

GUJARAT TECHNOLOGICAL UNIVERSITY

COURSE NAME : COMMUNICATION SKILL II

1.0 RATIONALE:

Skillful oral communication is student's ability to present his/her views and ideas confidently. Student of this programme should be able to address a large gathering Student should be able to express his/her point of view briefly and precisely. Skillful oral communication includes ability to explain designs, models, slides etc and talk with clients confidently. Also ability to express views on various non-technical subjects clearly is very important in this profession. Writing business letters to clients, agencies, manufacturing units etc which are well-drafted, is also a very important ability of a professional These skills also include preparing reports on site visits or projects, job applications, letters of congratulations etc.

2.0 SCHEME OF TEACHING:

TOPIC NO.	NAME OF TOPIC	NO. OF HOURS		
		LECT.	PRACT.	TOTAL
1	Oral Communication	08	-	08
2	Written Communication	20	-	20
TOTAL				28

3.0. T.R.S & EO's

- EO's
- 3.1 Write letters of different types
- 3.1.1 Write letters of inquiry and revise to these letters.
 - 3.1.2 Write letters for furnishing quotations and placing orders
 - 3.1.3 Write letters of complaints and revise to these letters.
 - 3.1.4 Write letters to professional collaborators, consultants, & public authorities etc.
 - 3.1.5 Draft telegraphic messages
 - 3.1.6 Write personal letters.
 - 3.1.7 Prepare bio-data.
 - 3.1.8 Write application for job. T.R.s
 - 3.1.9 Write brief and precise reports
 - 3.1.10 Write report on site visit.

4.0 CONTENT OUTLINE

Topic-1 Oral Communication

- 1.1 Ability for presentation of the views and ideas confidently.
- 1.2 Ability to face large gathering.
- 1.3 Ability to discuss on the subjects of technical as well as non technical subjects:
 - Technical:-
 - to explain designs.
 - to explain the models.
 - discussion about the plans etc.
 - to talk with clients confidently.
 - Non-Technical: -
 - Expressing views on current, social, political topics
 - Expressing ambition of life, hobby, sports etc
- 1.4 Discussion of specified agenda in a formal meeting, a conference, seminar etc

Topic -2 Written Communication

- 2.1 Principles of business letters. (**Appendix-201-A**)
- 2.2 General layout and structure of business letters. (**Appendix-201-B**)
- 2.3 Letters regarding inquiry, quotation, order, complaint etc
- 2.4 Letters to clients, public authorities, professional collaborators like consultants in structural services contractors, bank insurance companies etc
- 2.5 Personal letters of congratulations, consolation etc.
- 2.6 Telephone manners and telephonic talks.

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- 2.7 Preparation of reports on plan designs and site visits.
- 2.8 Application for job etc.

IMPORTANT NOTE : **The Questions of theory exam will be asked only from the Topic - 2.
Viz. written
communication using vocabulary from **Appendix 201-A to 201-B.**
**Viva & Mock exercises must be practiced to increase word power.

HOME ASSIGNMENTS :

Based on Syllabus - Assignments should be based on plan, design, site visits, report writing etc.

IMPORTANT NOTES:

1. The questions in theory exam will be asked only from the Topic No.2 Viz. written communication only
2. Teachers are expected to provide practice of oral and written communication so that students develop confidence of self-reading writing and expressions

APPENDIX- 201-A

Principals of Business letter

- ◆ Importance
- ◆ Physical aspects
 - Paper
 - Typing
 - Margin
 - Folding
 - Envelop

APPENDIX-201- B

A. Structure of Business letter

Essentials of good business letter

- Correctness
- Appearance
- Language
- Information
- Clearness
- Conciseness
- Courtesy

B. General lay out of Business letters

- Heading

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- Inside address
- Salutation
- Body of the letter
- Complimentary closing
- Signature

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COURSE NAME : BUILDING MATERIAL II

1.0 RATIONALE:

This course deals with some more types materials used in the construction industry. Various factors affecting the selection of materials for given situations are also discussed. This course, thus, helps the student to understand the application of modern materials for buildings designed by him.

