

FIRST SEMESTER

AR17B1.1C BASIC DESIGN

L/s: 9/Wk Int: 200 End Exam: 200 Total: 400 End Exam: 5hrs Cr: 9

Course Overview:

Basic Design provides the framework for understanding design by sensitizing students to the conceptual, visual and perceptual issues involved in the design process, through exercises in simple two dimensional and three dimensional compositions.

Objectives of the Course:

- To understand the elements and principles of Basic Design as the building blocks of creative design through exercises to develop expression and creative thinking.
- Introduction to design - problem-solving, elements of design, principles of design, 2-D designs in different mediums, colours and textures for articulation of abstract ideas.
- Learning in the subject to be strengthened by conducting at least two workshops (preferably conducted by fine arts faculty), one of which should focus on visual art.

Expected Skills / Knowledge Transferred:

The Course prepares ground for the students to gain an understanding into the fundamental issues in design and develop the skill to create solutions for simple elements of building.

Course Contents:

Unit – I

Introduction to design – importance of design; Study and appreciation of design examples from forms in nature and analysis with respect to

their colour, form, texture and structure.

Exercises involving these natural forms and various approaches to art such as – Representation, Abstraction, and Non-Representational/ Non-Objective compositions.

Analysis of Simple Objects: Critical analysis of simple man-made objects and environments to understand the underlying concepts in their design. Studies to understand function - Aesthetic Relationship, and Anthropometrics.

Unit – II

Elements of design: point, line, shape, form, space, texture, value, colour and material; Introduction to the principles of composition: unity, balance, symmetry, asymmetry, proportion, scale and proportion, hierarchy, rhythm, contrast, harmony, focus, movement, direction, gradation, repetition, etc; Application of the principles of composition in two dimensional compositions;

Unit - III

Compositions in two dimensions: shapes and patterns; use of grids in creating repetitive patterns; Principles of composition-using grids, symmetrical /asymmetrical, rule of thirds, center of interest etc. Form generation through addition & subtraction, Anomaly, Positive & Negative spaces, Solid and Voids. Developing compositions in two dimensional designs like- logos, cover page, collage, mural, floor patterns, grills, railings, gates etc.

Unit - IV

Concepts of geometry –different three dimensional forms, primitive forms and understanding the behavior when combined- Transformations to three dimensional forms; Explorative exercises in three dimensional compositions.

Making three dimensional sculptures involving the basic platonic solids and abstract sculptures using various techniques/ materials. (Ex: POP, wire/ matchstick, soap, clay etc.)

Unit - V

Colour theory, color wheel, primary, secondary, tertiary colors, color schemes, color value and intensity, colour coding systems and psychological factors governing the choice of colour schemes in architecture. Theoretical inputs to be followed by exercises to develop the ability to translate abstract principles into two and three dimensional compositions.

UNIT VI

Design of non-enclosed object. eg. park seat, push-cart, built-in furniture etc. Developing compositions in of semi-enclosed spaces-entrances, gateways, portal, compound walls etc.

Unit - VII

Study of ornament in architectural design: documentation and comparison of different types of ornamentation in historical and contemporary buildings, to understand their design features as studied in the previous units.

Reference books:

- Wucius, Wong.** Principles of two Dimensional Design. Van Nostrand Reinhold 1972.
Maier Manfred Basic Principles of Design, Vol.1, 2, 3 & 4, Van Nostrand Reinhold, NY. (1977)
Ching, Francis D.K. Architecture: Form, Space, and Order, 2nd ed. Van Nostrand Reinhold, New York, 1996.
Hanks, A. David. Decorative Designs of Frank Lloyd Wright, Dover Publications, Inc. New York, 1999.
Hepler, E. Donald, Wallach, I. Paul. Architecture Drafting and Design, 3rd ed. McGraw-Hill Book Company, New York, 1977.
Itten, Johannes. Design and Form: The basic course at the Bauhaus, Thames and Hudson Ltd., London 1997.
Krier, Rob. Architectural Composition, Academy Editions, London, 1988.
Meiss, Pierre Von. Elements of Architecture: From form to place, E and FN Spon, London, 1992.
Pipes, Alan. Drawing for 3-Dimensional Design. Thames and Hudson Ltd., London 1990.
Shibikawa, Ikuyoshi and Takahashi, Yumi. Designers Guide to Colour.
Smithies, K.W. Principles of Design in Architecture. Chapman and Hall, 1983.

