Curriculum for

Diploma Programme in

INTERIOR DESIGN AND DECORATION

For the State of Uttar Pradesh

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APPROVED IN CDC COMMITTEE MEETING OF BTE,UP,LKO DATED:26-09-2021

CONTENTS

Sr. No	Particulars	Page No.
1	Salient Features of the Diploma Programme	1
2	Employment Opportunities	3
3	Learning Outcomes of the Programme	5
4	Deriving Curriculum Areas from Learning Outcomes of the Programme	7
5	Abstract of Curriculum Areas	9
6	Horizontal and Vertical Organization of the Subjects	10
7	Study and Evaluation Scheme	11
8	Guidelines (for Assessment of Student Centered Activities and Internal Assessment)	17
9	Detailed Contents of various Subjects	18

FIRST SEMESTER

1.1	Communication Skills-I	19
1.2	Basic Design and Sketching	22
1.3	Graphic Presentation and Art	26
1.4	Basics of Information Technology	30

SECOND SEMESTER

2.1	Building Construction and Material - I	37

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2.2	Interior Design - I	41
2.3	History of Interior and Furniture	44
2.4	General Workshop Practice -I	47
2.5	Universal Human Values	52

THIRD SEMESTER

3.1	Appreciation of Decorative Design	58
3.2	Interior Services	61
3.3	Furniture Design	64
3.4	Computer Aided Design - I	67
3.5	Environmental Studies	71

FOURTH SEMESTER

4.1	Communication Skill-II	76
4.2	Interior Design - II	79
4.3	Building Construction and Material - II	81
4.4	Product Design	87
4.5	General Workshop Practice -II	89
	Field Exposure (Industrial Training)	93

FIFTH SEMESTER

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5.1	Energy Conservation	95
5.2	Display	100
5.3	Estimating, Costing & Specifications	103
5.4	Building Construction & Material -III	106
5.5	Computer Aided Design - II	109

SIXTH SEMESTER

	Field Exposure (Industrial Training)	
6.1	Construction Management, Accounts and Professional Practice	112
6.2	Interior Design - III	114
6.3	Portfolio (Project Work)	116

10.	Resource Requirement	117
11.	Evaluation Strategy	124
12.	Recommendations for Effective Implementation of Curriculum	127
13.	List of Participants (Experts)	130

1. SALIENT FEATURES OF DIPLOMA PROGRAMME IN INTERIOR DESIGN AND DECORATION

1)	Name of the Programme	:	Diploma in Interior Design and Decoration
2)	Duration of the Programme	:	Three years (Six Semesters)
3)	Entry Qualification	:	Matriculation or equivalent NSQF Level as Prescribed by State Board of Technical Education, UP
4)	Intake	:	60 (or as prescribed by the Board)
5)	Pattern of the Programme	:	Semester Pattern
6)	NSQF Level	:	Level - 5
7)	Ratio between theory and Practice	:	45 : 55 (Approx.)

8) Industrial Training:

Four weeks of Field Exposure(Industrial training) is included after IV semester during summer vacation. Total marks allotted to industrial training will be 50.

9) Ecology and Environment :

As per Govt. of India directives, a subject on Environmental Studies has been incorporated in the curriculum.

10) Energy Conservation:

A subject on Energy Conservation has been incorporated in the curriculum.

11) Entrepreneurship Development:

A full subject on Construction Management, Accounts and Professional Practice has been incorporated in the curriculum.

12) Student Centered Activities:

A provision of 2-5 hrs per week has been made for organizing Student Centered Activities for overall personality development of students. Such activities will comprise of co–curricular activities such as expert lectures, self study, games, hobby classes like photography, painting, singing etc. seminars, declamation contests, educational field visits, NCC, NSS and other cultural activities, disaster management and safety etc.

13) Project work

A project work has been included in the curriculum to enable the student get familiarize with the practices and procedures being followed in the field of Interior Design and up to some extent in the field of Architecture also and provide an opportunity to work on some live projects (as well as Case studies) in the working world of Interior Design and Decoration .

The project work provides an opportunity and encourages students to feel and gain confidence to act like an Interior Designer and to work out every minute details to be implemented and executed on an Interior site/ project.

2. EMPLOYMENT OPPORTUNITIES FOR DIPLOMA HOLDERS IN INTERIOR DESIGN AND DECORATION

Keeping in view, the present scenario of activities in the field of Interior Design, following employment opportunities are visualized for diploma holders in Interior Design and Decoration. It is definitely a good career option for those who are good at creativity and ideas. It has good scope and opportunities.

a) Wage Employment in:

i) Central Public Works Department
ii) State Housing Boards and Corporations
iii) Railways
iv) Local Development Authorities
v) Survey of India
vi) Telecommunication Department
vii) Teaching profession
viii) Financial Institutions i.e. RBI, Nationalised Banks or Private Banks
ix) Public sector / private construction companies/ Interior design firms/ Architectural firms or Offices.
x) Service sector i.e. Estate Offices of Business organizations/ Universities/Colleges, Hotels , Hospitals etc. specially for repair and maintenance of buildings and their upkeep.
xi) Supervision work for various Interior/ construction sites.
xii) Drafting on AutoCAD / Revit for Outsourcing companies
xiii) Technical institutions.

b) Self employment opportunities:

i) Free Lance Consultancy work as
- An Interior Designer
- Product Designer
- Furniture Designer

ii) Execution and supervision of Interior Renovation projects
iii) Preparation of 3-D Perspective views of Interior Spaces and buildings for Interior Designers, Architects and consultants
iv) Own unit / enterprise for
a) Model Making
b) Landscaping, Terrace Gardening, Vertical Gardens, Interior Plantation
c) Drawings on CAD/ REVIT

v) Interior design related works like: White washing, distempering, repair and maintenance of buildings, POP work, Texture work, False ceiling, specialized flooring , Wood working and Furniture Manufacturing, Fabrication in Steel , M.S., Brass and Copper metals, Plumbing Services and its components, Electrical Services and its components etc.

vi) Establishing an Outsourcing company of Computerized Drafting

vii) Construction and Interior material suppliers/ marketing

viii) Estimating and costing jobs/ bill of Quantities

ix) Water proofing of existing and new building

x) Services to architectural and Interior design firms:

-Site Supervision
-Site Surveying and layout
-Estimation and Billing
-Site/ marketing of building components
-Liaison work

3. LEARNIG OUTCOME OR COMPETENCY PROFILE OF DIPLOMA HOLDERS IN INTERIOR DESIGN AND DECORATION

Keeping in view the employment opportunities given above, following are the important activities (priority-wise) of diploma holders in Interior Design and Decoration:

i) Preparation and Interpretation of drawings:
- Preliminary drawings (Line plans, sketching, tracing)
- Presentation drawings (Rendering in black and white, colour, perspective drawings)
- Submission drawings
- Working drawings and detailing
- Preparation of prints and plots and their upkeep
- Maintenance of drawing records and files
- Services drawings

ii) Preparation of small building designs, Interior Furniture layouts and Circulations

iii) Site supervision/ management i.e. measuring, surveying and inspection

iv) Preparation of models:
- Study models
- Block models
- Detailed Model

v) Assistance in preparation of tender documents and cost estimates, including valuation

vi) Preparation of submission documents for approval from Authorities (Corporations, Banks, Institutions)

vii) Interior designing, execution and layout

viii) Management of Interior Designer's/ Architect's office

ix) Market survey of construction and Interior materials

Keeping in view the employment opportunities and job profile of diploma holders of Interior Design and Decoration, following LEARNING OUTCOME or competencies are required to be developed in the students:

i) Development of skills in free-hand sketching, lettering and preparation of presentation, submission, structural and working drawings and detailed thereof

ii) Development of basic knowledge and skills for preparing small building designs and Interior layouts

iii) Development of skills in model making using different materials

iv) Development of skills in preparation of submission drawings, corporation drawings and related documents

v) Development of knowledge and skills in site management comprising of measurement, surveying and inspection

vi) Development of basic knowledge and skills in preparing rough estimates, preparation of detailed estimates and tender documents for Interior of small buildings

vii) Development of skills in taking out prints/ plots, cloth mounting, colouring and folding of prints and their up keep

viii) Appreciation of basic knowledge regarding various building and Interior materials with their application techniques and details

ix) Development of basic knowledge about elements & principles of theory of design

x) Development of basic knowledge of history of Interior and Furniture Design, with emphasis on construction and application techniques

xi) Development of knowledge and skills in applications of computers in Interior design and Architecture

xii) Development of basic understanding of resource systems helping in the financing of small enterprises

xiii) Development of basic knowledge of climatology, environment and ecology

xiv) Development of basic knowledge about product designing and Display methods and their details for execution of design

xv) Development of understanding of detailed building and interior services

xvi) Development of communication and managerial skills

xvii) Development of basic hand-on practice skills

xviii) Demonstrate appropriate values and attitude.

