Curriculum *for*

Diploma Programme in

INTERIOR DESIGN AND DECORATION

For the State of Uttar Pradesh

Prepared by:

Institute of Research Development & Training

U. P. Kanpur

STUDY AND EVALUATION SCHEME FOR DIPLOMA PROGRAMME IN INTERIOR DESIGN AND DECORATION

FIRST SEMESTER

Sr. No.	SUBJECTS	STUDY SCHEME Periods/Week			Credits	MARKS IN EVALUATION SCHEME								Total Marks of Internal & External
						INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT					
		L	T	P/drg		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot	
1.1	*Communication Skills-I	4	-	2	5	20	10	30	50	2 ½	20	3	70	100
1.2	Basic Design and Sketching	6	-	10	9	60	-	60	100	6	-	-	100	160
1.3	Graphic Presentation and Art	6	-	10	9	60	-	60	100	6	-	-	100	160
1.4	*Basics of Information Technology	-	-	6	2	-	40	40	-	-	60	3	60	100
#Student Centered Activities (SCA)		-	-	4	2	-	30	30	-	-	-	-	-	30
Total		16	-	32	27	140	80	220	250	-	80	-	330	550

* Common with other diploma programmes

\# Student Centered Activities will comprise of co-curricular activities like extension lectures, games, hobby clubs e.g. photography etc., seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities and self study etc.

SECOND SEMESTER (INTERIOR DESIGN AND DECORATION)

Sr. No.	SUBJECTS	STUDY SCHEME Periods/Week			Credits	MARKS IN EVALUATION SCHEME								Total Marks of Internal & External
						INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT					
		L	T	P/drg		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot	
2.1	Building Construction & Material - I	5	-	4	6	50	-	50	100	4	-	-	100	150
2.2	Interior Design - I	4	-	14	9	75	-	75	125	12	-	-	125	200
2.3	History of Interior and Furniture	5	2	-	5	20	-	20	50	2 ½	-	-	50	70
2.4	General Workshop Practice - I	-	-	8	2	-	40	40	-	-	60	4	60	100
2.5	*Universal Human Values	2	-	1	2	-	20	20	-	-	30	3	30	50
#Student Centered Activities (SCA)		-	-	3	1	-	30	30	-	-	-	-	-	30
Total		16	2	30	25	145	90	235	275	-	90	-	365	600

* Common with other diploma programmes

\+ Common with diploma in Civil Engg., Mechanical Engg. and Chemical Engg

\# Student Centered Activities will comprise of co-curricular activities like extension lectures, games, hobby clubs e.g. photography etc., seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities and self study etc.

1.1 COMMUNICATION SKILLS – I

L	T	P
4	-	2

RATIONALE

Knowledge of English Language plays an important role in career development. This subject aims at introducing basic concepts of communication besides laying emphasis on developing listening, speaking, reading and writing skills as parts of Communication Skill.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

- Understand the importance of effective communication
- Describe the process of communication
- Communicate effectively in different contexts
- Identify parts of speech
- Write correct sentences using appropriate vocabulary
- Reproduce and match words and sentences in a paragraph
- Write various types of paragraphs, notices for different purposes and composition on picture with appropriate format
- Read unseen texts with comprehension

.

DETAILED CONTENTS

1 Basics of Communication (13 periods)

- 1.1 Definition and process of communication
- 1.2 Types of communication - formal and informal, oral and written, verbal and non-verbal
- 1.3 Communications barriers and how to overcome them
- 1.4 Barriers to Communication, Tools of Communication

2 Application of Grammar (18 periods)

- 2.1 Parts of Speech (Noun, verb, adjective, adverb) and modals
- 2.2 Sentences and its types
- 2.3 Tenses
- 2.4 Active and Passive Voice
- 2.5 Punctuation

2.6 Direct and Indirect Speech

3 Reading Skill (10 periods)

Unseen passage for comprehension (one word substitution, prefixes, suffixes, antonyms, synonyms etc. based upon the passage to be covered under this topic)

4 Writing Skill (15 periods)

4.1 Picture composition
4.2 Writing paragraph
4.3 Notice writing

LIST OF PRACTICALS

Note: Teaching Learning Process should be focused on the use of the language in writing reports and making presentations.

Topics such as Effective listening, effective note taking, group discussions and regular presentations by the students need to be taught in a project oriented manner where the learning happens as a byproduct.

Listening and Speaking Exercises

1. Self and peer introduction
2. Newspaper reading
3. Just a minute session-Extempore
4. Greeting and starting a conversation
5. Leave taking
6. Thanking
7. Wishing well
8. Talking about likes and dislikes
9. Group Discussion
10. Listening Exercises.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centered activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce

– Presentation and viva-voce

RECOMMENDED BOOKS

1. Communicating Effectively in English, Book-I by RevathiSrinivas; Abhishek Publications, Chandigarh.
2. Communication Techniques and Skills by R. K. Chadha; DhanpatRai Publications, New Delhi.
3. High School English Grammar and Composition by Wren & Martin; S. Chand & Company Ltd., Delhi.
4. Excellent General English-R.B.Varshnay, R.K. Bansal, Mittal Book Depot, Malhotra
5. The Functional aspects of Communication Skills – Dr. P. Prsad, S.K. Katria & Sons, New Delhi
6. Q. Skills for success – Level & Margaret Books, Oxford University Press.
7. e-books/e-tools/relevant software to be used as recommended by AICTE/UBTE/NITTTR.

Websites for Reference:

1. http://www.mindtools.com/ page 8.html – 99k
2. http://www.letstalk.com.in
3. http://www.englishlearning.com
4. http://learnenglish.britishcouncil.org/en/
5. http://swayam.gov.in

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	13	24
2	18	32
3	10	16
4	15	28
Total	**56**	**100**

1.2 BASIC DESIGN AND SKETCHING

L	T	P/D
6	-	10

RATIONALE :

Art and basic design is the foundation and first step for the beginners who enter the field of interior design and decoration. For performing this knowledge of principles and elements of design and design methodology is required. Following points should be discussed in relation with particular design.