2.0 SCHEME OF TEACHING:

TOPIC NO.	NAME OF TOPIC	NO. OF HOURS		
		LECT.	PRACT.	TOTAL
1	Floor finishes	7	-	7
2	Wall finishes	7	-	7
3	Ceiling materials	7	-	7
4	Roofing materials	7	-	7
5	Building fixtures	4	-	4
6	Paints	7	-	7
7	Varnishes	3	-	3
Total		42	-	42

3.0 T.R.S & EO's

3.1 Select suitable material for various items of building construction

EO's

- 3.1.1 Understand the properties and uses of various materials used for building construction.
- 3.1.2 Compare the different alternative materials suitable to a given job.
- 3.1.3 Select suitable materials for building construction for the given job.

4.0 CONTENT OUTLINE

Topic -1 THEORY: FLOOR FINISHES:

- 1.1 Selection of floor finishes
- 1.2 Factors affecting the selection:
 - 1.2.1 Base, room use, degree of comfort required, maintenance, cost, appearance, safety and durability.
- 1.3 Types of flooring
 - Wood - Strip flooring, block flooring, Timber board, Timber Sheet
 - Tiles - a) Mosaic b) Ceramic c) Linoleum d) Thermoplastic tiles e) flexible pvc tiles f) cork tiles g) quarrytiles h) rubber tiles.
- 1.4 Terrazzo, marble finish, IPS, Kota, Granite, Cement Concrete Tile, Asbestos tile.

Topic -2 WALL FINISHES:

- 2.1 Give requirements and uses of the following types of wall finishes.
 - Materials:
 - 2.1.1 Wall papers
 - 2.1.2 Cement mortar plaster
 - 2.1.3 Glazed tiles
 - 2.1.4 Gypsum plaster
 - 2.1.5 Stucco plaster
 - 2.1.6 Special External Finishes for plaster surface
 - Rough cast
 - Smooth cast

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- Barium plaster
- Wall tiles

Topic -3 CEILING MATERIALS:

- 3.1 Give requirements & uses of the following ceiling materials:
 - 3.1.1 Ply wood
 - 3.1.2 Hard board
 - 3.1.3 Plain A.C. Sheet
 - 3.2.1 Fiber board
 - 3.2.2 Asbestos tiles
 - 3.2.3 Glass roof tiles
 - 3.2.4 Thermo feriz
 - 3.2.5 Gypsum plaster board
 - 3.2.6 Sprayed plaster
 - 3.2.10 Glass fiber
 - 3.2.11 Hession cloth

Topic -4 ROOFING MATERIALS:

- 4.1 Give their standard sizes, uses & their requirements:
- 4.2 Asbestos sheet
 - 4.2.1 G.I. Sheet
 - 4.2.2 Mangalore tiles
 - 4.2.3 Polyester glass fiber sheet (Acrylic Sheet)
 - 4.2.4 Wire reinforced PVC Sheet
 - 4.2.5 PVC Sheet

Topic-5 BUILDING FIXTURES:

- 5.1 Know the types, sizes & uses of building fixtures and hardware as per ISI.
- 5.2 Tower bolt
- 5.3 Hinges
- 5.4 Door handles
- 5.5 Door spring
- 5.6 Latches
- 5.7 Floor door stopper
- 5.8 Locks
- 5.9 Door closer
- 5.10 Wire mesh (mosquito & fly proof)
- 5.11 Ell drop
- 5.12 Magic eye (eye hole)

Topic -6 PAINTS

- 6.1 Know the requirements & uses of the following paints:
- 6.2 Water based paints
- 6.3 Alkali base
- 6.4 Linseed oil base
- 6.5 Cement Paint
- 6.6 Plastic Emulsions
- 6.7 Oil Paints
- 6.8 Acrylic Paints
- 6.9 Chlorinated rubber base
- 6.10 Epoxy base (only pigments)

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Topic -7 VARNISHES:

7.1 Know the requirements & uses of different types of varnishes.

Students are required to be taken for relevant site visit

NOTE: MARKET SURVEY OF LATEST NEWLY AVAILABLE MATERIAL IS TO BE CARRIED OUT BY THE STUDENTS AS HOME ASSIGNMENT

5. References:

- | | | |
|----|----------------------------|-----------------------|
| 1) | Civil Engineering Material | - T.T.T.I. Chandigarh |
| 2) | Materials of construction | - R.S.Deshpande. |
| 3) | Materials of Construction | - Frank R. Dogostino |
| 4) | Engineering materials | - S.C.Rangwala. |