AR17B1.2C ARCHITECTURAL DRAWING AND GRAPHICS – I

L/s: 4/Wk Int: 50 End Exam: 50 Total: 100 End Exam: 5hrs Cr: 4

Course Overview:

The course introduces the fundamental techniques of architectural drawing and develops the appropriate skills for visualization and representation.

Objectives of the Course:

To introduce architectural drawing techniques and to facilitate effective visual communication.

Expected Skills / Knowledge Transferred: Freehand, scale drawing, conventional architectural representations in drawings and graphics.

Course Contents:

Unit – I

Introduction: Fundamentals of drawing and its practice, introduction to drawing equipment, familiarization, use and handling. Drawing sheet sizes, layouts and composition. Simple exercises in drafting, line types, line weights; dimensioning, use of scale

Unit – II

Typography –anatomy of Type, Styles, Roman and Gothic style lettering; freehand lettering, title panels and legends.

Unit – III

Geometrical Construction: Constructing simple and complex geometrical shapes involving various drafting techniques; regular shapes using T-squares, set-squares; straight lines, triangles, quadrilaterals, circles, tangents, regular polygons, polygons inscribed in circle.

Description of Plane Curve: Ellipse, Parabola, Hyperbola and Ovals.

Unit – IV

Architectural Symbols: Representation of building elements, openings, materials, furniture and accessories; human postures; vegetation; vehicles; terminology and abbreviations used in architectural representation.

Unit – V

Measuring and Drawing to Scale: Scales and construction of scales, scaled drawings of simple objects, dimensions; scaled drawings of furniture, rooms, doors and windows etc., in plan, elevation and section. Reduction and enlargement of drawings.

Unit – VI

Free Hand Drawings: Line strokes, light and shade techniques of simple, natural and 3D geometric forms. Study of proportions and scale; structure and axes of objects; Indoor and Outdoor sketching of built and natural forms: Still life, furniture, etc.

Note: This is a studio subject and students should be made to prepare drawings as studio exercises along with the theoretical inputs. The studio work should be supplemented with appropriate site visits.

Reference books:

- Moris, I.H.** Geometrical Drawing for Art Students.
Thoms, E. French. Graphic Science and Design, New York: MC Graw Hill.
Nichols, T.B. and Keep, Norman. Geometry of Construction, 3rd ed. Cleaver – Hume Press Ltd., London, 1959.
Bhatt, N.D. and Panchal V.M. Engineering Drawing: Plane and Solid Geometry, 42nd ed. Charotar Pub., Anand, 2000.
Gill, P.S. T.B. of Geometrical Drawing, 3rd ed. Dewan Suhil Kumar Kataria, Ludhiana, 1986.
Shah, M.G., Kale, C.M. and Patki, S.Y. Building Drawing: with an integrated approach to built environment, 7th ed. Tata McGraw Hill Pub., Delhi, 2000.
Bies, D. John. Architectural Drafting: Structure and Environment. Bobbs – Merrill Educational Pub., Indianapolis.
Nelson, A. John. H.B. of Architectural and Civil Drafting, Van Nostrand Reinhold, New York, 1983.

AR17B1.3C BUILDING CONSTRUCTION- I

L/s: 4/Wk Int: 50 End Exam: 50 Total: 100 End Exam: 5hrs Cr: 4

Course Overview:

The course introduces to the methods and techniques of construction of basic elements of a simple building.

Objectives of the Course:

To understand the elementary and simple construction methods, explaining basic principles and considerations in the construction of one roomed rectilinear building with verandah.

Expected Skills / Knowledge Transferred:

To understand the techniques of construction of a simple load bearing structure with simple material like brick, stone etc.

Course Contents:

Unit I

Basic building components: Cross section of a small building to understand foundation, plinth beam flooring, sill, lintel, roof beam and slabs parapet & weathering course

Walls: Details of walls section across the opening (door & window)

Roofs: simple configurations and details of various forms of roofs (flat, slope pyramidal & dome)

Unit – II

Brickwork: Various types of bonds, stopped ends, junctions, piers, jambs, footings, foundations, corbelling, damp proof course, window sills, thresholds, copings, mortar joints and pointing.

