design considerations for electrical installations.
- Protection against overload, short circuit, earth fault, lightening conductors and other safety measures for buildings.
- Wiring systems- methods of wiring, joint and loop in.
- Types of electrical wiring- batten, capping & casing, concealed conduits etc.
- Wiring material- types, sizes and specifications, main switch, MCB, DB meter.
- Tests before commissioning of electrical services.

Unit 4

Energy Efficient designs

- Solar Photovoltaic Energy and its applications for lighting, pumping etc.
- Energy Efficient Appliances & BEE Ratings

- Power Density / Energy Performance index for various building types and for energy efficient buildings and BEE Ratings for the same.
- Net Zero Buildings and their case studies.

Reference books:

1. Kaorv Mende, Designing with Light & Shadows published by Images.
2. Joseph De Chiara, Time Savers Standards for Interior Design & Space Planning published by Mcgraw Hill