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COURSE NAME : DRAWING AND PAINTING - II

1.0 RATIONALE:

These sketches include different line qualities which express the object's shape, form and scale of object. These sketches include different line qualities which express the scale, proportion, texture & colour shades of different types of monuments & modern buildings

2.0 SCHEME OF TEACHING:

TOPIC NO.	NAME OF TOPIC	NO. OF HOURS		
		LECT.	PRACT.	TOTAL
1	Five sketches of monumental and modern buildings	--	15	15
2	Two dimensional compositions showing relief with any material and to be finished to suggest contrast in solid and voids furnished with different treatment.	--	15	15
3	Graphical presentation of three dimensional composition	--	14	14
4	One composition to be finished with any colour scheme	--	12	12

				56

3.0 T.R.S & EO's

3.1 Draw sketches of buildings using different media

EO's

3.1.1 Prepare sketches of existing objects.

3.1.2 Prepare sketches of objects from memory.

3.1.3 Prepare sketches of objects in different scale and proportion.

3.1.4 Prepare sketches of buildings showing shades, shadows and texture.

3.1.5 Prepare a colour composition.

3.1.6 Prepare two dimensional composition with different materials and finish it with different texture & colour.

3.1.7 Prepare three dimensional composition.

4.0 CONTENT OUTLINE

Topic- 1 1.1 SCALE : Architectural space and its scales.

DRG.WORK 1.2 Proportion : Application to exterior design

1.3 Contrast : Point of interest, solids and voids.

1.4 Texture and Colour : Visual application and its effect on Architecture

TERM WORK: 1. Five sketches of monumental and modern buildings.

2. Two dimensional compositions showing relief with any material and to be finished to suggest contrast in solids and voids furnished with different treatment of texture colour

3. Graphical presentation of three dimensional composition.

4. One composition to be finished with any colour scheme.

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COURSE NAME : ARCHITECTURAL DRAWING II

1.0 RATIONALE:

Architecture drawing-II is a subject which develops the ability of visualization of object in 3 dimension by studying the given plan, elevation and side elevation. It also develop the skill to draw the object in isometric projection and Axonometric projection. Sciography is skill of drawing the shadow of the object in two dimensional projections visualizing the missing third dimension. This skill of visualization is very much useful in presentation area. The skills which are developed in Architecture Drawing-I are to be used in developing the sketch plan which ultimately useful in presentation area. Further, this topic also develops the ability of computing the dimensions and represent us them in correct mode.

2.0 SCHEME OF TEACHING:

TOPIC NO.	NAME OF TOPIC	NO. OF HOURS		
		LECT.	PRACT.	TOTAL
1	One sheet(A size) an Axonometric view (6 Program)	--	18	18
2	Five sheets (A size) on isometric view (6 Problem)	--	42	42
3	Four sheets (A size) on sciography (6 problems each)	--	32	32
4	Two sheets (A size) tracing paper of development of sketch one in pencil and one in ink	--	20	20
				112

3.0 T.R.S & EO's

3.1. Trace building drawing using pencil & ink.

EO's

- 3.1.1 Handle various drafting instruments.
- 3.1.2 Use different drawing materials.
- 3.1.3 Fix the drawing sheet, tracing paper prepared drawings properly on drawing board.
- 3.1.4 Dimension, re-draw and alter the original drawing. of the given building
- 3.1.5 Draw isometric view of the given object
- 3.1.6 Draw axonometric view of the given object
- 3.1.7 Draw sciography in the given

4.0 CONTENT OUTLINE

Topic -1 THEORY:

1.1 ISOMETRIC & AXONOMETRIC VIEWS:

1.2 Develop the concept of pictorial drawing.

1.3 State the advantage and limitation of orthographic projection.

1.4 Draw and practice the Isometric and Axonometric views of geometrical forms, building components and furniture.

1.5 Differentiate between Isometric & Axonometric views, state the advantage of both. Prepare Isometric scale.

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Topic -2 SCIOGRAPHY:

2.1 Draw and practice Sciography of geometrical planes & Solids composed objects and building components.

Topic-3 DEVELOPING OF GIVEN SKETCH TO APPROPRIATE SCALE:

3.1 Developing of a given sketch to a appropriate scale showing:

- 3.1.1 Doors & Windows
- 3.1.2 Wall thickness
- 3.1.3 Centre to Centre dimensions
- 3.1.4 Out to Out dimensions
- 3.1.5 Clear dimensions of rooms
- 3.1.6 Quality of line
- 3.1.7 Lettering
- 3.1.8 Assumption of appropriate dimension
- 3.1.9 Appropriate use of conventional signs

5.0 TERM WORK:

- 1) One Sheet (A size) on Axonometric view containing 6 problems.
- 2) Five sheets (A size) on Isometric view containing 6 problems each
- 3) Four sheets (A size) on Sciography containing 6 problems each.
- 4) Two sheets (A size) tracing papers of development of sketch one in pencil and one in ink.