Unit – III

Stone masonry: stone walls, rubble work, ashlar work, masonry joints, window sills, plinth, cornices, surface finishes.

Unit – IV

Composite masonry: Brick backed ashlar, rubble backed ashlar, concrete backed masonry, ashlar faced concrete walls, marble faced masonry; tile faced concrete, hollow block masonry.

Cladding: Cladding of various materials-marble, granite, slate, tiles, metal etc.

Unit – V

Lintels: Lintels of wood, stone, brick.

Arches: arches; terms defined; various forms of arches like segmental, semi-circular, elliptical, three-centered, flat and relieving arch, etc.

Unit – VI

Building Foundations: Definition, safe bearing capacity of soils; brick and stone foundations, simple, steeped, combined and cantilevered footing, RCC footing.

Basement: Damp proofing, different types of damp proof materials, their compositions and application, Constructional details of walls, floors, foundations etc. with respect to their damp proofing and natural ventilation.

Unit – VII

Construction techniques of the past: Ground and upper floors: solid floor, brick flooring, floor finishing and floor coverings, Basement floor. Wooden ground and upper floors: Terms defined, bridging joists, binding joists, binders, beams and girders, solid and herring bone strutting, floor boards, ceiling joists, trimming floors to accommodate fire place. Details of fire place.

Flat roofs: Madras terrace, Jack arch, elementary knowledge about R.C.C roof and floor slabs.

This unit to be taught with the objective of giving a historical perspective. A broad orientation may be given without preparation of drawing plates.

To give the learning in this subject a more practical orientation seminars by industry or trade related organizations or field/site visits should be organized. At least two exercises to be done in the construction yard. A weight age of 5% in the overall Internal Assessment in the subject should be reserved for students attending these seminars/site visits and maintaining the records/observations as required by the subject faculty.

Reference books:

Barry, R. The Construction of Buildings Vol. 2, 5th ed. East-West Press. New Delhi, 1999.

Bindra, S P. and Arora, S P. Building Construction: Planning Techniques and Methods of Construction, 19th ed. Dhanpat Rai Pub. New Delhi, 2000.

Hailey and Hancork, D.W. Brick Work and Associated Studies Vol. 2. MacMillan, London, 1979.

Moxley, R. Mitchell's Elementary Building Construction, Technical Press Ltd.

Rangwala, S.C. Building Construction, 22nd ed. Charotar Pub. House, Anand, 2004.

Sushil Kumar. T.B. of Building Construction, 19th ed. Standard Pub, Delhi, 2003.

AR17B1.4C BUILDING MATERIALS – I

L/s: 2/Wk Int: 50 End Exam: 50 Total: 100 End Exam: 3hrs Cr: 2

Course Overview:

The course provides information on the properties, use, installation and costs of basic building materials.

Objectives of the Course:

To impart knowledge on the various building materials,

To highlight the current trends and innovations in the usage of building materials.

Expected Skills / Knowledge Transferred:

Knowledge required for specifying appropriate materials for various spaces in buildings.

Course Contents:

Unit –I

Brick as a building material: Types, properties, uses and manufacturing methods. Brick: Composition of earths, standard, market and ISI. size properties, as per ISI brick manufacturing processes, requirements and tests for good bricks. Fire clay bricks - varieties; sand lime bricks;

paving bricks; Terra-cotta-its varieties: ordinary, glazed, porous, polished and fine; sun dried brick, Special types of bricks, uses and properties Different uses of brick in construction.

Building Tiles: Roof, floor and wall tiles.

Unit –II

Stones: Classification of stones: granite, laterite, quartzite, marble and slates -properties and uses; stone units - khandki, rubble, black stones, stone metal, flag stones. method of quarrying of building stones, types of stone dressings defects in stone, stones used in construction, uses in construction, aggregates. tool used, Preservation of stone work.

Unit –III

Sand : Pit, river sea sand, gravel, bulk age of sand, impurities in sand their removal, tests for silt and organic contents different grades of sand with respect to size and their application. I.S.I. standards, use in mortar and concrete.

Unit –VI

Cement: Ingredients and properties of cement, Types of cement, Grades of cement, Initial and final setting time, Test of cements, ISI Standards, Pozzolana material and its properties.