LEARNING OUTCOMES

After completing the course, the students will be able to:

- Identify Drawing tools and Mediums used and their respective functions.
- Developing art and sketching skills of live objects, buildings and landscapes.
- Developing a visual literacy about our surroundings.
- Developing a sense of appreciation for the built environment
- Identifying the use of various elements and principles in the design
- Effectively using the various measurement systems on the drawing .
- To develop an art of visualizing 3-D objects through their 2-D drawings and projections
- Using various mediums of presentation for sketching and drawings.

DETAILED CONTENTS

1. INTRODUCTION:

A. Medium of expression: Pencil, Ink, Crayons, Types of colours.
B. Tools and materials: T-square, Set-square, Parallel Bar, drawing board, Compass, Liner equipment's for creating texture.
C. Visual, Performing art for expression, entertainment and commercial propaganda.

2. DESIGN :

Definition, Functional design, Traditional design, Folk and modern design. Purpose of design, All this must be supported with examples from everyday life and nature.

3. ELEMENTS OF DESIGN:

3.1 LINE:

Its emotional effect, direction, shape, size, form, value and colour. Type of line, Straight, Vertical, Horizontal diagonal, curve.

3.2 COLOUR:

Classes of colour according to prang system, Primary, Secondary (binary), Intermediates, Tertiary, Quaternary.
Standard system of colour, Arrangement and notation, Theories of colour, Principles and practice of colour, relation of colour to shape, Scale and proportion, Colour harmony. Physiological aspects of colour, Hue war, Name of
the colour, Cool, advancing and receding colours. value scale, lightness and darkness, tint and shades and colour intensities. Colour schemes (6 different types); Simple exercises on making colour charts, value, scales, Colour
schemes for different interiors. Practice in colour matching. Standard colour harmonies, related colour harmony, Colour harmony and contrast, Law of colour, Munsell colour system.

3.3 PATTERN, TONES AND TEXTURE:

Shapes and patterns derived from natural forms, Textures of surface and their appearance, geometric forms, symmetry and asymmetry, ornamentation and abstraction, surface quality and light variations, articulation of planes, area division according to tones, Art exercises, Compositions in geometric shapes, patterns, tones textures variations.

4. PRINCIPLES OF DESIGN:

Proportion, Scale, Balance, Contrast, Harmony/ Rhythm and Emphasis, Unity and duality; simple exercises based on above principles be discussed and drawings to be made.

4.1 BALANCE:

Definition, Types of formal and informal balance by symmetric and obvious.

4.2 HARMONY:

Definition, aspect of harmony, Line, shape, Size, texture, Colour idea.

4.3 RHYTHM:

Definition, Methods of obtaining rhythm, Repetition of shapes, Progression of size, Continuous line movement, Radiation.

4.4 EMPHASIS (Focus):

Definition, How to emphasize, Grouping of objects using contrasting colours, Using decoration having sufficient plain back ground using unusual lines, Shapes, Sizes.

5. THREE-DIMENSIONAL DESIGN:

The designing on paper of different three-dimensional objects on the basis of experience of composition, pattern, tone, texture and colour and using various mediums to express the forms, physiological aspects of colour.

6. SKETCHING:

6.1. Natural environment, Leaves, Flower, Tree, Living forms and organism, Human form, Structure and proportion, Man-made sources, Architectural forms, Buildings, Interiors and furniture. Use of variety of sketching materials- pencil,
pen, ink crayon, water colour, quick drying inks. All drawings to be made directly from the subject and not from illustrations.

6.2. Free hand sketching of interiors in different media both black and white and in colours.

NOTE:

No examination question from sketching. The aim here is to familiarize the students with various sketching techniques and materials and thereby develop an acumen for sketching through observation of both the natural and man-made environment. Ultimately these sketching techniques shall help to develop the students design ability.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student cantered activities in class room and actively participate in Pencil diagram and sketching exercises. The Student should be encouraged to draw on daily basis, at least 2 sketches of any object/ natural surroundings/ Human sketch/ buildings/ interior sketches in the sketch book

MEANS OF ASSESSMENT

- Assignments and quiz/class tests, mid-semester and end-semester written tests
- Actual practical work, exercises and viva-voce
- Presentation on the drawing sheets

RECOMMENDED BOOKS

1. "Rendering with Pencil and Ink" by Gill Robert W., Published by Thomos and Hudson, New Delhi

2. "Interior Design" by Ahmed A. Kasu , Published by Sunrise Publisher, New Delhi

3. "Architectural Aesthetics" by Sangeet Sharma, Abhishek Publication, 57-59, Sector 17, Chandigarh

4. "Learning Curves" by Klara Sjolen and Allan Mcdonalds By Perfect Paperback Publishers.

5. "The Complete Book of Drawing" by Barrington Barber By Perfect Paperback Publishers.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	8	10
2	8	12
3	12	25
4	24	25
5	16	20
6	16	8
Total	**84 (+ 140 for drgs)**	**100**

1.3 GRAPHIC PRESENTATION AND ART

L	T	P
6	-	10

RATIONALE

Graphic presentation and Art are considered to be the language of Engineers and Designers, which is a means of communication among the Interior designers, engineers, technicians, architects & draftsmen engaged in the field of construction of buildings. The translation of ideas into practice with the use of this graphic language is beyond imagination. Thus, for effective and efficient communication among all those involved in the system, it becomes necessary that the personal working in different capacities acquire appropriate skills in the use of this graphic language. The paper aims at fulfilling the need.

LEARNING OUTCOMES

After completing the course, the students will be able to:

- Identify Drawing tools and Mediums used and their respective functions.
- Identify different types of materials used in making models and their basic properties.
- Developing art and sketching skills of live objects, buildings and landscapes.
- Developing a visual literacy about our surroundings.
- Effectively using the various measurement systems on the drawing .
- Learning and Writing various Font Styles in an effective manner.
- Develop a sense of Co-relation between Actual size and the Drawn sketch .
- To develop an art of visualizing 3-D objects through their 2-D drawings and projections
- Prepare simple Plans and Elevations of one room structures .
- Using various mediums of presentation for sketching and drawings.

DETAILED CONTENTS

1. LETTERING & SCALES:

   Lettering in pencil & ink in the following style. (Roman, Gothic, Block, italic & free hand lettering). Plain and Diagonal Scale.

2. GRAPHIC PRESENTATION:

Exercise in graphic presentation of solid forms through their plan, elevation and section (Solid forms involving cube, prism, pyramid, cylinder, cone, sphere.), Polygons and their frustums.