6.0 References:

- 1) Elementary Engineering Drawing - N.D.Bhatt
- 2) Architectural Drawing - Harvey W Waffle
- 3) Architectural Drafting and Design - Helper & Wallach
- 4) Sciography - John M. Holmes.
- 5) Architectural Illustration and Presentation - Kuckein.

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COURSE NAME : SURVEYING

1.0 RATIONALE:

In the field of Architecture, land survey which includes area measurement & leveling of ground is very important for it helps one prepare a detailed site plan. This course helps the students understand the various surveying methods with the helps of different devices.

2.0 SCHEME OF TEACHING:

TOPIC NO.	NAME OF TOPIC	NO. OF HOURS		
		LECT.	PRACT.	TOTAL
1	Introduction	01	---	01
2	Scale	03	-	03
3	Chain and tape survey.	08	08	16
4	Compass survey.	08	08	16
5	Plane table survey.	04	08	12
6	Computation of area.	04	--	04
7	Levelling and contouring	14	32	46
		---	---	---
		42	56	98

3.0 T.R.S & EO's

3.1 Manipulate survey instruments with proper care

EO's

3.1.1 Appreciate the importance of taking precautions to be taken while using various survey instruments. **NOTE:** This skill will be developed simultaneously while using different types of survey instruments(including modern instruments) during demonstrations and survey based exercises)

T.R.S.

3.2 Use equipment for measuring length and bearings

EO's

3.2.1 Select the appropriate equipment for the given job
 3.2.2 Follow the standard procedure measurement and record
 3.2.3 Compute to get the relevant results

T.R.S

3.3 Prepare map for a given area/site using prismatic compass (Traverse survey)

EO's

3.3.1 Establish station points for traverse survey on the given site.
 3.3.2 Follow standard procedure for and carryout the survey work.
 3.3.3 Prepare sketch & record data of survey in field book (F.B.)
 3.3.4 Compute all the included angles of the traverse correctly.
 3.3.5 Apply necessary corrections to the traverse, if required.
 3.3.6 Prepare map/drawings from the survey data using scale, symbols, and abbreviations as per IS. 962

T.R.S.

3.4 Prepare contour map using levelling instruments

EO's

3.4.1 Prepare "grid" on the given ground for survey
 3.4.2 Carryout survey work using suitable method.
 3.4.3 Record survey data properly in the field book and level book
 3.4.4 Compute R.L's and apply arithmetic check
 3.4.5 Select suitable scale as per IS for plotting contour map.
 3.4.6 Plot contour map using survey data T.R.S
 3.4.7 Interpret contour map for different purposes
 3.4.8 Read given contour map (or Topo sheet) of an area having different topography.
 3.4.9 Interpret given contour map for the purpose of use properly planning and designing
 3.4.10 Plane table for marking of boundaries and mapping the given area

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- 3.4.11 Establish suitable traverse on a given site
- 3.4.12 Carry out plane table survey work as per suitable/proper method.
- 3.4.13 Compute the necessary result and prepare map/drawing

T.R.S

- 3.5 Compute area of regular and irregular shape of plot of land using formulae and equipment

EO's

- 3.5.1 compute area of plot/figure of geometrical shapes using formulae.
- 3.5.2 Divide large area, into small geometrical shapes and computer total area.
- 3.5.3 Use planimeter for computing area of irregular shape.

4.0 CONTENT OUTLINE THEORY

Topic-1 INTRODUCTION:

- 1.1 Definition of Survey
- 1.2 Object of Survey
- 1.3 Principle of Survey
- 1.4 To work from whole to part.
- 1.5 To fix the position of new station by at least two known conditions.