Unit –V

Mortars: Types, proportioning, mixing and grinding, mortar, cement mortar, lime mortar, methods of preparing, handling and uses of mortars, Surkhi-mortar, light weight mortars i.e. cinder, sawdust and fibrous plaster, gypsum plaster, Plaster of Paris and application.

Concrete: Concrete and its constituents, aggregate: coarse and fine, properties of concrete, strength, durability, etc. Effect of age on strength.

Grading: importance, fineness modulus, combined aggregate, water cement ratio. Mixing and Curing.

Unit –VI

Timber: Building timber types and its properties, sawing of timber, shrinkage and distortion, wastage, methods of sawing. Drying and seasoning, moisture contents, purpose of seasoning, natural and artificial. Defects in timber. Use and application of timber in construction.

Processed woods: Plywood and Synthetic boards properties and application. Use of alternative materials as substitute to wood. ISI standards

Unit –VII

Ferrous Metals - Pig iron, cast iron, wrought iron, steel, manufacturing processes and casting. Characteristics form and uses of cast iron, wrought iron and steel.

Alloys steel, stainless steel, steel-treatment, steel tempering, annealing, normalizing, and case hardening, their objectives and effect on alloy steels. Galvanizing, oxidation and casting of metallic products, corrosion of iron and their prevention. Metallic protective coatings.

Non ferrous Metals: Basic idea of important ores, properties and uses of Aluminum, Zinc, Copper, Tin and Lead

To give the learning in this subject a more practical orientation seminars by industry or trade related organisations or field/site visits should be organized. A weightage of 5% in the overall Internal Assessment in the subject should be reserved for students attending these seminars/site visits and maintaining the records/observations as required by the subject faculty.

Students should be exposed to Lab tests in the context of the listed materials.

Reference Books:

Hailey & Hancork, D.W. Brick Work & Associated Studies Vol. 2. MacMillan, London, 1979.

Moxley, R. Mitchell's Elementary Building Construction, Technical Press Ltd.

Rangwala, S.C. Building Construction, 22nd ed. Charotar Pub. House, Anand, 2004.

Sushil Kumar. T.B. of Building Construction, 19th ed. Standard Pub, Delhi, 2003.

AR17B1.5C STRUCTURAL MECHANICS – I

L/s: 3/Wk Int: 50 End Exam: 50 Total: 100 End Exam: 3 hrs Cr: 3

Course Overview:

Gives an in-depth understanding of the concepts associated with different Elements of Structures.

Objectives of the Course:

To provide knowledge of different forces, force systems, Beams types sectional Properties behavior of different members due to applied forces.

Expected Skills / Knowledge Transferred: Basic principles of mechanics and behavior of elements of structures.

Course Contents:

Unit – I

Introduction: Forces, system of forces, resultant, equilibrant Parallelogram law, Triangle law, Lamis Theorem, polygon law, resultant of coplanar, concurrent force system, couple, characteristics of couple, moment, Equilibrium, Varignon's Theorem.

Unit – II

Analysis of trusses, types of stresses, Loads on trusses, 2-D truss analysis using method of joint (Cantilever & Simply Supported)

Unit – III

Stress, Strain, type of stresses, stress-strain curve for ductile Material, Hooke's law, Modulus of Elasticity, Bars of Varying Section, Bars of Composite Section.

Unit – IV

Shear stress, types of Strain, poissons Ratio, Shear modulus Bulk Modulus Relation between the three Elastic Constants members

subjected to 3 mutually perpendicular forces

Unit – V

Types of Beams, types of loads, calculation of reactions for simply supported beam (Using Point loads & Udl's) definition shear force & Bending Moment SFD& BMD for Cantilever beams.

Unit – VI

Shear force & Bending Moment diagrams for simply supported & over hanging beams for point loads & UDL, point contra flexure & its location, Relation between loading, SF & BM

Unit – VII

Definition of centroid, line of symmetry ,centroid for some standard shapes, calculation of centroid for shapes like L,T,C,I Sections etc., moment of inertia, Derivation of M.I formula for Rectangle, circle, Triangle, calculation of M .I for L,T,C,I Sections etc.,

Unit VIII

Types of joints, lap joint & butt joint, failure of riveted joints, strength of the joint, efficiency of joint, Unwins formula, chain riveting & Diamond Riveting

Reference Books

Khurmi. R.S. Engineering Mechanics, S. Chand and Co. Ltd., New Delhi, 1999.