3. DEVELOPMENT OF SURFACES:

Development of surfaces of the above solids. Exercises be given to prepare these solids with thick Chart paper and card boards or mount boards.

4. ISOMETRIC PROJECTIONS:

Isometric & axonometric projection of simple blocks of wood & metal, which is having simple cuts & shapes. Making Isometric and Axonometric views of simple furniture and other objects in interior.

5. PERSPECTIVE:

Techniques and methods of perspective drawing for interior including furniture, fittings, accessories using; One point and two-point Perspective method.

6. SCIOGRAPHY:

Study of shade and shadows of objects, such as Cubes, cuboids and other geometrical shapes.

7. INTERIOR DRAWING:

Basic concepts of preparing Interior drawing involving house hold furniture for Drawing, Dining & Bed rooms, studio stools, tables.

8. RENDERING:

Rendering techniques in colour & ink, in order to develop the skills of presentation and to visualize forms in space.

(a) The drawing of any sketch to be given, to render in colour, pencil and ink ; with emphasis on shades and shadows in same size or after enlarging / reducing.

(b) Arrangement of geometrical forms within the given space or area; to be finished in various colours or tints of a colour.

(c) Stippling in ink to create effects of 3 dimensions and shadows etc. (Geometrical forms which is to be involved are square, rectangle, circle and triangle.)

9. ART:

Orientation exercise in different mediums in Pencil, Ink, Water colours, Pastels, etc. Theory of composition, theory of colours Drawing indoor and outdoor sketching in pencil and ink.

The portion dealing with Art should include simple designing and study of human forms, Anthropometric studies, etc.

MODEL EXERCISES OF ART:

Should be given on -

- Collage Making
- Interior Theme based Art Work
- Murals by using various materials
- Making of illusions
- Making of sculptures

INSTRUCTIONAL STRATEGY

-Student should be encouraged to draw minimum of 2 sketches in their sketch book from the surroundings on every calendar day.
-They should be encouraged to make sculptures to understand the 3-D forms and the Scale.

This is a practical oriented subject. Teacher should arrange visits to some of Model rooms of important buildings. Each student should be given independent exercises to make models.

MEANS OF ASSESSMENT

– Assignments and class tests, mid-semester and end-semester written tests
– Actual sketching and drawing work, exercises done on drawing sheets and the sketch book.
– Presentation in pencil, ink, colour and other mediums.

RECOMMENDED BOOKS

1. Engineering Drawing by N.D. Bhatt; Publisher Charotar Publishing House Pvt. Ltd., New Delhi

2. Engineering Drawing by G.S. Virdhi; Khanna Publisher, New Delhi

3. Building Construction by Sikka; Publisher Tata McGraw Hill Publisher, New Delhi

4. Time Saver Standards for Building Types by Joseph De Chiara and John Callendera Published by Mc Graw Hill, New Delhi

5. Rendering with Pencil and Ink by Gill Robert W., Published by Thomos and Hudson, New Delhi

6. Architects Data by Neufert, Published by Oxford BSP Professional Books, New Delhi

1. Architecture: Form, Space and Order by D.K. Ching

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	24	15
2	34	22
3	20	5
4	28	15
5	32	15
6	16	6
7	26	12
8	20	5
9	24	5
Total	**224**	**100**

1.4 BASICS OF INFORMATION TECHNOLOGY

L	T	P
-	-	6

RATIONALE

Information technology has great influence on all aspects of life. Primary purpose of using computer is to make the life easier. Almost all work places and living environment are being computerized. The subject introduces the fundamentals of computer system for using various hardware and software components. In order to prepare diploma holders to work in these environments, it is essential that they are exposed to various aspects of information technology such as understanding the concept of information technology and its scope; operating a computer; use of various tools using MS Office/Open Office/Libre Office using internet etc., form the broad competency profile of diploma holders. This exposure will enable the students to enter their professions with confidence, live in a harmonious way and contribute to the productivity.

Note:

Explanation of Introductory part should be demonstrated with practical work. Following topics may be explained in the laboratory along with the practical exercises. There will not be any theory examination.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

- Identify Computer Hardware Components, Network Components and Peripherals.
- Explain the role of an Operating System.
- Install System and Application Software.
- Explain the function of the system components including Processor, Motherboard and Input-output devices.
- Use Word Processing Software to prepare document.
- Use Spreadsheet Software to create workbooks and automate calculation.
- Use Presentation Software to create interactive presentation.
- Perform fundamental tasks common to most application software including print, scan, save, edit, cut, copy, paste, format, spell and grammar check.
- Find and evaluate information on the Web.
- Install Antivirus.
- Safeguard against Online Frauds, threats and crimes.

- Use online office tools(Google suits)

TOPICS TO BE EXPLAINED THROUGH DEMONSTRATION

1. Introduction to Computers and Peripherals.

   Components of Computer, Types of Computer, CPU, RAM, ROM, Hard disk, USB, Flash drive, CD, DVD,Blue ray, Keyboard, Mouse, Monitor, LCD, Printer, Plotter, Scanner, Modem, Sound Cards, Speakers, CMOS battery, Sharing of Printers.

2. Operation System and Application Software

   System Software, Application Software, Virtualization Software, Utility Software, MS Office/Open Office/Libreoffice, Working with window, Desktop components, Menu bars, creating shortcut of program. Installation of Application softwares, Antivirus and Drivers.

3. Word Processing, Spreadsheet and Presentation

   Usage and creation of word document, spreadsheets and presentation, Google Suits (Google drive, google sheet, google doc. Google presentation)

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4. Internet

   Basics of Networking – LAN, WAN, Wi-Fi technologies, Concept of IP Addrsses, DNS, Search Engines, e-mail, Browsing and cyber laws.