Topic-2 SCALE:

- 2.1 Importance of Scale
- 2.2 Types of scale
 - 2.1.1 Plain scale
 - 2.1.2 Diagonal scale
 - 2.1.3 Vernier scale
- 2.3 Degree of Accuracy in scale
- 2.4 Construction of scale
- 2.5 Requirement of good scale

Topic-3 CHAIN AND TAPE SURVEY:

- 3.1 State the various types of chains and scale.
- 3.2 Sketch the details of chain.
- 3.3 Testing and Adjustment of chain.
- 3.4 Measurement of distance with uses of chain.
- 3.5 Explain the term ranging:
 - 3.5.1 Direct ranging
 - 3.5.2 Indirect or Reciprocal ranging
- 3.6 Accessories required for measuring distance with the help of chain.
 - 3.6.1 Pegs, Flags, Arrows, Hammer, Optical Square.
- 3.7 Errors & Correction in chaining
- 3.8 Testing of chain
- 3.9 Selection of survey stations
- 3.10 Define Term :
 - (1) Location sketch or Reference sketch
 - (2) Index Map
- 3.11 Explain the Term.
 - 3.11.1 Base Line
 - 3.11.2 Tie Line
 - 3.11.3 Check Line
 - 3.11.4 Range Line
 - 3.11.5 Perpendicular Offset
 - 3.11.6 Oblique offset
- 3.12 Sketches for conventional symbols used to plot the survey work
- 3.13 Recording the field book
- 3.14 Take running measurement of a building

Topic-4 COMPASS SURVEY:

- 4.1 Types of Compass
 - 4.1.1 Working parts of prismatic and surveyor compass
- 4.2 Measurements of angles
- 4.3 Methods of using prismatic compass

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- 4.3.1 Centering
- 4.3.2 Levelling
- 4.3.3 Observing
- 4.4 Closed Traverses and Open Traverses
- 4.5 Observing the bearing
 - 4.5.1 Fore Bearing
 - 4.5.2 Back Bearing
- 4.6 Explain the Term
 - 4.6.1 Magnetic Meridian
 - 4.6.2 True Meridian
 - 4.6.3 Arbitrary Meridian
- 4.7 Calculation of Angles from Bearing
 - 4.7.1 W.C.B. of Two lines
 - 4.7.2 R.B. of Two lines
- 4.8 Explain the Term "Local Attraction".
- 4.9 Define declination of magnetic needle

Topic-5 PLANE TABLE SURVEY:

- 5.1 Meaning of Term Plane Table
- 5.2 Accessories required for plane table survey
- 5.3 Advantages and dis-advantages of plane table survey
- 5.4 State the situation under which plane table survey is more suitable
- 5.5 Situation under which plane table survey is not suitable
- 5.6 Procedure for carrying out plane table survey
- 5.7 Explain the meaning of Term "Orientation of Plane Table" and its method.
- 5.8 Describe the various methods used for plane table survey.

Topic-6 COMPUTATION OF AREA:

- 6.1 Determination of Area:
 - 6.1.1 By the direct uses of field notes
 - 6.1.1.1 Area of skeleton
 - 6.1.1.2 Area Along Boundary
- 6.2 From previously plotted plan
 - 6.2.1 Graphical method
 - 6.2.2 Instrumental method
- 6.3 Calculation of Area by:
 - 6.3.1 Mid-ordinate
 - 6.3.2 Average Ordinate
 - 6.3.3 Trapezoidal Rule
 - 6.3.4 Simpson's Rule
- 6.4 Comparison of Rules
- 6.5 Uses of Plannimeter
- 6.6 Parts of Plannimeter
- 6.7 Calculation of Area by Plannimeter of Irregular shapes

Topic-7 LEVELLING AND CONTOURING:

- 7.1 Define the term levelling
- 7.2 Different parts of dumpy/Tilting level
- 7.3 Technical Terms pertaining to levelling
 - 7.3.1 Level Surface
 - 7.3.2 Plumb-line
 - 7.3.3 Horizontal line
 - 7.3.4 Line of collimation
 - 7.3.5 Bubble line
 - 7.3.6 Back sight
 - 7.3.7 Inter sight
 - 7.3.8 Fore sight
 - 7.3.9 Bench mark
 - 7.3.10 Change point
 - 7.3.11 Reduced level
 - 7.3.12 Height of Collimation
 - 7.3.13 Datum surface
 - 7.3.14 Mean Sea level