4. DERIVING CURRICULUM AREAS FROM LEARNING OUTCOME / COMPETENCY PROFILE

Sr.	Competency Profile	Curriculum Areas
1.	Development of skills in free-hand sketching, lettering and preparation of presentation, submission and working drawings and detailed thereof	• Basic Design and Sketching • Graphic Presentation and Art • Interior Design • Building Construction and Material • Interior Services (Plumbing, Electrical & AHU services)
2.	Development of basic knowledge and skills for preparing small building designs and layouts	• Interior Design • Interior Services (Plumbing, Electrical & AHU services) • Building and Material • Landscape Design
3.	Development of skills in model making using different materials	• Interior Design
4.	Development of knowledge and skills in designing and detailing of various furniture and the application with knowledge of Anthropometrics	• History of Interior and furniture • Furniture Design • Interior Design
5.	Development of knowledge and skills in site management comprising of measurement, surveying and inspection	• Construction and Material • Construction Management, Accounts and Professional Practice
6.	Development of basic knowledge and skills in preparing tender documents, rough estimates and also preparation of detailed estimates for small building Interiors	• Surveying • Estimating, Costing and Specifications
7.	Development of skills in taking out prints, cloth mounting, colouring and folding of prints/ plots and their up keep	• Interior Design • Basics of Information Technology
8.	Appreciation of basic knowledge about elements and principles of theory of design, knowledge of trends n styles, fabrics, traditional and modern art styles, folk art, handicrafts	• Graphic Presentation and Art • Interior Design • Appreciation of Decorative Design
9.	Appreciation of basic knowledge about designing of utilities and various products to make users life simple and convenient	• Graphic Presentation and Art • Product Design • Appreciation of Decorative Design

10.	Development of basic knowledge regarding various building materials and construction techniques	• Building Construction and Material • Project and Professional Training
11.	Development of basic knowledge regarding various display options and techniques, knowledge of signage and to understand the importance of commercial display of products, Exhibitions, pavilion design	• Graphic Presentation and Art • Interior Design • Display • Product Design
12.	Development of basic knowledge of history of Interior and Furniture, Architectural features, planning and Interior drawings with emphasis on computer techniques	• Computer Aided Design • History of Interior and furniture
13.	Development of basic knowledge and skills in applications of computers in architecture	• Basics of Information Technology • Computer Aided Design
14.	Development of basic understanding of resource systems helping in the financing of small enterprises	• Construction Management, Accounts and Professional Practice
15.	Development of basic knowledge of climatology, environment, Energy conservation and ecology	• Interior Services (Plumbing, Electrical & AHU services) • Environmental Studies • Energy conservation
16.	Understanding the behaviour of structural elements of building and to be aware about the renovation techniques of buildings	• Building Construction and Material • Interior Design
17.	Development of basic understanding of building services	• Interior Services (Plumbing, Electrical & AHU services) • Interior Design
18.	Development of communication and Soft skills	• Communication Skills • Student Centred Activities
19.	Development of basic hand-on practice skills	• Workshop Practice
20.	Demonstrate appropriate values and attitude.	• Student Centred Activities • Universal Human Values

5. ABSTRACT OF THE CURRICULUM AREAS

a) General Studies

1. Communication Skills-I and II
2. Basics of Information Technology
3. Energy Conservation
4. Environmental Studies
5. Universal Human Values

b) Basic Courses in Interior / Technology

6. Basic Design and Sketching
7. Appreciation of Decorative Design
8. History of Interior and Furniture
9. Graphic Presentation and Art

c) Applied Courses in Interior / Technology

10. General Workshop Practice- I and II
11. Building Construction and Material-I, II and III
12. Interior Design-I , II and III
13. Interior Services (Climatology, Air-conditioning, Plumbing and Electrical services)
14. Furniture Design
15. Product Design
16. Display
17. Computer Aided Design-I and II (Software Applications in Interior Design)
18. Estimating, Costing and Specifications
19. Field Exposure (Industrial Training)
20. Construction Management, Accounts and Professional Practice
21. Portfolio (Major Project)

6. HORIZONTAL AND VERTICAL ORGANISATION OF THE SUBJECTS

Sr. No.	Subject	Distribution of Periods / week in various semesters					
		I	II	III	IV	V	VI
1.	Communication Skills	6	-	-	6	-	-
2.	Graphic Presentation and Art	16	-	-	-	-	-
3.	Basic Design and Sketching	16					
4.	Basics of Information Technology	6	-	-	-	-	-
5.	Building Construction and Material	-	9	-	8	16	-
6.	Interior Design	-	18	-	16	-	20
7.	History of Interior and Furniture	-	7	-	-	-	-
8.	General Workshop Practice	-	8	-	8	-	-
9.	Universal Human Values	-	3	-	-	-	-
10.	Appreciation of Decorative Design	-	-	8	-	-	-
11.	Interior Services	-	-	8	-	-	-
12.	Furniture Design	-	-	17	-	-	-
13.	Computer Aided Design	-	-	6	-	6	-
14.	Environmental Studies	-	-	5	-	-	-
15.	Product Design	-	-	-	8	-	-
16.	Energy Conservation	-	-	-	-	5	-
17.	Display	-	-	-	-	10	-
18.	Estimating, Costing and Specifications	-	-	-	-	7	-
19.	Field Exposure (Industrial Training)	-	-	-	-	-	-
20.	Construction Management , Accounts &Professional Practice	-	-	-	-	-	8
21.	Portfolio (Major Project)	-	-	-	-	-	16
22.	Student Centered Activities	4	3	4	2	4	4
	TOTAL	48	48	48	48	48	48

7. 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	4	20	10	30	50	2 ½	20	3	70	100
1.2	Basic Design and Sketching	6	-	10	6	60	-	60	100	6	-	-	100	160
1.3	Graphic Presentation and Art	6	-	10	6	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	1	-	30	30	-	-	-	-	-	30
Total		**16**	**-**	**32**	**19**	**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	5	50	-	50	100	4	-	-	100	150
2.2	Interior Design - I	4	-	14	8	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	1	-	20	20	-	-	30	3	30	50
#Student Centered Activities (SCA)		-	-	3	1	-	30	30	-	-	-	-	-	30
Total		**16**	**2**	**30**	**22**	**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.

THIRD 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	
3.1	Appreciation of Decorative Design	6	2	-	5	30	-	30	70	2 ½	-	-	70	100
3.2	Interior Services	6	2	-	5	30	-	30	70	2 ½	-	-	70	100
3.3	Furniture Design	5	-	12	6	50	-	50	100	6	-	-	100	150
3.4	Computer Aided Design-I	-	-	6	3	-	40	40	-	-	60	3	60	100
3.5	*Environmental Studies	3	-	2	3	20	10	30	50	2 ½	20	3	70	100
#Student Centered Activities (SCA)		-	-	4	1	-	30	30	-	-	-	-	-	30
Total		**20**	**4**	**24**	**23**	**130**	**80**	**210**	**290**	**-**	**80**	**-**	**370**	**580**

* Common with other diploma programmes

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

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FOURTH 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	
4.1	*Communication Skill-II	4	-	2	4	20	10	30	50	2 ½	20	3	70	100
4.2	Interior Design - II	4	-	12	8	75	-	75	125	12	-	-	125	200
4.3	Building Construction & Material -II	4	-	4	5	50	-	50	100	4	-	-	100	150
4.4	Product Design	4	-	4	5	40	-	40	100	6	-	-	100	140
4.5	*General Workshop Practice -II	-	-	8	2	-	40	40	-	-	60	4	60	100
#Student Centered Activities (SCA)		-	-	2	1	-	30	30	-	-	-	-	-	30
Total		**16**	**-**	**32**	**25**	**185**	**80**	**265**	**375**	**-**	**80**	**-**	**455**	**720**

* Common with other diploma programmes

- 4 weeks Field Exposure (Professional Training) will be organised after 4th Semester exam. The evaluation of Field Exposure (Professional Training) will be done in 6th semester.