LIST OF PRACTICAL EXERCISES

1. Identify various components, peripherals of computer and list their functions.
2. Installation of various application software and peripheral drivers
3. Installation of operating system (windows/linux/others)
4. Creation and Management (Rename, delete, search of file and folders)
5. Installation of Antivirus and remove viruses
6. Scanning and printing documents
7. Browsing, Downloading, Information using Internet
8. E-Mail ID creation, comparing, sending and receiving e-mail. Attaching a file with e-mail message.
9. Word Processing (MS Office/Open Office)
   a) File Management

- Opening, creating and saving a document, locating files, copying contents in some different file(s), protecting files, giving password protection for a file

b) Page set up
- Setting margins, tab setting, ruler, indenting

c) Editing a document
- Entering text, cut, copy, paste using tool- bars

d) Formatting a document
- Using different fonts, changing font size and colour, changing the appearance through bold/italic/underlined, highlighting a text, changing case, using subscript and superscript, using different underline methods
- Aligning of text in a document, justification of document, inserting bullets and numbering
- Formatting paragraph, inserting page breaks and column breaks, line spacing
- Use of headers, footers: Inserting footnote, end note, use of comments, autotext
- Inserting date, time, special symbols, importing graphic images, drawing tools

e) Tables and Borders
- Creating a table, formatting cells, use of different border styles, shading in tables, merging of cells, partition of cells, inserting and deleting a row in a table
- Print preview, zoom, page set up, printing options
- Using find, replace options

f) Using Tools like
- Spell checker, help, use of macros, mail merge, thesaurus word content and statistics, printing envelops and lables
- Using shapes and drawing toolbar,
- Working with more than one window.

10. Spread Sheet Processing (MS Office/Open Office/Libre Office)

a) Starting excel, open worksheet, enter, edit, data, formulae to calculate values, format data, save worksheet, switching between different spread sheets

b) Menu commands:
Create, format charts, organise, manage data, solving problem by analyzing data. Programming with Excel Work Sheet, getting information while working

c) Work books:
Managing workbooks (create, open, close, save), working in work books, selecting the cells, choosing commands, data entry techniques, formula creation and links, controlling calculations

Editing a worksheet, copying, moving cells, pasting, inserting, deletion cells, rows, columns, find and replace text, numbers of cells, formatting worksheet, conditional formatting

d) Creating a chart:
Working with chart types, changing data in chart, formatting a chart, use chart to analyze data
Using a list to organize data, sorting and filtering data in list

e) Retrieve data with query:
Create a pivot table, customizing a pivot table. Statistical analysis of data

f) Exchange data with other application:
Embedding objects, linking to other applications, import, export document.

11. PowerPoint Presentation (MS Office/Open Office/Libre office)

a) Introduction to PowerPoint
- How to start PowerPoint
- Working environment: concept of toolbars, slide layout & templates.
- Opening a new/existing presentation
- Different views for viewing slides in a presentation: normal, slide sorter.

b) Addition, deletion and saving of slides

c) Insertion of multimedia elements
- Adding text boxes
- Adding/importing pictures
- Adding movies and sound
- Adding tables and charts etc.
- Adding organizational chart
- Editing objects
- Working with Clip Art

d) Formatting slides
- Using slide master
- Text formatting
- Changing slide layout
- Changing slide colour scheme
- Changing background
- Applying design template

12. Google Suits
Using Google drive, Google shut, Google docs, Google slides.

INSTRUCTIONAL STRATEGY

Since this subject is practice oriented, the teacher should demonstrate the capabilities of computers to students while doing practical exercises. The students should be made familiar

with computer parts, peripherals, connections and proficient in making use of MS Office/Open Office/Libre office/Google Suit in addition to working on internet. The student should be made capable of working on computers independently.

MEANS OF ASSESSMENT

- Class Tests/Quiz
- Software Installation and Use
- Viva-Voce
- Presentation

RECOMMENDED BOOKS

1. Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi
2. Information Technology for Management by Henery Lucas, Tata McGraw Hills, New Delhi
3. Computers Fundamentals Architecture and Organisation by B Ram, revised Edition, New Age International Publishers, New Delhi
4. Computers Today by SK Basandara, Galgotia publication Pvt Ltd. Daryaganj, New Delhi.
5. Internet for Every One by Alexis Leon and Mathews Leon; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
6. A First Course in Computer by Sanjay Saxena; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
7. Computer Fundamentals by PK Sinha; BPB Publication, New Delhi
8. Fundamentals of Information Technology by Leon and Leon; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
9. On Your Marks - Net…Set…Go… Surviving in an e-world by Anushka Wirasinha, Prentice Hall of India Pvt. Ltd., New Delhi
10. Fundamentals of Information Technology by Vipin Arora, Eagle Parkashan, Jalandhar

Reference websites

1. www. tutorialspoint..com
2. www.sf.net
3. Gsuite.google.com
4. Spoken-tutorial.org
5. Swayam.gov.in

2.1 BUILDING CONSTRUCTION & MATERIALS- I

L	T	P/D
5	-	4

RATIONALE

The subject deals with the properties and uses of different elementary building materials like brick, stone, timbers etc. and the construction principles of various components of buildings like foundation, masonry, lintels, etc. The knowledge of working materials is a must for a designer. The paper aims at fulfilling the need. The aim is to develop an understanding of the behavior and function of various components of buildings. For this it is essential that the students are taught the various components of building such as foundations, floors, super structure, joints, opening, roofs etc. The first-year timber construction and RCC will be dealt with.

Teachers must supplement their lectures with models, audio-visuals and on-site study of various building components.

For drawing work, stress must be laid on scale, dimensioning, lettering, and composition of the drawing.

At the end of the first year, the students should be able to draw a complete vertical section through a simple single storied flat roof building.

The subject teacher shall introduce the theory component of the topic to the students before drawing sheets are attempted by the students.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

- Classify rocks and identify particular type of stones
- Classify different types of bricks and BLOCKS
- Perform laboratory tests of cement to determine properties of cement
- Identify types of defects of timber
- Select paints/varnishes for various types of surfaces
- Identify and use different types of metals/alloys
- Select different materials used for wall paneling and false ceiling, such PVC, POP etc.
- Select other materials commonly used for contemporary buildings.

Note: The theoretical constructions should be imparted to the students along with building construction drawings

DETAILED CONTENTS

1. ELEMENTRY BUILDING MATERIALS:

   Brick, Stone, Lime, Cement and Concrete.

2. TIMBER:

   Defects and decay, seasoning preservation and different varieties of Timber.

3. CONSTRUCTION:

   Elements of Building:

   Terminology, Nomenclature of various parts of building from foundation of roof which support to making a complete wall section from foundation of parapet.