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7.4 Sketch the levelling staff

7.5 Explain Bench Mark:

7.5.1 G.T.S. B.M.

7.5.2 Permanent B.M.

7.5.3 Temporary B.M.

7.5.4 Arbitrary B.M.

7.6 Adjustment of level

7.7 Reading the levelling staff

7.8 Rule out the Typical page of level book

7.9 Calculations of Reduced level

7.9.1 Line of collimation method

7.9.2 Rise and Fall method

7.10 Explain "Contour"

7.11 Reading the contour map 7.13 Uses of Contour.

PRACTICAL WORK: Practical work shall be based on sub-topics.

TERM WORK:

(1) Imperial size drawing on:

(A) Chain and compass Survey

(B) Levelling and Contouring (Traverse survey)

(C) Plane Table Survey. Support Faculty :

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COURSE NAME : ARCHITECTURAL DESIGN I

1.0 RATIONALE :

Architectural design is the core course of the programme. Student has to learn about application of many other courses It enables the student to put dream into reality in the field of Architectural work. It is therefore, interesting to students Design of single volume building allows a student to express his ability to conceive different types of develop. it from and ultimately make its working model showing how its inner volume is used, with the help of furniture layout.

2.0 SCHEME OF TEACHING:

TOPIC NO.	NAME OF TOPIC	NO. OF HOURS		
		LECT.	PRACT.	TOTAL
1	Design any one single volume building.	--	--	--
	a) Data collection	--	06	06
	b) Development of concept.	--	10	10
	c) Preparing sketch design.	--	16	16
	d) Preparing plans.	--	12	12
	e) Preparing elevations	--	04	04
	f) Preparing sections.	--	02	02
	g) Preparing site plan.	--	02	02
	h) Preparing final drawings with presentation	--	16	16
2	Preparation of model	--	16	16
				84

3.0 T.R.S. & EO's

3.1 Design a single volume building for given requirements and prepare presentation drawings

EO's

- 3.1.1 Collect data related to the given building, select case study and appraise them.
- 3.1.2 Prepare & select a better conceptual drawings for the given building.
- 3.1.3 Prepare sketch design for the given building.
- 3.1.4 Prepare presentation drawings with architectural rendering for the given building.
- 3.1.5 Make a model of the designed building.
- 3.1.6 Justify the designed building

T.R.S

3.2 Prepare presentation drawings for the given project of design.

EO's

- 3.2.1 Use scale, symbols & abbreviations as per IS : 962
- 3.2.2 Draw plan of the given building.
- 3.2.3 Draw elevations of the given building.
- 3.2.4 Draw sections of the given building.
- 3.2.5 Draw site plan in given scale.
- 3.2.6 Draw different site conditions and landscape elements in the site plan.
- 3.2.7 Render the drawing in different media.
- 3.2.8 Prepare isometric, perspective of the given building.
- 3.2.9 Prepare furniture layout for the given building.
- 3.2.10 Render the furniture layout with different colour media.

4.0 CONTENT OUTLINE THEORY

Topic-1 FORM :

- 1.1 FORM AS A PRIMARY TOOL OF A DESIGNER (DIFF. TYPES)
- 1.2 SHAPE : This is the principal identifying form as it results from the specific configuration of a form's surfaces and edges.
- 1.3 SIZE : The real dimensions of forms i.e. length, width & depth which determine the proportions of a form.

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Topic- 2 FUNCTION:

- 2.1 FUNCTION AS THE PRECONDITION OF THE DESIGN
- 2.2 State the requirements and their relation to function
- 2.3 Derive the form keeping in mind the functional requirements

Topic-3 FURNITURE LAYOUT:

- 3.1 DESIGN OF FURNITURE LAYOUT
- 3.2 Decide the various dimensions e.g. height, length & width of furniture as per anthropometrics requirement.
- 3.3 Lay the furniture in the designed structure as per requirements.

Topic-4 DESIGN PROCESS:

- 4.1 UNDERSTAND THE DESIGN PROCESS.
- 4.2 Prepare and derive different types of forms for given specific volume.
- 4.3 Decide the various dimensions of the same in relation to functional requirements.
- 4.4 Lay the interior e.g. furniture, partitions etc. as per requirements.