Ramamrutham. S. Engineering Mechanics, 7th ed. Dhanpat Rai Pub. Co. Ltd., Delhi, 2004.

Timoshenko. S. and Young, D.H. Engineering Mechanics, McGraw-Hill International Editions.

AR17B1.6C INTRODUCTION TO ART AND ARCHITECTURE

L/s:2/Wk Int: 50 End Exam: 50 Total: 100 End Exam: 3 hrs Cr: 2

Course Overview:

Introduces fundamental ideas, methodologies and terminologies in art and architecture, shedding light on why certain works were produced, what meanings they communicated, and how they are important to our contemporary society. Emphasis will be placed on styles and the unique historic contexts and circumstances that shaped them.

Objectives of the Course:

To analyze various art forms, and understand the techniques involved in creative thinking.

Expected Skills / Knowledge Transferred: Understanding various art forms, appreciate art and architecture.

Course Contents:

Unit – I

Purpose and relevance of art, Art consciousness: Aesthetics, perception, symbolism, expression, style, fashion, appropriateness and values. Understanding works of art.

Its role meaning and purpose in terms of basic characteristics and development as an expression of culture

Unit – II

Development of art; A survey of history of art forms; pre-historic period to the present times; Changing nature of art through time in terms of content; form and material

Unit – III

Exploration of art forms - Role and meaning of art-various types of arts - fine arts, performing arts, commercial arts, industrial arts, folk arts, abstract art, visual arts, spatial arts, temporal arts, pop art etc. Nature and characteristics of art forms such as Painting, Sculpture, Architecture, Photography, Almost Art; Nature and characteristics of

art forms such as Dance, Drama, Music, The Film, Literature Relationship between art and architecture from earliest times.

Unit – IV

Definitions and general understanding of architecture, role of architect in a building project. The changing role of architects, his relation with other consultants, contractors and client, technical knowledge and other skills required as inputs. Various subjects to be learnt by architecture students, their relevance to practice.

Unit – V

Various factors influencing the architecture of a region, architecture as a response to social, technological and environment forces. Evolution of shelter forms in regions of the world and examples of vernacular architecture in the world, with particular reference to India.

Reference Books:

Craven, C. Roy. Indian Art a Concise History.

Kumar, Raj (Ed.), Essays on Indian Art and Architecture. Discovery Pub., New Delhi, 2003.

Fisher, E. Robert. Buddhist Art and Architecture. Thames and Hudson, London, 1993.

Ghosh, A (Ed.), Jain Art and Architecture Vol. 1-3. Bharatiya Jnanpith, New Delhi.

James C. Snyder, Introduction to Architecture, New York: Mc Graw Hill.

Christopher Alexander, Pattern Language, New York: Oxford University Press

Thomas Mitchell, Redefining Designing: From to Experience,

James snyder and Anthony Y catanse, Introduction to Architecture, Mc Graw-Hill Book company, New York, 1979.

Rapoport, Amos, House form & Culture.

AR17B1.7C WORKSHOP- CARPENTRY & MODEL MAKING

L/s: 4/Wk Int: 50 End Exam: Nil Total: 50 End Exam: Nil Cr: 4

Course Overview:

The course provides the foundation and capability to represent the concepts three dimensionally.

Objectives of the Course:

To introduce various fabrication skills and techniques necessary to produce scale-models and to encourage preparation of models as an essential phase in design development and evaluation.

Expected Skills / Knowledge Transferred: Dexterity; Knowledge of materials and their properties; craft skills; visualization skills;

Course Contents:

Unit – I

Introduction to model-making: Need; role of scale-models in design; general practices; Digital models.

Unit – II

Essentials of model-making: understanding of various tools and machines employed, best practices involved in operating the tools and the techniques.

Unit – III

Survey of various materials available for model making such as papers, mount boards, wood, plastics, films, plaster of paris, acrylic, Styrofoam, wax, metals, glass, FRP, etc. and exploring their potential in model-making. Chamfering at 45 degrees in mountboard.

Unit – IV

Techniques of Scale-modeling: Use of different scales; templates; measuring aids; conventions followed.

Unit – V

Techniques for preparation of presentation models, mock-ups, simulation of various materials and textures such as wood, glass, aluminum, steel, bricks, roofing tiles, flooring, corrugated sheets, upholsteries etc.