   General principles of construction in brick toothing, brick on edge and brick on end etc., Bats and closers, Bonds in Brick work, stretching bond, English bond, double and single Flemish Bonds etc in different types of mortars.

4. BRICK FOUNDATIONS & D.P.C.:

   Definition and purpose of foundations, Introduction to different types of foundations. Timbering to trenches for foundations. Study of simple strip foundations for load bearing walls and piers, method of laying D. P. C.

5. ARCHES & LINTELS:

   Definition & terms used in Arches, construction of Arches in brick and stone. Different types of lintels.

6. DOORS & WINDOWS:

   Introduction to joints in carpentry and various types of doors & window, construction of door / window frames.
   Introduction of Batten doors, Ledged and batten doors and Ledged, Braced and batten doors, Details of Paneled doors and Flush doors. Details of hardware related to these doors.

7. TYPES OF ROOF:

   Introduction to different types of roofs roof covering with their suitability to various functions e.g. flat, couple, close couple, Lean to and double lean-to roof. Roof coverings with thatch, slate and tile.

PRACTICAL EXERCISES

1. Identification of different types of building materials.
2. Different types of bonds in brick masonry.
3. To identify the stones used in building works by visual examination
4. To determine the water absorption of bricks and efflorescence of bricks
5. To identify various types of timbers such as: Teak, Sal, Chir, Shisham, Deodar, Kail & Hollock by visual examination only
6. The students should submit a report work on the construction materials, covering water proofing material, cements, steel, paints and timber products available in the local market. They will also show the competitive study based upon the cost, brand name, sizes available in the local market.

The studio and workshop periods are devoted to the solution of simple construction problems and details.

N o t e : T o t a l m i n i m u m o f 1 0 s h e e t s t o b e a s s i g n e d .

INSTRUCTIONAL STRATEGY

Teachers are expected to physically show various materials while imparting instructions. Field-visits should also be organized to show manufacturing processes and use of various materials in Civil engineering works. Students should be encouraged to collect sample of various building materials so as to create a museum of materials in the polytechnic. The emphasis should be one selection and application of materials as per the need of environment.

MEANS OF ASSESSMENT

- Assignments and quiz/class tests
- Mid and end-term written tests
- Model/prototype making.

R E C O M M E N D E D B O O K S

1. Building Construction (Vol I, II, III and IV) by WB Mckay; Longman Publication, Khanna Publisher, New Delhi

2. Building Construction by SP Bindra and SP Arora; publisher Dhanpat Rai & Co.

New Delhi

3. Building Construction by BC Punmia; Publisher Laxmi Publication, New Delhi

4. Building Construction by Sushil Kumar, Standard Publisher, New Delhi

5. Construction of Buildings (Vol I and II) by Barry

6. Building Construction by VB Sikka; Publisher Tata McGraw Hill Publisher,New Delhi

7. Building Construction by Rangwala; Publisher Charotar Publishing House Pvt. Ltd., New Delhi

8. A Course in Civil Engineering by V.B.Sikka, Published by Tata McGraw Hill Publisher,New Delhi

9. Sharma, SK; and Mathur, GC; "Engineering Materials;" Delhi-Jalandhar, S. Chand and Co.

10. Surendra Singh; "Engineering Materials;" New Delhi, Vikas Publishing House Pvt. Ltd.

11. Choudhary, N; "Engineering Materials;" Calcutta, Technical Publishers of India.

12. Gurcharan Singh; Engineering Materials, Standard Publishers Distributors, New Delhi

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	10	16
2	08	12
3	12	18
4	12	14
5	10	14
6	10	16
7	08	10
Total	**70+(56 for Drgs)**	**100**

2.2 INTERIOR DESIGN - I

L	T	P/D
4	-	14

RATIONALE:

Diploma holders in interior design and decoration have to assist designers and execute interior design projects. For performing this, knowledge of principles of design, elements of design, design methodology is required, hence Teachers while imparting instructions/ giving assignments to students are expected to teach various elements of design like form function, balance, light and shadow, shape, plane, volume, line, rhythm, proportions, textures and other such related elements. Teachers are also expected to show various types of designs of small building to develop and appreciation for this subject.
Teachers should also motivate students to maintain sketch book/ portfolio of all the assignments given to the students.

DETAILED CONTENTS

The subject includes the elements of Anthropometrics with respect to:

a) Human body
b) Various activities and human body
c) Furniture and fitting (standards)
d) Vehicles (all angles movement, parking, turning, sizes etc)
e) Street furniture

N O T E :

a) All dimensions in all segments to be related to human figures.
b) Dimensions should be resolved from actual measurements.
c) Minimum of 12 sheets should be made in the semester

1. DESIGN:

1. Definition, attributes, composition of design, factors influencing design. Functional and aesthetic components of design, Principles of spatial order in design of interior spaces.

2. Disposition of functions vis-a-vis available space circulation pattern and anthropometric study, space requirements for various activities. Drawing line plans,

elevations and section of interior spaces showing location and placement of various elements. The proportions of the different components of the human body; Examples from Le Corbusier Modular Man, Vitruvius Marco Pollione, Vastu Pursha Mandala

2. INTERIOR ELEMENTS:

   Role of walls, roofs, floors, staircase, doors and windows, light, colour and texture along with furniture in making interior schemes and spaces.

3. DESIGN STANDARDISATION:

   Standardisation of various interior elements i.e. windows and doors- sizes, standards and locations. Counters (kitchen, reception, banks etc.), lighting fixtures and air-conditioning gadgets, Toilet fixtures, office automation system. Furniture standards (sizes of domestic and public furniture); Toilet and Kitchen equipment - sizes and standards; Vehicles in motion: parking along with turning radii for two-wheelers and cars (various segments; as per their sizes)

4. INTERIOR SCHEMES:

   Requirement of space (2-D,3-D) for various human activities, preparing interior schemes for single room of generalized nature, Emphasis will be on lay out and circulation, Three dimensional views and rendering.

5. Prepare on scale, as-made measurement drawing of residence and it's all living spaces with furniture layout.

6. Designing of residential interiors i.e. (Drawing rooms, Bed room, Lobby, Living room, Kitchen, toilet) with specific application of various building materials and interior finishes.

7. Plans, elevations and sections, with presentation in ink, colour and other mediums. With Graphic Representation of plant material (ground cover, foliage, shrubs, trees) human figures and vehicles.