TERM WORK

Term work shall consist of drawings of a Single volume building e.g. OCTROI POST, BUS STAND, WATER HUT, WATCHMAN'S CABIN, MILK BAR, REFRESHMENT KIOSKS, PUBLIC TOILETS TELEPHONE BOOTH, PETROL PUMP ETC. (ANY ONE DESIGN) The students shall prepare the following drawings:-

- Necessary Plans, elevations and sections with proper architectural rendering.
- One model is compulsory.

Term work shall consist one time problem of one week duration on any one of topics mentioned in term work

Students are required to be taken for relevant site visit

References:

- 1) Architecture for India - William Curtis (B.V.Doshi)
- 2) Charles Correa - William Curtis.

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COURSE NAME : ESSENTIALS OF ENVIRONMENT AND SEISMIC ENGINEERING

1. RATIONALE :

Since last two decades, Environmental Education has attracted the interests of educationalists and practitioners at all levels of education throughout the World. The growing concern about the natural resources degradation, air & water pollution, deforestation and other environmental problems has prompted educationalists to introduce a course on Essentials of Environment in various technical Curricula. As technicians occupy middle level managerial positions in industries, it is essential that they are provided with right kind of environmental education and training. It is with this aim that a course on "Essentials of Environment" is being introduced in diploma programme.

2. SCHEME OF TEACHING :

TOPIC NO.	NAME OF TOPIC	TH HRS	PR HRS	TOTAL HRS
1	Introduction	02	--	02
2	Ecological aspects of environment	05	--	05
3	Natural resources	07	--	07
4	Global environmental problems	05	--	05
5	Environmental pollution	07	--	07
6	Clean Technologies	05	--	05
7	Fundamentals of seismic engineering	08	--	08
8	Natural Disasters	03	--	03
	Total	42		42

3. OBJECTIVES :

In view of developing new attitudes and behavioral patterns to enable students make decisions which help preventing deterioration of environment & as certain concept of sustainable development, the following objectives for Essentials of Environment course have been identified:

- 1.1 Understand the scope of Environmental education.
- 1.2 Understand the importance of environmental awareness.
 - 2.1 Understand the natural system.
 - 2.2 Understand a biotic and biotic components of natural system.
 - 2.3 Understand various processes of natural system.
 - 2.4 Appreciate Eco system, food chain & webs and other biological systems.
 - 2.5 Estimate future ecological prospects of man.
- 3.1 Know the natural resources.
- 3.2 Assess the impact of human population on environment.
- 3.3 Understand abiotic and biotic resources.

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- 3.4 Appreciate forest as natural resource.
- 3.5 Recognize the concept of sustainable development.
- 3.6 Appreciate the importance of management, consumption & conservation of natural resources.

- 4.1 Create awareness for Global Environmental problems.

- 5.1 Understand causes of environmental pollution.
- 5.2 Understand water pollution.
- 5.3 Understand air pollution.
- 5.4 Understand the Noise as pollutant.
- 5.5 Know radiation and its pollution effects.

- 6.1 Understand clean technology.
- 6.2 Recognize the importance of waste minimization.
- 6.3 Know importance of bio-fertilizers.
- 6.4 Understand the Integrated Pest Management (IPM) system.

- 7.1 Understand the need of seismic engineering.

- 8.1 Understand the various types of natural disaster.

4. TOPICS & SUB-TOPICS

1. Introduction

- 1.0 Introduction
- 1.1 Environment & its components
- 1.2 Environment in India
- 1.3 Public awareness

2. Ecological aspects of Environment

- 2.0 Introduction to Environment
- 2.1 Ecology
 - 2.1.1 Eco system
 - 2.1.2 Factors affecting Eco system
- 2.2 Elton pyramid
- 2.3 Biogeochemical cycles.
 - 2.3.1 Hydrologic cycle
 - 2.3.2 Carbon cycle
 - 2.3.3 Nitrogen cycle
 - 2.3.4 Phosphorus cycle
 - 2.3.5 Sulphur cycle
- 2.4 Biodiversity
 - 2.4.1 Biodiversity Index
- 2.5 Future of human being