Unit – VI

Carpentry: Introduction to the use of different types of tools and different types of joints used in carpentry. Joinery details which are commonly used in timber construction. Application of surface finishes such as polish, varnish, lacquer on wood.

Unit—VII

Photography in built models, using lighting and natural background.

Assignments.

At least three major assignments involving the individual students to fabricate

- a. Scale model of a piece of furniture
- b. Presentation of models
- c. mock-up of an everyday object
- d. Three-dimensional forms etc.

Documentation of the important phases of fabrication is must which shall become the basis for internal evaluation.

Reference books:

Bernald, S and Copplene, Myers. History of Art.

Craven, C. Roy. Indian Art a Concise History.

Krier, Rob. Element of Architecture. Academy Editions, London, 1992.

Lang, Jon. A Concise History of Modern Architecture in India. Permanent Black, Delhi, 2002.

Magnet, Jacque. The Aesthetic Experiences: An anthropologist looks at the Visual Art.

Preble, Duame. Art Forms.

Snyder, C. James and Catanese, J. Anthony. Introduction to Architecture.

Tapert, Annette. Swid Powell: Objects by Architects. Rizzoli, New York, 1990.

Thyagarajan. Basic practical photography

Ching Francis D.K: Architecture: Form, Space, and Order.

GN17B1.2A ENVIRONMENTAL STUDIES

L/s: 2/Wk Int:50 End Exam: 50 Total: 100 End Exam: 3 hrs Cr:2

Course Overview:

A compulsory subject for all the undergraduate students of various discipline highlights significance of maintaining balance and sustainability of various components of the environment.

Objectives of the Course:

To sensitize the students towards sustainable environment.

Course Contents:

Unit – I

Environmental studies – Introduction: - Definition, scope and importance, Measuring and defining environmental development indicators.

Unit - II

Environmental and Natural Resources: Renewable and non-renewable resources - Natural resources and associated problems - Forest resources - Use and over - exploitation, deforestation, case studies - Timber extraction - Mining, dams and other effects on forest and tribal people - Water resources - Use and over utilization of surface and ground water - Floods, drought, conflicts over water, dams - benefits and problems - Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. - Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. - Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources. Case studies. Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

Unit - III

Basic Principles of Ecosystems Functioning: 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, types, characteristic features, structure and function of the following ecosystem:

- Forest ecosystem
- Grassland ecosystem
- Desert ecosystem
- Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).

Unit - IV

Biodiversity and its conservation: Introduction - Definition: genetic, species and ecosystem diversity. Bio-geographical classification of India - Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values *Biodiversity* at global, National and local levels. - India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. - Endangered and endemic species of India - Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Unit - V

Environmental Pollution: Definition, Cause, effects and control measures of:

- Air pollution
 - Water pollution
 - Soil pollution
 - Marine pollution
 - Noise pollution
 - Thermal pollution
 - Nuclear hazards
- Solid waste Management: Causes, effects and control measures of urban and industrial wastes. - Role of an individual in prevention of pollution. - Pollution case studies. - Disaster management: floods, earthquake, cyclone and landslides.

Unit - VI

Social Issues and the Environment: From unsustainable to sustainable development -Urban problems related to energy -Water conservation,

rain water harvesting, watershed management -Resettlement and rehabilitation of people; its problems and concerns. Case Studies - Environmental ethics: Issues and possible solutions. -Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies. -Wasteland reclamation. -Consumerism and waste products. -Environment Protection Act. -Air (Prevention and Control of Pollution) Act. -Water (Prevention and control of Pollution) Act -Wildlife Protection Act -Forest Conservation Act -Issues involved in enforcement of environmental legislation. -Public awareness.

Unit - VII

Human Population and the Environment: Population growth, variation among nations. Population explosion - Family Welfare Programme. - Environment and human health. -Human Rights. -Value Education. - HIV/AIDS. -Women and Child Welfare. -Role of information Technology in Environment and human health. -Case Studies.

Unit - VIII

Field work: Visit to a local area to document environmental assets River /forest grassland/hill/mountain -Visit to a local polluted site-Urban/Rural/industrial/ Agricultural Study of common plants, insects, birds. -Study of simple ecosystems pond, river, hill slopes, etc.

TEXT BOOK:

Erach Bharucha, A Text Book of Environmental Studies for Undergraduate Courses, University Grants Commission.