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

FIFTH 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	
5.1	*Energy Conservation	3	-	2	3	20	10	30	50	2 ½	20	3	70	100
5.2	Display	4	-	6	4	20	-	20	50	2 ½	-	-	50	70
5.3	Estimating, Costing & Specifications	5	2	-	4	20	-	20	50	2 ½	-	-	50	70
5.4	Building Construction & Material -III	4	-	12	6	50	-	50	100	4	-	-	100	150
5.5	Computer Aided Design - II	-	-	6	3	-	40	40	-	-	60	3	60	100
#Student Centered Activities (SCA)		-	-	4	1	-	30	30	-	-	-	-	-	30
Total		**16**	**2**	**30**	**21**	**110**	**80**	**190**	**250**	**-**	**80**	**-**	**330**	**520**

* Common with other diploma programmes

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

Survey Camp of 2 weeks duration to be organized after 5th semester exam.

SIXTH 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	
-	Field Exposure (Professional Training)	-	-	-	2	-	-	-	-	-	50	3	50	50
6.1	Construction Management, Accounts and Professional Practice	6	2	-	4	20	-	20	50	2 ½	-	-	50	70
6.2	Interior Design - III	4	-	16	8	75	-	75	125	18	-	-	125	200
6.3	Portfolio (Project Work)	4	-	12	8	-	50	50	-	-	125	-	125	175
#Student Centered Activities (SCA)		-	-	4	1	-	30	30	-	-	-	-	-	30
Total		**14**	**2**	**32**	**23**	**95**	**80**	**175**	**175**	**-**	**175**	**-**	**350**	**525**

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

8. GUIDELINES FOR ASSESSMENT OF STUDENT CENTRED ACTIVITIES (SCA)

It was discussed and decided that the maximum marks for SCA should be 30 as it involves a lot of subjectivity in the evaluation. The marks may be distributed as follows:

i. 10 Marks for general behavior and discipline

(by HODs in consultation with all the teachers of the department)

ii. 5 Marks for attendance as per following:

(by HODs in consultation with all the teachers of the department)

a) 75 - 80% 2 Marks

b) 80 - 85% 4 Marks

c) Above 85% 5 Marks

iii. 15 Marks maximum for Sports/NCC/Cultural/Co-curricular/ NSS activities as per following:

(by In-charge Sports/NCC/Cultural/Co-curricular/NSS)

a) 15 - State/National Level participation

b) 10 - Participation in two of above activities

c) 5 - Inter-Polytechnic level participation

Note: There should be no marks for attendance in the internal sessional of different subjects.

FIRST SEMESTER

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.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time L	T	P/D
1.	Introduction	8	-	-
2.	Design	8	-	-
3.	Elements of Design	12	-	-
4.	Principles of Design	24	-	-
5.	Three Dimensional Design	16	-	-
6.	Sketching	16	-	-
	Total	**84**	**-**	**140**

DETAILED CONTENTS

1. INTRODUCTION :

   A. Medium of expression : Pencil, Ink, Crayons, Types of colours.
   B. Tools and materials : T-squre, Set-squre, Parallel Bar, Drawing board, Compass, Liner equipments 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 harmoney, 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 centered 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 is 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.

TOPIC WISE DISTRIBUTION OF PERIODS

SL. No.	Topic	L	T	P
1.	Lettering & Scales	8	-	16
2.	Graphic Presentation	14	-	20
3.	Development of Surfaces	8	-	12
4.	Isometric Projections	10	-	18
5.	Perspective	14	-	18
6.	Sciography	6	-	10
7.	Interior Drawing	10	-	16
8.	Rendering	6	-	14
9.	Art	8	-	16
		84	-	140

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 out door 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)

.

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, auto- text
- 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

SECOND SEMESTER

2.1 BUILDING CONSTRUCTION & MATERIALS - I

(The Study of Constituents, Properties, Uses & Application)

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 behaviour 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.

TOPIC WISE DISTRIBUTION OF PERIODS

SL.No.	Topic	L	T	P/D
1.	Elementary Building Materials	10	-	-
2.	Timber	8	-	-
3.	Construction	12	-	-
4.	Brick Foundation and D.P.C.	12	-	-
5.	Arches & Lintels	10	-	-
6.	Doors & Windows	10	-	-
7.	Types of Roof	08	-	-
		70		56

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.
Note: Total minimum of 10 sheets to be assigned.

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.

RECOMMENDED BOOKS

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.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time	L	T	P/D
1.	Design		--	-	-
2.	Role of Various Interior Elements		--	-	-
3.	Design Standardisation		--	-	-
4.	Interior schemes		--	-	-
5.	Preparation		--	-	-
6.	Practice I		--	-	-
7.	Practice II		--	-	-
	Total		56		196

DETAILED CONTENTS

The subject includes the elements of Anthropometrics with respect to:

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

NOTE:

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's Modular Man, Marcus Vitruvius Pollio, 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 generalised 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 its 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.

INSTRUCTIONAL STRATEGY

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.

RECOMMENDED BOOKS

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.

LEARNING OUTCOME

- 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, economical 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.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time	L	T	P
1.	Architectural & Interior Characteristics of Egyptian, Greek & Roman Interiors		16	-	-
2.	Buddhist, Muslim & Hindu Period		24	-	-
3.	Chinese & Japanese		12	-	-
4.	Architectural Elements in Interior in India From Mughal Period to date		18	-	-
5.	Study of period of furniture and ornamentation		28	-	-
		Total	**98**	**-**	**-**

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 JAPANESE :

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.

INSTRUCTIONAL STRATEGY

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.

RECOMMENDED BOOKS

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. Encyclopedia 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.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	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 fulfillment 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 fulfill 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**

THIRD SEMESTER

3.1 APPRECIATION OF DECORATIVE DESIGN

L	T	P
6	2	-

RATIONALE :

A true designer must be able to understand and appreciate the works of their earlier designers and contemporary ones. It adds value and quality to their perceptions and enriches them with the new thoughts to create or innovate. The subject aims to inculcate this ability in the designers.

LEARNING OUTCOMES

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

- Understand the importance of design in various other fields too .
- Identify the features of a well balanced design .
- Study and appreciate about the work of well known designers from India and worldwide.
- Study and learning of contemporary Indian art, architecture and traditional folk designs.
- Draw and appreciate the various decorative designs and their features in detail.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time	L	T	P/D
1.	Introduction to style and fashion		14	4	-
2.	Traditional Indian Designs		14	6	-
3.	Contemporary Indian Designs & Motives		20	6	-
4.	Indian Folk Designs		20	6	-
5.	Decorative Design		16	6	-
	Total		84	28	-

DETAILED CONTENTS

1. INTRODUCTION:

Study of symbolic figures forms and motives of different schools and periods from Renassiance onward Itly, France and England.

2. TRADITIONAL INDIAN DESIGNS :

Designs and motifs used on surfaces and objectives including pottery, stone and metal ware, wood crafts, carpets, textiles, lamps and other handicrafts.
Study sketch from meseums and other sources and development
of creative designs and based on study and research.

3. CONTEMPORARY INDIAN DESIGNS AND MOTIVES :

Designs and motifs used in carpets, textiles, lamps, vases, handicrafts, wood, stone and metalware, visits to sources - emporia specialised stores, etc.

4. INDIAN FOLK DESIGNS :

Folk designs and motifs used on walls, floors and utility objects, such as Madhubani, warli, rangoli, Sankhera, etc.

5. DECORATIVE DESIGN :

On the basis of composition, colour, pattern and texture, exercises should be given in making decorative designs of murals, wall paper, posters, textiles, carpets wall hanging, etc. Historic, National, Regional, Seasonal, Festivals, motifs and patterns to be considered.

VISITS : To sources, museums, art galleries and constructional sites, etc.

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. Teacher may procure me models of some residential, group housing, commercial and public buildings made from different materials

and demonstrate to
the students

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

2- Masterpieces of Indian Art by Dr. Alka Pandey ; Published by Lustre .