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3. Natural Resources

- 3.0 Natural Resources
- 3.1 Types of resources
- 3.2 Quality of life
- 3.3 Population and Environment
- 3.4 Water resources 3.4.1 Sources of water
- 3.5 Population projection
 - 3.5.1 Arithmetic progression method
 - 3.5.2 Geometric progression method
 - 3.5.3 Incremental Increase method
 - 3.5.4 Logistic curve method
 - 3.5.5 Declining growth method
- 3.6 Water demand
- 3.7 Forest as resource
 - 3.7.1 Forest and Environment
 - 3.7.2 Deforestation
 - 3.7.3 Afforestation
 - 3.7.4 Forest conservation, its methods
- 3.8 Land
 - 3.8.1 Uses and abuses of waste and wet land
- 3.9 Wild life
 - 3.9.1 Conservation of wild life
 - 3.9.2 Important National parks, Safaris, Reserves.
- 3.10 Other resources
 - 3.10.1 Oil and mineral resources
 - 3.10.2 Their depletion
 - 3.10.3 Effects

4. Global Environmental Problems

- 4.0 Introduction
- 4.1 Major Global problems
- 4.2 Acid rain
 - 4.2.1 Effect of Acid rain
- 4.3 Green house effect
- 4.4 Depletion of Ozone layer
 - 4.4.1 Effect of Ozone layer depletion
- 4.5 Human predictiments
 - 4.5.1 Introduction of global warming
 - 4.5.2 Measures against global warming

5. Environmental Pollution

- 5.0 Introduction
- 5.1 Water pollution
- 5.2 Characteristics of domestic waste water.
- 5.3 Principles of treatment
- 5.4 Water treatment plant
- 5.6 Air pollution
 - 5.6.1 Pollutants
 - 5.6.2 Sources of pollution

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- 5.6.3 Effect of pollutants
- 5.6.4 Air monitoring system
- 5.6.5 Air pollution control
- 5.7 Noise pollution
 - 5.7.1 Acoustic treatment for noise pollution
 - 5.7.2 Place of noise pollution
 - 5.7.3 Effect of noise pollution

- 5.8 Radio active pollution
 - 5.8.1 Radiation
 - 5.8.2 Adverse effects of radiation & thermal pollution
- 6. Clean technologies**
 - 6.0 Introduction
 - 6.1 Clean technology
 - 6.2 Types of Energy
 - 6.2.1 Conventional Energy Sources
 - 6.2.2 Non-conventional Sources of Energy
 - 6.3 Recycling pollution control
 - 6.4 Types of Pesticides
 - 6.5 Integrated Pest Management
- 7 Fundamentals of seismic engineering**
 - 7.1 Introduction
 - 7.1.1 Definition
 - 7.1.2 History of earthquake
 - 7.1.3 Earth and its' structure
 - 7.2 Terminology
 - 7.2.1 Epicenter
 - 7.2.2 Hypocenter
 - 7.2.3 Focus
 - 7.2.4 Epicenter distance
 - 7.3 Waves generated due to earthquake
 - 7.3.1 P waves
 - 7.3.2 S waves
 - 7.4 Causes of earthquake
 - 7.5 Measurement of earthquake
 - 7.5.1 Intensity and magnitude of earthquake
 - 7.5.2 Sysmo-graph
 - 7.5.3 Sysmo-scope
 - 7.5.4 Sysmo-meter
 - 7.5.5 Richter scale
 - 7.6 Zoning of earthquake as per I.S.
 - 7.7 Effects of earthquake on
 - 7.7.1 Soil
 - 7.7.2 Low-rise and high-rise buildings
 - 7.7.3 Human psychology
 - 7.7.4 Communication

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7.7.5 Geology

7.8 General instructions for protection of people during earthquake

7.9 General guidelines for construction and maintenance of earthquake proof /resistant masonry structure

8 Natural disasters

8.1 Types of natural disaster

8.1.1 Cyclone

8.1.2 Flood

8.1.3 Fire

8.1.4 Desert storms

8.1.5 Land slides

8.1.6 Snow avalanches

8.2 Cyclone

8.2.1 Introduction

8.2.2 Fundamentals

8.2.3 Characteristics

8.2.4 Causes & effects

8.2.5 Preventive and Remedial measures

8.3 Flood

8.3.1 Introduction

8.3.2 Fundamentals

8.3.3 Causes and effects

8.3.4 Preventive and Remedial measures

8.4 Fire

8.4.1 Fundamentals

8.4.2 Causes & effects

8.4.3 Preventive and remedial measures

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