I N S T R U C T I O N A L S T R A T E G Y

While imparting instruction, special visits may be arranged to demonstrate and explain important Architectural and Interior features of different types of residential, commercial and public buildings. Practicing architects and Interior Designers may be

invited from time to time to present case studies and to deliver expert lectures on important elements like form, function, balance, light and shadow, shape, plane, volume, line, rhythm, proportions, textures and other such element appropriate to various designs. Teacher may present some of the already completed design works of practicing Designers to the students and explain the important features and elements. Audio-visual material available in this field may be procured and presented to the students from time to time. Students should be encouraged to visit relevant web-sites and teachers should develop the design problems/ assignments which can be taken up by the students using relevant and appropriate software. Students should be given group and independent design/ drawing assignments and they should also maintain sketch book/ portfolio of all the assignments given to them throughout the session. Teachers may conduct viva-voce on completion of each assignment. Students may present seminars towards the end of the session.

R E C O M M E N D E D B O O K S

1. Time Saver Standards for Building Types by Joseph De Chiara and John Callendera
2. Time Saver Standards for Interior Design and Space planning by Joseph De Chiara, J. Panero and M. Jelnik
3. Architects Data by Neufert
4. Space, Form and Order by DK Ching
5. Architectural Aesthetics by Sangeet Sharma, Abhishek Publication, Chandigarh

2.3 HISTORY OF INTERIOR AND FURNITURE

L	T	P
5	2	-

RATIONALE:

The past work is always the foundation for progress. The knowledge of past achievements in any field is helpful for improvement and renovation. So the course objective here is to give the students a sense of historical development in this field to appreciate the past skills, technology and materials used in the field of interior decoration.

L E A R N I N G O U T C O M E

- The course on History of Architecture develops appreciation regarding past and current trends in the field of architecture.
- The knowledge of this course will help the students to understand how political, physical, social, economic and technological change affect the architecture, materials and construction techniques. The course covers broad topics like: pre-historic architecture, (Indian, Egyptian, Greek and Roman), medieval architecture in Europe, and Buddhist architecture in India.

DETAILED CONTENTS

1. ARCHITECTURAL AND INTERIOR CHARACTERTICS IN INTERIORS:

   Concept and architectural characteristics of Egyptian, Greek and Roman interior with special emphasis on decoration, Ornamentation, Motifs and furniture.

2. ARCHITECTURAL AND INTERIOR CHARACTERISTICS OF BUDHIST, HINDU & MUSLIM PERIOD:

   Architectural characteristics of Buddhist, Hindu and Muslim with special emphasis on decoration, Ornamentations, Motifs and furniture.

3. CHINESE AND JAPANES:

   Chinese and Japanese interior and furniture.

4. ARCHITECTURAL ELEMENTS IN INDIA FROM MUGHAL PERIOD TO DATE:

Study of architectural elements in interiors in India from Mughal period onwards such as doors, windows, pillars, columns, staircases, fireplaces, paneling, dado, frieze, architectural decoration, study sketches and creative designs.

5. STUDY OF PERIOD OF FURNITURE AND ORNAMENTATION:

A. History of furniture - European (Starting from renaissance onwards)
B. Period style - Italian, British and French.
C. Renaissance and its influence on ornamentation and furniture.
D. Modern furniture and ornamentation Furniture Design by architect FLW, Li- Corbusier, Mies, Alver, Alto, Charl Eames, Marchel Breur.
E. Modern Furniture (1900 onwards), Modular, Steel & Glass

NOTE:

1. Emphasis should be given to interior aspects of buildings
2. For paper setter- Question must be framed on theory asking students to answer with sketches, in order to assess the artistic skill earned during studies by the students.

I N S T R U C T I O N A L S T R A T E G Y

While imparting instructions in this subject, the teachers should organize site visits to the old monuments and buildings with extra-ordinary Architectural and Interior features. Experts/Guides from state and national Archaeology departments may be invited to deliver lectures on the relevant themes in order to generate interest in the students. Audio-visual material available on the subject, in the country and abroad, may be procured and presented to the students from time to time to enrich the quality of classroom institutions. Special Interior and Architectural features of some old/ historical famous Indian and International buildings may be presented to the students as case studies. Students may be encouraged to prepare case studies of at least one famous old/historical building. Web sites, relevant to the history of architecture may be visited by the teachers and students.

R E C O M M E N D E D B O O K S

1. History of Architecture by Sir Banister Fletcher, Architectural Press, Oxford, UK
2. Indian Architecture (Hindu Period) by Percy Brown, Read Books Design, 2010
3. Indian Architecture (Hindu and Buddhist Period) by Satish Grover, Vikas Publishers, New Delhi

4. Encyclopaedia of Architecture, (ed) Dennis Sharp, Mc. Graw Hiss Publishers, New Delhi
5. History of Indian Art by Sandhya Ketkar and Anil Rao, Publishers; Jyotsana Prakashan
6. The Great Ages of world architecture by G.K.Hiraskar, Publishers; Dhanpat Rai Publishing Co Pvt. Ltd.

S U G G E S T E D D I S T R I B U T I O N O F M A R K S

Topic No.	Time Allotted	Marks Allotted (%)
1	16	22
2	24	26
3	12	14
4	18	18
5	28	20
Total	**98**	**100**

2.4 GENERAL WORKSHOP PRACTICE – I

(Common with Civil Engineering, Electrical Engineering and Chemical Engineering)

L	T	P
-	-	8

RATIONALE

In order to have a balanced overall development of diploma engineers, it is necessary to integrate theory with practice. General workshop practices are included in the curriculum in order to provide hands-on experience about use of different tools and basic manufacturing practices. This subject aims at developing general manual and machining skills in the students. In addition, the development of dignity of labour, safety at work place, team working and development of right attitude are the other objectives.

LEARNING OUTCOMES

After completing the course, the students will be able to:

- Identify tools and equipment used and their respective functions.
- Identify different types of materials and their basic properties.
- Use and take measurements with the help of basic measuring tools/equipment.
- Select proper tools for a particular operation.
- Select materials, tools, and sequence of operations to make a job as per given specification/drawing.
- Prepare simple jobs independently and inspect the same.
- Follow safety procedures and precautionary measures.
- Use safety equipment and Personal Protection Equipment.