3- Forts and Palaces of India by Amita Baig ;Published by OM books International , Ansari Road ,Daryaganj ,New Delhi .

4- Temples of South India by Surendar Sahal ;Published by Prakash Books.

SUGGESTED DISTRIBUTION OF MARKS

Unit	Time Allotted (Periods)	Marks Allotted (%)
1	18	20
2	20	20
3	26	20
4	26	20
5	22	20
Total	**112**	**100**

3.2 INTERIOR SERVICES

L	T	P
6	2	-

RATIONALE :

The student should have adequate knowledge of various services used in interior design projects, their types, characteristics, application, installation method and means, so that the student must be able to judiciously select services , which are the most appropriate to a given situation/ specific project.

LEARNING OUTCOMES

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

- Understand the importance of various services in a building.
- Study and draw the details of water supply and drainage system and their materials.
- Apply the details and knowledge of insulating a built environment thermally and acoustically.
- Understand and to draw the electrical requirement and details of a building.
- Be able to select proper electrical/ sanitary fixtures required for best services/effects.
- Study about various mechanical means of air-conditioning and ventilation.
- Identify the need of best communication system for a building.
- Study and application of fire fighting norms and equipments.
- Identify the need and application of advanced security system for a building .

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time	L	T	P
1.	Water supply & drainage		16	6	
2.	Thermal & Sound Insulation		14	5	
3.	Lighting & Other Electrical Plans		16	6	
4.	Air conditioning & Ventilation		12	4	
5.	Communication		08	2	
6.	Fire Fighting		10	3	
7.	Advance Building system		08	2	
	Total		84	28	-

DETAILED CONTENTS

1. WATER SUPPLY AND DRAINAGE :

A. Water Supply :

Hot and cold water supply system Geyser and boilers, types and sizes of pipes, water supply fittings to bathrooms, Sanitary fixtures like water closet; European and Indian WCs, sink, bathtubs, washbasins, bidets, showers, urinals, etc.

- Toilet Accessories like ; soap tray, towel rods, shower curtains.
- Jacuzzi, Bath enclosure, Multi functional shower panels, sauna, sensor based fittings.

B. Drainage :

Principles of drainage; Materials for drains - Traps - their types, function and uses. Earthen pipes, Cement pipe, P.V.C. pipes and C.I. pipes. Sanitary fixture - Wcs, washbasins, bath tube, sinks - their types, sizes. Septic tank - types, sizes, etc.

2. THERMAL AND SOUND INSULATION :

Thermal conductivity of different material, Acoustical defects such as Echo, Reverberation, Sound foci and methods of correction, Sound absorbing materials.

3. LIGHTING AND OTHER ELECTRICAL PLANS :

(A) Different system of lighting - (Incandescent, Fluorescent) Kinds and media; Planning lighting for different work areas, Matching light with site such as drawing room, bed room, study, bath, kitchen, etc. and public places like offices, theatres, exhibition, display and such other areas including basic knowledge of materials, finishes and maintenance.

(B) Preparation of electrical layout for residences by symbolic representation as per IS : 962/1967 including selection of matching fittings. Study of different wiring systems.

(C) Conduit - types and uses

4. AIRCONDITIONING AND VENTILATION :

Introduction to different kinds of air conditioning system and their merit and demerits for air conditioning (Window, Split ; Wall mount and floor standing , Cassette AC and Central air conditioning system).

5. COMMUNICATION :

Telephone, Internet, PBX, Optical fiber cables network, Wi-Fi networking and other communication devices.

6. FIRE FIGHTING :
Fire detection, Fire alarm, fire Fighting.

7. Advance Building system (Home automation system)

A. Security surveillance & Access Control systems:
Introduction, Use, Scope, Need
1.1 CCTV : equipment and network requirement
1.2 CCTV System and its application
1.3 IP/ Network security system

B. Access Control
1.1 Access control systems
1.2 Access control Applications
1.3 Connecting domestic and office equipments/ devices with wireless automation

RECOMMENDED BOOKS

1. Water supply and Sanitary Installations by Anand Chintaman panchdhari ; Published by New Age International Pvt. Ltd.
2. Handbook of Designing and installation services in high-rise building complexes by Er. B.K Jain ; Khanna publishers .
3. Plumbing and Sanitation (Hindi Edition) by S.K. Jain and Amit Aggarwal ,Bhratiye Technical Publications .
4. Modern Basic Electrical and House wiring servicing by M.Lotia; Bpb publications.
5. Lighting for Interior Design by Malcolm inner published by Laurence king publishing.

SUGGESTED DISTRIBUTION OF MARKS

Unit	Time Allotted (Periods)	Marks Allotted (%)
1	22	24
2	19	16
3	22	24
4	16	16
5	10	5
6	13	10
7	10	5
Total	**112**	**100**

3.3 FURNITURE DESIGN

L	T	P/D
5	-	12

RATIONALE :

The furniture, apart from its utility has it's significant contribution to interior decoration. The knowledge of basic design ideas in furniture making is necessary for any professional interior designer.

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.
- Anthropometric study of humans and in relation to surrounding objects.
- Study and analyze the sizes and sections of various materials to be used in furniture.
- Understand the joinery system of wood and other metals.
- Select and apply various upholstery materials for different furniture.
- Draw the detailed working drawings of furniture and its components.
- Study about legendary Architect's works and their characteristics.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time	L	T	P/D
1.	Topic 1		06	-	10
2.	Topic 2		06	-	10
3.	Topic 3		10	-	28
4.	Topic 4		12	-	30
5.	Topic 5		08	-	15
6.	Topic 6		08	-	15
7.	Topic 7		08	-	40
8.	Topic 8		12	-	20
		Total	70	-	168

DETAILED CONTENTS

1. Environmental conditions influencing furniture climate, social and economic conditions, versatile materials and their availability.

2. Applications of various materials used in furniture - wood, metals, furnishings, upholstery, plastics, laminates, glass. Methods of care and maintenance, economics of furniture durability, usability.

3. Anthropometric sizes of furniture - sizes of furniture as related to the human body, working levels, viewing levels diagrammatic.

4. Joinery as applied to furniture.

5. Upholstered furniture in fabric, leatherette and leather.

6. Ornamental furniture : Mirrors, Pedestal, Lamps

7. Designing and preparing working drawings and scaled model of basic furniture like tables, chairs (with or without arms), stools, counters and cabinets.

8. A brief study of -

Furniture like Double Bed, Bunker Bed, Sofa Cum Bed, Chairs, Table, Sofa, Jewellery Box, Easy Chair, Rocking Chair, Chest, Stacking of furniture, Folding Chairs and Tables, Tubular Pipe Furniture (Aluminum, Steel, Stainless Steel, PVC), Leather Upholstered Furniture, Low Seating Furniture (Sofa & Bed), Modular Kitchen, Modular Wardrobes, Steel Railing, Steel Cladding in Interior, Toilet accessories, Stone, Marbles, Granite Furniture, Wrought Iron, Cast Iron, Toughened Glass, Molded Glass Furniture.
Chairs designed by great architects- Frank Lloyd Wright (FLW), Ludwig Mies Van Der Rohe, Li-Corbusier, Charles Eames, Eero Saarinen.

NOTE: Visit to furniture workshop, collection of samples and information.

RECOMMENDED BOOKS

1- Chair Anatomy : Design and Construction by James Orrom ; Published by Thames and Hudson.
2- Eero Saarinen : Furniture for everyman by Brian Lutz.

3- Le- Corbusier: Furniture and Interior (1905-1965) by Arthur Ruegg.

SUGGESTED DISTRIBUTION OF MARKS

Unit	Time Allotted (Periods)	Marks Allotted (%)
1	16	5
2	16	5
3	38	20
4	42	20
5	23	5
6	23	5
7	48	25
8	32	15
Total	**238**	**100**

3.4 COMPUTER AIDED DESIGN - I

L	T	P
-	-	6

RATIONALE

In the present times an architectural assistant should be capable of drafting drawings on the computer. Due to increasing need for computerized drawings by most architects for their ease of drafting, editing, managing and presentation at the end of the course the students should be able to make 2-D architectural drawings for presentation and construction purposes. The student should get familiar with the latest AutoCAD versions.

DETAILED CONTENTS

Note: Relevant theory may be taught along with practical exercises in each topic.

1. Introduction to AutoCAD (Latest version or AutoCAD2007) (02 hrs)

    - Input devices
    - Graphics
    - Starting AutoCAD
    - Inside the drawing editor
    - Commands in the menus (Tool bars)
    - Accessing Commands
    - Entity selection
    - Entering coordinates
    - Folders for organizing drawings and files

Exercise: Creating folders and sub folders

2. Creating and Saving a new Drawing (02 hrs)

    - Commands and options to create new drawings
    - Units
    - Limits
    - Snap
    - Grid
    - Ortho
    - Layer
    - Application of layers
    - Open a new, existing drawing
    - Save, save as, quit, close, exit
    - Customization of tool bars

Exercise: Setting up a new drawing with units, limits etc

3. Drawing Commands (12 hrs)

- Line
- Poly line/Double line.
- Arc
- Ellipse
- Polygon
- Rectangle
- SP line
- Circle
- Sketch.
- Hatch
- Donuts

Exercise: Making a composition of different geometrical shapes using various drawing commands

4. Viewing an Existing Drawing (04 hrs)

- Zoom
- Pan
- Redraw and Regen all · Regen Auto
- View

Exercise: Viewing, zooming of existing drawing made in section 3.

5. Modifying an Existing Drawing (16 hrs)

- Undo Redo/Oops
- Trim
- Move
- Offset
- Rotate
- Array
- Stretch
- Divide
- Champher
- Erase
- Break
- Copy, multiple copy
- Mirror (Mirror test)
- Change (change properties)
- Extend

- Explode
- Blip mode
- Scale
- Fillet

Exercise: a) Modifying composition made in section 3
b) Making plan, elevation and section of simple building

6. Making and Inserting Blocks (12 hrs)

- Blocks
- Insert block
- Base
- Using library for blocks
- W-block
- X-ref
- Explode

Exercise: Inserting furniture, fixtures, trees etc. in the plans, sections and elevations made in section 5.

7. Dimensioning and Text (08 hrs)

- Dimension type, style, unit
- Dimension utilities
- Dimension variables
- Dimensioning of different elements like (Horizontal, vertical, inclined). Arc. Circle Radius, diameter, continuous dimensioning etc.
- Editing dimension text and updating (adding new text and editing existing text)
- Text style - font types, height, width factor etc. as per plotting paper size.

Exercise: Dimensioning and editing text in composition made in Sections 5 and 6.

8. Plotting Drawings (08 hrs)

- Plot command
- Selecting area for plotting.
- Scale of plot, scale to fit .
- Selecting plotting device
- Selecting paper size and type
- Selecting black and white or colored plots
- Selecting appropriate print speed, quality, Print preview.
- Working in Paper space and plotting

9. Introduction of 3-D Modeling for making Perspective views

INSTRUCTIONAL STRATEGY

This is a highly practical oriented subject. Efforts should be made by the teachers to procure relevant software and give practical exercises to individual students, so that they develop proficiency in operating computer software as applied to the profession of architecture. The theoretical instructions should be dovetailed with practical work. Towards the end of the session each student should be given independent computer based project assignment. Experts from practicing architectural field may be invited to deliver talks and for presentation of live case studies on computers to motivate the students and increase their level of awareness. Special efforts should be made by the teachers to develop well defined small tutorial exercises on each topic and supervise the exercises being performed by the student throughout the session. If need be some basic operational fundamental exercises may be repeated in the beginning of the session. Special emphasis may be laid on training the students through availing help from the user friendly architectural software, so that they develop confidence and are able to work independently.

Note :- The Board will set the Question Paper for exercises for external examination

3.5 *ENVIRONMENTAL STUDIES

L	T	P
3	-	2

RATIONALE

A diploma holder must have knowledge of different types of pollution caused due to industries and constructional activities so that he may help in balancing the ecosystem and controlling pollution by various control measures. He should also be aware of environmental laws related to the control of pollution. He should know how to manage the waste. Energy conservation is the need of hour. He should know the concept of energy management and its conservation.

LEARNING OUTCOMES

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

- Comprehend the importance of ecosystem and sustainable
- Demonstrate interdisciplinary nature of environmental issues
- Identify different types of environmental pollution and control measures.
- Take corrective measures for the abatement of pollution.
- Explain environmental legislation acts.
- Define energy management, energy conservation and energy efficiency
- Demonstrate positive attitude towards judicious use of energy and environmental protection
- Practice energy efficient techniques in day-to-day life and industrial processes.
- Adopt cleaner productive technologies
- Identify the role of non-conventional energy resources in environmental protection.
- Analyze the impact of human activities on the environment

DETAILED CONTENTS

1. **Introduction** (04 Periods)

1.1 Basics of ecology, eco system- concept, and sustainable development, Resources renewable and non renewable.

2. **Air Pollution** (04 Periods)

2.1 Source of air pollution. Effect of air pollution on human health, economy, plant, animals. Air pollution control methods.

3. **Water Pollution** (08 Periods)

3.1 Impurities in water, Cause of water pollution, Source of water pollution. Effect of water pollution on human health, Concept of dissolved O_2, BOD, COD. Prevention of water pollution- Water treatment processes, Sewage treatment. Water quality standard.

4. **Soil Pollution** (06 Periods)

4.1 Sources of soil pollution

4.2 Types of Solid waste- House hold, Hospital, From Agriculture, Biomedical, Animal and human, excreta, sediments and E-waste

4.3 Effect of Solid waste

4.4 Disposal of Solid Waste- Solid Waste Management

5. **Noise pollution** (06 Periods)

Source of noise pollution, Unit of noise, Effect of noise pollution, Acceptable noise level, Different method of minimize noise pollution.

6. **Environmental Legislation** (08 Periods)

Introduction to Water (Prevention and Control of Pollution) Act 1974, Introduction to Air (Prevention and Control of Pollution) Act 1981 and Environmental Protection Act 1986, Role and Function of State Pollution Control Board and National Green Tribunal (NGT), Environmental Impact Assessment (EIA).

7. Impact of Energy Usage on Environment (06 Periods)

Global Warming, Green House Effect, Depletion of Ozone Layer, Acid Rain. Eco-friendly Material, Recycling of Material, Concept of Green Buildings.

LIST OF PRACTICALS

1. Determination of pH of drinking water
2. Determination of TDS in drinking water
3. Determination of TSS in drinking water
4. Determination of hardness in drinking water
5. Determination of oil & grease in drinking water
6. Determination of alkalinity in drinking water
7. Determination of acidity in drinking water
8. Determination of organic/inorganic solid in drinking water

9. Determination of pH of soil
10. Determination of N&P (Nitrogen & Phosphorus) of soil
11. To measure the noise level in classroom and industry.
12. To segregate the various types of solid waste in a locality.
13. To study the waste management plan of different solid waste
14. To study the effect of melting of floating ice in water due to global warming

INSTRUCTIONAL STRATEGY

In addition to theoretical instructions, different activities pertaining to Environmental Studies like expert lectures, seminars, visits to green house, effluent treatment plant of any industry, rain water harvesting plant etc. may also be organized.

MEANS OF ASSESSMENT

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

RECOMMENDED BOOKS

1. Environmental and Pollution Awareness by Sharma BR; Satya Prakashan, New Delhi.
2. Environmental Protection Law and Policy in India by Thakur Kailash; Deep and Deep Publications, New Delhi.
3. Environmental Pollution by Dr. RK Khitoliya; S Chand Publishing, New Delhi
4. Environmental Science by Deswal and Deswal; Dhanpat Rai and Co. (P) Ltd. Delhi.
5. Engineering Chemistry by Jain and Jain; Dhanpat Rai and Co. (P) Ltd. Delhi.
6. Environmental Studies by Erach Bharucha; University Press (India) Private Ltd., Hyderabad.
7. Environmental Engineering and Management by Suresh K Dhamija; S K Kataria and Sons, New Delhi.
8. E-books/e-tools/relevant software to be used as recommended by AICTE/UBTE/NITTTR, Chandigarh.