DETAILED CONTENTS (PRACTICAL EXERCISES)

Note: The students are supposed to come in proper workshop dress prescribed by the institute. Wearing shoes in the workshop(s) is compulsory. Importance of safety and cleanliness, safety measures and upkeep of tools, equipment and environment in each of the following shops should be explained and practiced. The students should prepare sketches of various tools/jobs in their practical Notebook.

The following shops are included in the syllabus:

1. Carpentry Shop
2. Painting and Polishing Shop
3. Electrical Shop
4. Welding Shop
5. Plumbing Shop

1. CARPENTRY SHOP

1.1 General Shop Talk

1.1.1 Name and use of raw materials used in carpentry shop: wood & alternative materials

1.1.2 Names, uses, care and maintenance of hand tools such as different types of Saws, C-Clamp, Chisels, Mallets, Carpenter's vices, Marking gauges, Try-squares, Rulers and other commonly used tools and materials used in carpentry shop by segregating as cutting tools, supporting tools, holding tools, measuring tools etc.

1.1.3 Specification of tools used in carpentry shop.

1.1.4 Different types of Timbers, their properties, uses & defects.

1.1.5 Seasoning of wood.

1.2. Practice

1.2.1 Practices for Basic Carpentry Work

1.2.2 Sawing practice using different types of saws

1.2.3 Assembling jack plane — Planning practice including sharpening of jack plane cutter

1.2.4 Chiseling practice using different types of chisels including sharpening of chisel

1.2.5 Making of different types of wooden pin and fixing methods. Marking measuring and inspection of jobs.

1.3 Job Practice

Job 1	Marking, sawing, planning and chiseling and their practice
Job II	Half Lap Joint (cross, L or T – any one)
Job III	Mortise and Tenon joint (T-Joint)
Job IV	Dove tail Joint (Lap or Bridle Joint)

1.4. Demonstration of job showing use of Rip Saw, Bow saw and Tenon saw, method of sharpening various saws.

2. PAINTING AND POLISHING SHOP

2.1. Introduction of paints, varnishes, Reason for surface preparation, Advantages of Painting, other method of surface coating ie. Electroplating etc.

2.2. Job Practice

Job 1: To prepare a wooden surface for painting apply primer on one side and to paint the same side. To prepare french polish for wooden surface and polish the other side.

Job II: To prepare metal surface for painting, apply primer and paint the same.

Job III: To prepare a metal surface for spray painting, first spray primer and paint the same by spray painting gun and compressor system.

The sequence of polishing will be as follows:

i) Abrasive cutting by leather wheel

ii) Polishing with hard cotton wheel and with polishing material

iii) Buffing with cotton wheel or buff wheel.

3. ELECTRICAL SHOP

3.1 Study, demonstration and identification of common electrical materials with standard ratings and specifications such as wires, cables, switches, fuses, cleats, clamps and allied items, tools and accessories.

3.2 Study of electrical safety measures and protective devices.

Job I Identification of phase, Neutral and Earth wires for connection to domestic electrical appliances and their connections to three pin plugs.

Job II Carrying out house wiring circuits using fuse, switches, sockets, ceiling rose etc. in batten or P.V.C. casing-caping.

3.3 Study of common electrical appliances such as auto electric iron, electric kettle, ceiling/table fan, desert cooler etc.

3.4 Introduction to the construction of lead acid battery and its working.

Job III Installation of battery and connecting two or three batteries in series and parallel.

3.5 Introduction to battery charger and its functioning.

Job IV Charging a battery and testing with hydrometer and cell tester

4. WELDING SHOP

4.1 Introduction and importance of welding as compared to other material joining processes. Specifications and type of welding machines, classification and coding of electrodes, welding parameters, welding joints and welding positions. Materials to be welded, safety precautions.

4.2 Job Practice

Job I	Practice of striking arc (Minimum 4 beads on 100 mm long M.S. flat).
Job II	Practice of depositing beads on plate at different current levels. (Minimum 4 beads on M.S. plate at four setting of current level).
Job III	Preparation of lap joint using arc welding process.
Job IV	Preparation of T-joint using gas welding or arc welding on 100 mm x 6 mm MS Flat

5. PLUMBING SHOP

5.1. Use of personal protective equipments, safety precautions while working and cleaning of shop.

5.2. Introduction and demonstration of tools, equipment and machines used in plumbing shop.

5.3. Introduction of various pipes and pipe fittings of elbow, nipple, socket, union etc.

5.4. Job Practice

Job 1 : Preparation of job using elbow, bend and nipple

Job II: Preparation of job using Union, Tap, Plug and Socket.

Job III: Threading practice on pipe with die

MEANS OF ASSESSMENT

- Workshop jobs
- Report writing, presentation and viva voce

RECOMMENDED BOOKS

1. Workshop Technology I,II,III, by SK Hajra, Choudhary and AK Choudhary; Media Promoters and Publishers Pvt. Ltd. Mumbai.
2. Workshop Technology Vol. I, II, III by Manchanda; India Publishing House, Jalandhar.
3. Workshop Training Manual Vol. I, II by S.S. Ubhi; Katson Publishers, Ludhiana.
4. Manual on Workshop Practice by K Venkata Reddy; MacMillan India Ltd., New Delhi
5. Basic Workshop Practice Manual by T Jeyapoovan; Vikas Publishing House (P) Ltd., New Delhi
6. Workshop Technology by B.S. Raghuwanshi; Dhanpat Rai and Co., New Delhi
7. Workshop Technology by HS Bawa; Tata McGraw Hill Publishers, New Delhi.

2.5 UNIVERSAL HUMAN VALUES

L-T-P
2-0-1

Course Objectives

This introductory course input is intended

1. To help the students appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity, which are the core aspirations of all human beings
2. To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of Existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way
3. To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behavior and mutually enriching interaction with Nature

Thus, this course is intended to provide a much needed orientational input in value education to the young enquiring minds.

Course Methodology

1. The methodology of this course is explorational and thus universally adaptable. It involves a systematic and rational study of the human being vis-à-vis the rest of existence.
2. It is free from any dogma or value prescriptions.
3. It is a process of self-investigation and self-exploration, and not of giving sermons. Whatever is found as truth or reality is stated as a proposal and the students are facilitated to verify it in their own right, based on their Natural Acceptance and subsequent Experiential Validation.
4. This process of self-exploration takes the form of a dialogue between the teacher and the students to begin with, and then to continue within the student leading to continuous self-evolution.
5. This self-exploration also enables them to critically evaluate their pre-conditionings and present beliefs.