Websites for Reference:

http://swayam.gov.in

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	04	10
2	04	10
3	08	20
4	06	14
5	06	14
6	08	20
7	06	12
Total	**42**	**100**

FOURTH SEMESTER

4.1 *COMMUNICATION SKILLS – II

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:

- Frame correct sentences with illustrations
- Comprehend the language correctly
- Interpret the language correctly
- Use given material in new situations.
- Correspond effectively using various types of writings like letters, memos etc.
- Communicate effectively in English with appropriate body language making use of correct and appropriate vocabulary and grammar in an organised set up and social context.

DETAILED CONTENTS

1. Functional Grammar (16 periods)

1.1 Prepositions
1.2 Framing Questions
1.3 Conjunctions
1.4 Tenses

2 Reading (16 periods)

2.1 Unseen Passage for Comprehension (Vocabulary enhancement - Prefixes, Suffixes, one word substitution, Synonym and Antonym) based upon the passage should be covered under this topic.

3 Writing Skill (24 periods)

3.1. Correspondence
   a) Business Letters- Floating Quotations, Placing Orders, Complaint Letters.
   b) Official Letters- Letters to Government and other Offices
3.2. Memos, Circular, Office Orders
3.3. Agenda & Minutes of Meeting
3.4. Report 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.

Speaking and Listening Skills

1. Debate
2. Telephonic Conversation: general etiquette for making and receiving calls
3. Offering- Responding to offers.
4. Requesting – Responding to requests
5. Congratulating
6. Exploring sympathy and condolences
7. Asking Questions- Polite Responses
8. Apologizing, forgiving
9. Complaining
10. Warning
11. Asking and giving information
12. Getting and giving permission
13. Asking for and giving opinions

INSTRUCTIONAL STRATEGY

Students should be encouraged to participate in role play and other student-centered activities in class rooms 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; Dhanpat Rai Publications, New Delhi.
3 High School English Grammar and Composition by Wren & Martin; S. Chand & Company Ltd., Delhi.
4. e-books/e-tools/relevant software to be used as recommended by AICTE/NITTTR, Chandigarh.

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	16	28
2	16	28
3	24	44
Total	**56**	**100**

4.2 INTERIOR DESIGN -II

L	T	P/Studio
4	-	12

RATIONALE :

The basic elements and concepts of interior designs have been dealt with in length in previous years. Now the application of these principles and elements of designing and planning, to certain category of building such as rooms, shops, offices, etc are to be dealt with in this paper.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time	L	T	P/D
1.	Practice – 1		12	-	38
2.	Practice – 2		12	-	38
3.	Practice – 3		16	-	46
4.	Practice – 4		16	-	46
	Total		56	-	168

DETAILED CONTENTS

1. Prepare and draw measurement drawing of small offices (Architect's office, Doctor's clinic , lawyer's chamber, etc.) and showrooms etc.

2. Introduction of climatology and its application/incorporation in Interior spaces for better environment and comfort.

3. Planning of commercial interiors such as consulting rooms, shops. Small Offices, study of use of space, circulation, system of storages, filing, etc. Maximum area to be designed 100 Sq. mts.

3.i. Introduction of perspective views.
ii. One point, two Point.

4. Plans, elevations, sections, perspective in colour, some special details including services, material sample chart, lighting and ventilation, A small scale model.

NOTE:
- Seminar on latest furnishing materials.
- At least one design submission should be prepared by using computers.

RECOMMENDED BOOKS

1. Interior Design by Ahmed A.Kasu; Published by Ashish Book Center .
2. Architects Data by Neufert
3. Space, Form and Order by DK Ching
4. Interior Design (principles & Practice) by M. Pratap Rao ; Standard publishers & Distributors Pvt. Ltd.
5. The Interior Design (Reference + Specification Book) by Chris Grimely and Mimi Love ; published by rock port publishers.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	50	25
2	50	25
3	62	25
4	62	25
Total	**224**	**100**

4.3 BUILDING CONSTRUCTION & MATERIALS-II

L	T	P
4	-	4

RATIONALE :

A diploma student in interior decoration and design are supposed to prepare design and detail drawing representing interior design, constructional system and its components. In this subject skill will be given to prepare design and details of doors, window, partitions, wall paneling and claddings, staircases and floor finishes, etc. by using various materials.

LEARNING OUTCOMES

After completing the course, the students will be able:

- To acquire knowledge about various construction materials and their application.
- To understand the planning and details of staircase for its best placement.
- To draw the details of various elements of doors and windows.
- To draw the details of various elements of floors and cavity walls and their application methods.
- To acquire knowledge to stop entry of dampness and termite in buildings.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time	L	T	P/D
	MATERIALS-PART A				
1.	Wood Product		-	-	-
2.	Laminates		-	-	-
3.	Thermal Acoustic Materials		-	-	-
4.	Glass & Mirror		-	-	-
5.	Paints, Varnishes, Polisher Distempers, etc		-	-	-
6.	Claddings		-	-	-
7.	Water proofing materials		-	-	-
8.	Finishing Materials		-	-	-
9.	Furnishing Materials		-	-	-
10.	Fittings		-	-	-
	CONSTRUCTION-PART B				
1.	Practice 1		-	-	-
2.	Practice 2		-	-	-
3.	Practice 3		-	-	-
4.	Practice 4		-	-	-
5.	Practice 5		-	-	-
6.	Practice 6		-	-	-
7.	Practice 7		-	-	-
	Total		56	-	56

DETAILED CONTENTS

MATERIALS- PART A

1. WOOD PRODUCTS :

   Comparative properties and uses of the following : veneers, Commercial plywood, Block board, particle board, teak plywood, hard board, soft board, acoustical tiles.

2. LAMINATES :

   Properties and application of all types of plastic laminates.

3. THERMAL ACOUSTIC MATERIALS :

   Study of different types of materials used for sound proofing,
   Properties and use of the following : Polyurethane products such as low density and high density, fiber glass.

4. GLASS AND MIRRORS :

   Properties, sizes, design, price and availability of :
   Sheet glass, Plate glass, Wired glass, Laminated glass, toughened glass, Safety glass, insulating glass, coloured glass, tinted glass, heat resistant glass and glass blocks.

5. PAINTS, VARNISHES, POLISHES, DISTEMPERS, ETC. :

   Wall and furniture finishes like paints. Water base paints, dry distempers, plastic emulsion distempers, cement paints, varnishes, polishes lacquer, tar and bitumen, silica paints, solignum paint, black paints and their trade names, properties, covering capacity, handling technique & uses.

6. CLADDING :

   Wall papers, Fabric for wall lining. Flooring/Cladding materials - such as stones, granite, slate, marble, mosaic and cement tiles & ceramic tiles, P.V.C. and metallic Claddings, Aluminium composite panel in wall cladding..

7. WATER PROOFING MATERIALS :

   Types of water proofing compounds available and where to apply them.

NOTE :

1. Sample for each of the above may be collected and demonstrated/exhibited to the students during the course of the lecturers.

2. Students should be encouraged to collect these samples and maintain their own record through scrap book containing brochures samples, etc.

8. FINISHING MATERIALS :

- Different types of flooring materials
- Different types coatings such as distemper, emulsion, paints and acrylic paints, etc.
- Claddings such as wall paper, wood board, metals, plastic tiles, fabric, etc.
- Different types of ceiling materials such as:
- Plaster of Paris/gypsum
- Various types of tiles
- Metals (Aluminium, Steel)
- Plastics
- Fiber glass/glass
- Wood based

9. FURNISHING MATERIALS :

9.1 Flooring:
Different types of carpets , Rugs, Druggets

9.1.1Woollen Carpet :

(a) Hand Made Carpets (b) Hand tufted carpets
(c) Machine made carpet (i) Cutpile (ii) Uncutpile

Quality of raw wool, quality of other raw materials used; Impact of colours; Technical specification : Knots/Tuffs per Sqr. cm. pile height, Ply of yarn, count of yarn, weight, fastness, flame resistance tests, resilience tests and accousitic quality, trade names, ISI and wool mark. Sizes and mode of measurements.

9.1.2 Installation :

Installation of wall to wall carpets on floor fixing, carpets on wall ceiling for acoustics; joining, edge binding and fringing of carpets. Fitting and accessories; Types of underlay ; How to remove a fitted wall to wall carpet; How to re-lay wall to wall carpet.

9.1.3 Care & Maintenance:

Visits to manufacturing units and study wall to wall laying of carpet in process.

9.2. Curtain Materials (Draperies) :

9.2.1. TYPES :

Cotton curtains; Silk curtains; Cotton silk mixed; Synthetic fiber curtain; Woollen curtains; Synthetic and wool blended curtains; Flame resistant property. Wrap and weft texture, dyes blends, weight, cost, care of the above.

9.2.2. Types of curtains like plain, french pleated, etc.

9.2.3. Lining materials, Blackout curtains and Blinds

9.2.4. Fittings used - Curtain rods, rings, railing, hooks, sliding, stage curtains.

9.2.5. Venetian blinds (Horizontal and vertical), Roller blinds and space curtains.

9.3 Upholstery Covering Material (Tapestries & Other Items)

1. Introduction to various kinds of tapestries and their basic distinguishing qualities

- Cotton
- Silk
- Synthetic
- Woolen
- Rexene
- Leather
- Blended

To study their properties, design, dye, texture, size, weight, stitching and care.

9.4 Cushioning materials: Springs; Jute, cotton, foams, rubber.

9.5 Miscellaneous Items: cane, jute, leather straps, slip covers, fasteners, etc.

9.6. Other Furnishings:

- Bed cover, cushion covers - their designs, stitching, (handloom, mill made, tufted candlewick, khadi and other types - both woven and printed).

- Table liner bath mats, toilet sets, etc.

- Latest items of furnishings and visits.

10. FITTINGS :

1. Doors, windows, ventilators fittings in various metals like iron, mild steel and stainless steel, brass, aluminum, plastics, etc. Fittings like Handles, bolts, hinges, springs, locks, latches, patch fitting for frameless glass partition and doors etc.

2. Visits to factories/show rooms for varieties, design and prices, etc.

NOTE :

Demonstration of the various furnishing and fittings materials may be arranged in the class room to make the subject more interesting and meaningful. Students should be encouraged to collect samples and maintain a museum of material of their own. They may be advised to collect :

- Photographs of fittings and maintain an album/scrap book.

- Preparation of drawings for the following :

CONSTRUCTION- PART B

1. Sliding doors and Windows. (Wooden & Metal)

2. Sliding and folding doors. (Wooden & Metal)

3. Simple partition (in wood, glass and metal)

4. Different types of damp proofing of interiors.

5. Paneling in plywood, ply board, wood, laminates, aluminium composite panel, claddings.

6. Stair cases - Layout of stair cases; types of stair cases; method of calculating treads and rises; Definition of various terms.
   Preparing drawing for a simple staircase in R.C.C./Timber/Steel.

7. Floor finishes - various types of floor finishes and their constructional details

INSTRUCTIONAL STRATEGY

Class instruction is to be supplemented by studies models and visit to construction sites. The studio periods are to be devoted to preparation of detailed construction drawings of all the above building elements. Students may prepare the port-folio of the work done by them throughout the session. Teacher may also organize viva-voce after each drawing assignment so as to test the level of understanding of the students about underlying concepts, principles, and procedures.

RECOMMENDED BOOKS

1. Building Construction by WB Mackay; 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

4.4 PRODUCT DESIGN

L T P
4 - 4

RATIONALE :

To make the students learn the production technique of furniture and accessories related to interiors in any medium.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time	L	T	P/D
1.	Topics 1		30	-	32
2.	Topics 2		26	-	24
		Total	56	-	56

DETAILED CONTENTS

1. Selection of an area in furniture/ceramics/Pottery/ Stone/Metals/ light fittings, fixtures or other accessories in relation to interiors and develop a design scheme based on design process. The medium could be selected out of wood, fiber glass, metal, cane, Thermacol, Plaster of Paris, etc. Ceramic painting, Small pieces of Sculpture using Mud/Ceramic/Plaster of Paris.

- Preparation of working drawings of finally selected product design keeping in mind the anthropometry, Preparing a design on paper of one furniture items with details of materials and budget

- Product design using waste and recycle materials, Using wood stems, Small plant, Dry roots etc., Planters stand, Flower arrangement scheme using different products.

2. Preparation of product design using computer software and preparing a small scale model with appropriate Material .

NOTE :

A product designer workshop with of at least 100 Sq.m. shall be developed exclusively for I.D.D.

RECOMMENDED BOOKS

1. The Design of Every day thinks by Don Norman ; Published by Basic Books U.K..
2 "Styled" by Emily Henderson Published by Potter Style U.S.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	62	60
2	50	40
Total	**112**	**100**

4.5 * GENERAL WORKSHOP PRACTICE –II

(Common for 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 Fitting Shop
2 Sheet Metal Shop
3 Mason Shop
4 Machine Shop

1. FITTING SHOP

1.1 Use of personal protective equipment and safety precautions while working.
1.2 Basic deburring processes.
1.3 Introduction to fitting shop tools, marking and measuring devices/equipment.
1.4 Identification of materials. (Iron, Copper, Stainless Steel, Aluminium etc.)
1.5 Identification of various steel sections (flat, angle, channel, bar etc.).
1.6 Introduction to various fitting shop operations/processes (Hacksawing, Drilling, Chipping and Filing).

1.7 Job Practice

Job I Marking of job, use of marking tools, filing and use of measuring instruments. (Vernier caliper, Micrometer and Vernier height gauge).
Job II Filing a rectangular/square piece to maintain dimensions within an accuracy of ±.25 mm.
Job III Making a cut-out from a square piece of MS flat using hand hacksaw and chipping
Job IV Drilling and tapping practice on MS Flat.

2. SHEET METAL SHOP

2.1. Introduction to sheet metal shop, use of hand tools and accessories e.g. different types of hammers, hard and soft mallet, sheet and wire gauge, necessary allowance required during job fabrication, selection of material.
2.2 Introduction and demonstration of hand tools used in sheet metal shop.
2.3 Introduction and demonstration of various machines and equipment used in sheet metal shop e.g. Shearing Machine, Bar Folder, Burring Machine,
2.4 Introduction and demonstration of various raw materials used in sheet metal shop e.g. black-plain sheet, galvanized-iron plain sheet, galvanised corrugated sheet, aluminium sheet etc.
2.5 Study of various types of nuts, bolts, rivets, screws etc.
2.6 Job Practice

Job I: Shearing practice on a sheet using hand shears.
Job II: Practice on making Single riveted lap joint/Double riveted lap Joint.
Job III: Practice on making Single cover plate chain type, zig-zag type and single rivetted Butt Joint.

3 MASON SHOP

3.1. Introduction and importance of Mason shop
3.2. Introduction of tools, equipment and machines used in Mason shop
3.3. Job Practice

Job I : Preparation of simple bond
Job II : Preparation of Arched bond
Job III: Preparation of RCC structure (column and beam)

4 MACHINE SHOP

4.1 Study and sketch of lathe machine
4.2 Study and Sketch of grinders, milling machine, drilling machine and CNC machine.
4.3 Plain and step turning and knurling practice.
4.4 Study and sketch of planning/shaping machine and to plane a rectangle of cast iron.

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.

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**

FIELD EXPOSURE (PROFESSIONAL TRAINING) of students
(During summer vacation after IVth Semester)

It is needless to emphasize further the importance of Professional Training of students during their 3 years of studies at Polytechnics. It is Professional training, which provides an opportunity to students to experience the environment and culture of corporate construction offices/ Government construction and Design departments/ Practicing Architect's offices/ Interior Designer's Offices, Construction Agencies/ Builder's Organisations/ Design Consulting units and commercial activities undertaken in field organizations. It prepares student for their future role as diploma Architect in the world of work and enables them to integrate theory with practice. Polytechnics have been arranging Professional training of students of various durations to meet the above objectives.

This document includes guided and supervised Professional training of a minimum of 4 weeks duration to be organised during the semester break starting after second year i.e. after IV Semester examinations. The concerned HODs along with other teachers will guide and help students in arranging appropriate training places relevant to their specific branch. It is suggested that a training schedule may be drawn for each student before starting of the training in consultation with the training providers. Students should also be briefed in advance about the organizational setup, Working environment, Designing and Drafting process, important machines and Drafting tools used in the training organization.

Equally important with the guidance is supervision of students training in the office/organization by the teachers. A minimum of one visit by the teacher is recommended. Students should be encouraged to write daily report in their diary to enable them to write final report and its presentation later on.