The syllabus for the lectures is given below:

- After every two lectures of one hour each, there is one-hour practice session.
- The assessment for this subject is as follows:
- Sessions Marks (Internal): 20
- Practical Marks (External): 30
- Total Marks: 50

UNIT 1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education

1. Understanding the need, basic guidelines, content and process for Value Education
2. Self-Exploration–what is it? - its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self-exploration
3. Continuous Happiness and Prosperity- A look at basic Human Aspirations
4. Right understanding, Relationship and Physical Facilities- the basic requirements for fulfilment of aspirations of every human being with their correct priority
5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario
6. Method to fulfil the above human aspirations: understanding and living in harmony at various levels

UNIT 2: Understanding Harmony in the Human Being - Harmony in Myself!

1. Understanding human being as a co-existence of the sentient 'I' and the material the Body'
2. Understanding the needs of Self ('I') and 'Body' - *Sukh* and *Suvidha*
3. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer)
4. Understanding the characteristics and activities of 'I' and harmony in 'I'
5. Understanding the harmony of I with the Body: *Sanyam* and *Swasthya*; correct appraisal of Physical needs, meaning of Prosperity in detail
6. Programs to ensure *Sanyam* and *Swasthya*

-Practice Exercises and Case Studies will be taken up in Practice Sessions.

UNIT 3: Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship

1. *Understanding Harmony in the family – the basic unit of human interaction*
2. Understanding values in human-human relationship; meaning of *Nyaya* and program for its fulfillment to ensure *Ubhay-tripti*;
    a. Trust (*Vishwas)* and Respect (*Samman)* as the foundational values of relationship
3. Understanding the meaning of *Vishwas*; Difference between intention and competence
4. Understanding the meaning of *Samman*, Difference between respect and differentiation; the other salient values in relationship
5. Understanding the harmony in the society (society being an extension of family): *Samadhan, Samridhi, Abhay, Sah-astitva* as comprehensive Human Goals
6. Visualizing a universal harmonious order in society- Undivided Society (*AkhandSamaj),* Universal Order (*Sarvabhaum Vyawastha)*- from family to world family!

-Practice Exercises and Case Studies will be taken up in Practice Sessions.

UNIT 4: Understanding Harmony in the Nature and Existence - Whole existence as Co-existence

1. Understanding the harmony in the Nature
2. Interconnectedness and mutual fulfillment among the four orders of nature-recyclability and self-regulation in nature
3. Understanding Existence as Co-existence (*Sah-astitva*) of mutually interacting units in all-pervasive space
4. Holistic perception of harmony at all levels of existence

-Practice Exercises and Case Studies will be taken up in Practice Sessions.

UNIT 5: Implications of the above Holistic Understanding of Harmony on Professional Ethics

1. Natural acceptance of human values
2. Definitiveness of Ethical Human Conduct
3. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order
4. Competence in professional ethics:
   a) Ability to utilize the professional competence for augmenting universal human order
   b) Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems,
   c) Ability to identify and develop appropriate technologies and management patterns for above production systems.
5. Case studies of typical holistic technologies, management models and production systems
6. Strategy for transition from the present state to Universal Human Order:
   a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers
   b) At the level of society: as mutually enriching institutions and organizations
7. To inculcate Human Values among Students:The Role of self ,Parents and Teachers

-Practice Exercises and Case Studies will be taken up in Practice Sessions.

<u>Practical Session also Includes Different Yogic Exercises and Meditation Session</u>

INSTRUCTONAL STRATEGY

The content of this course is to be taught on conceptual basis with plenty of real world examples.

MEANS OF ASSESSMENT

- Assignments and quiz/class tests,
- Mid-term and end-term written tests
- Practical assessment

Reference Material

The primary resource material for teaching this course consists of

a. The text book (Latest Edition)

R.R Gaur, R Asthana, G P Bagaria, A foundation course in Human Values and professional Ethics, Excel books, New Delhi.

b. The teacher's manual (Latest Edition)

R.R Gaur, R Asthana, G P Bagaria, A foundation course in Human Values and professional Ethics – Teachers Manual, Excel books, New Delhi.

In addition, the following reference books may be found useful for supplementary reading in connection with different parts of the course:

1. B L Bajpai, 2004, *Indian Ethos and Modern Management*, New Royal Book Co., Lucknow. Reprinted 2008.
2. PL Dhar, RR Gaur, 1990, *Science and Humanism*, Commonwealth Purblishers.
3. Sussan George, 1976, *How the Other Half Dies*, Penguin Press. Reprinted 1986, 1991
4. Ivan Illich, 1974, *Energy & Equity*, The Trinity Press, Worcester, and HarperCollins, USA
5. Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, limits to Growth, Club of Rome's Report, Universe Books.
6. Subhas Palekar, 2000, *How to practice Natural Farming*, Pracheen(Vaidik) Krishi Tantra Shodh, Amravati.
7. A Nagraj, 1998, *Jeevan Vidya ek Parichay*, Divya Path Sansthan, Amarkantak.
8. E.F. Schumacher, 1973, *Small is Beautiful: a study of economics as if peoplemattered*, Blond & Briggs, Britain.
9. A.N. Tripathy, 2003, *Human Values*, New Age International Publishers.

Relevant websites, movies and documentaries

1. Value Education websites, http://uhv.ac.in, http://www.aktu.ac.in
2. Story of Stuff, *http://www.storyofstuff.com*
3. Al Gore, *An Inconvenient Truth*, Paramount Classics, USA
4. Charlie Chaplin, *Modern Times*, United Artists, USA
5. IIT Delhi, *Modern Technology–the Untold Story*
6. Case study Hevade Bazar Movie
7. RC Shekhar , Ethical Contradiction ,Trident New Delhi
8. *Gandhi A., Right Here Right Now, Cyclewala Production*

SUGGESTED DISTRIBUTION OF MARKS

Unit	Time Allotted (Periods)	Marks Allotted (%)
1	08	20
2	08	20
3	08	20
4	08	20
5	10	20
Total	**42**	**100**