An external assessment of 50 marks have been provided in the study and evaluation scheme of VIth Semester. Evaluation of professional training report through viva-voce/presentation aims at assessing student's understanding of Drafting various working drawings , Designing process, practices in offices/field organization and their ability to engage in activities related to problem solving in professional setup as well as understanding of application of knowledge and skills learnt in real life situations. The formative and summative evaluation may comprise of weightage to performance in testing, general behaviour, quality of report and presentation during viva-voce examination. It is recommended that such evaluations may be carried out by a team comprising of concerned HOD, teachers and representative from Organisation. Teachers and students are requested to see the footnote below the study and evaluation scheme of IV Semester for further details.

FIFTH SEMESTER

5.1 *ENERGY CONSERVATION

L	T	P
3	-	2

RATIONALE

The requirement of energy has increased manifolds in last two decades due to rapid urbanization and growth in industrial/service sector. It has become challenging task to meet ever increasing energy demands with limited conventional fuels and natural resources. Due to fast depletion of fossil fuels and a tremendous gap between supply and demand of energy, it is essential to adopt energy conservation techniques in almost every field like industries, commercial and residential sectors etc. Energy conservation has attained priority as it is regarded as additional energy resource. Energy saved is energy produced. This course covers the concepts of energy management and its conservation. It gives the insight to energy conservation opportunities in general industry and details out energy audit methodology and energy audit instruments.

LEARNING OUTCOMES

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

- define principles and objectives of energy management and energy audit.
- understand Energy Conservation Act 2001 and its features.
- understand various forms & elements of energy.
- identify electrical and thermal utilities. Understand their basic principle of operation and assess performance of various equipments.
- identify areas of energy conservation and adopt conservation methods in various systems.
- evaluate the techno economic feasibility of the energy conservation technique adopted.

DETAILED CONTENTS

1. Basics of Energy

    1.1 Classification of energy- primary and secondary energy, commercial and non-commercial energy, non-renewable and renewable energy with special reference to solar energy, Capacity factor of solar and wind power generators.
    1.2 Global fuel reserve
    1.3 Energy scenario in India and state of U.P. Sector-wise energy consumption (domestic, industrial, agricultural and other sectors)

1.4 Impact of energy usage on climate

2. Energy Conservation and EC Act 2001

2.1 Introduction to energy management, energy conservation, energy efficiency and its need

2.2 Salient features of Energy Conservation Act 2001 & The Energy Conservation (Amendment) Act, 2010 and its importance. Prominent organizations at centre and state level responsible for its implementation.

2.3 Standards and Labeling: Concept of star rating and its importance, Types of product available for star rating

3. Electrical Supply System and Motors

3.1 Types of electrical supply system

3.2 Single line diagram

3.3 Losses in electrical power distribution system

3.4 Understanding Electricity Bill: Transformers Tariff structure, Components of power (kW, kVA and kVAR) and power factor, improvement of power factor, Concept of sanctioned load, maximum demand, contract demand and monthly minimum charges (MMC)

3.5 Transformers: Introduction, Losses in transformer, transformer Loading, Tips for energy savings in transformers

3.6 Electric Motors

Types of motors, Losses in induction motors Features and characteristics of energy efficient motors, Estimation of motor loading, Variation in efficiency and power factor with loading, Tips for energy savings in motors

4. Energy Efficiency in Electrical Utilities

4.1 Pumps: Introduction to pump and its applications, Efficient pumping system operation, Energy efficiency in agriculture pumps, Tips for energy saving in pumps

4.2 Compressed Air System: Types of air compressor and its applications, Leakage test, Energy saving opportunities in compressors.

4.3 Energy Conservation in HVAC and Refrigeration System: Introduction, Concept of Energy Efficiency Ratio (EER), Energy saving opportunities in Heating, Ventilation and Air Conditioning (HVAC) and Refrigeration Systems.

5. Lighting and DG Systems

   5.1 Lighting Systems: Basic definitions- Lux, lumen and efficacy, Types of different lamps and their features, Energy efficient practices in lighting
   5.2 DG Systems: Introduction, Energy efficiency opportunities in DG systems, Loading estimation

6. Energy Efficiency in Thermal Utilities

   6.1 Thermal Basics: Thermal energy, Energy content in fuels, Energy Units and its conversions in terms of Metric Tonne of Oil Equivalent (MTOE)
   6.2 Energy Conservation in boilers and furnaces : Introduction and types of boilers, Energy performance assessment of boilers, Concept of stoichiometric air and excess air for combustion, Energy conservation in boilers and furnaces, Do's and Don'ts for efficient use of boilers and furnaces
   6.3 Cooling Towers: Basic concept of cooling towers, Tips for energy savings in cooling towers
   6.4 Efficient Steam Utilization

7. Energy Conservation Building Code (ECBC)

   7.1 ECBC and its salient features
   7.2 Tips for energy savings in buildings: New Buildings, Existing Buildings

8. Waste Heat Recovery and Co-Generation

   8.1 Concept, classification and benefits of waste heat recovery
   8.2 Concept and types of co-generation system

9. General Energy Saving Tips

   Energy saving tips in:
   9.1 Lighting
   9.2 Room Air Conditioner
   9.3 Refrigerator
   9.4 Water Heater
   9.5 Computer
   9.6 Fan, Heater, Blower and Washing Machine
   9.7 Colour Television
   9.8 Water Pump
   9.9 Cooking
   9.10 Transport

10. Energy Audit

    10.1 Types and methodology
    10.2 Energy audit instruments
    10.3 Energy auditing reporting format

PRACTICAL EXERCISES

1. To conduct load survey and power consumption calculations of small building.
2. To check efficacy of different lamps by measuring power consumption and lumens using lux meter.
3. To measure energy efficiency ratio (EER) of an air conditioner.
4. To measure effect of valve throttling and variable frequency drive (VFD) on energy consumption by centrifugal pump.
5. To measure and calculate energy saving by arresting air leakages in compressor.
6. To measure the effect of blower speed on energy consumed by it.

STUDENT ACTIVITIES ON ENERGY CONSERVATION/ENERGY EFFICIENCY

- Presentations of Case Studies
- Debate competitions
- Poster competitions
- Industrial visits
- Visual Aids

INSTRUCTIONAL STRATEGY

Teachers are expected to lay considerable stress on understanding the basic concepts in energy conservation, principles and their applications. For this purpose, teachers are expected to give simple problems in the class room so as to develop necessary knowledge for comprehending the basic concepts and principles. As far as possible, the teaching of the subject must be supplemented by demonstrations and practical work in the laboratory. Visits to industries must be carried out. Expert from industry must be invited to deliver talks on energy conservation to students and faculty.

RECOMMENDED BOOKS

1. Guide book on General Aspects of Energy Management and Energy Audit by Bureau of Energy Efficiency, Government of India. Edition 2015
2. Guide book on Energy Efficiency in Electrical Utilities, by Bureau of Energy Efficiency, Government of India. Edition 2015
3. Guide book on Energy Efficiency in Thermal Utilities, by Bureau of Energy Efficiency, Government of India. Edition 2015
4. Handbook on Energy Audit & Environmental Management by Y P Abbi & Shashank Jain published by TERI. Latest Edition

Important Links:

(i) Bureau of Energy Efficiency (BEE), Ministry of Power, Government of India. www.beeindia.gov.in.

(ii) Ministry of New and Renewable Energy (MNRE), Government of India. www.mnre.gov.in.

(iii) Uttar Pradesh New and Renewable Energy Agency (UPNEDA), Government of Uttar Pradesh. www.upneda.org.in.

(iv) **Central Pollution Control Board (CPCB),** Ministry of Environment, Forest and Climate Change, Government of India. www.cpcb.nic.in.

(v) Energy Efficiency Sevices Limited (EESL). www.eeslindia.org.

(vi) Electrical India, Magazine on power and electrical products industry. www.electricalindia.in.

5.2 DISPLAY

L	T	P
4	-	6

RATIONALE :

It is to make the student learn the scope of display for sales promotion and to train the students to take up the assignments of design, display and decoration for the window display, specialised group display, exhibitions, trade fairs, etc. and to make scheme for different types of display.

LEARNING OUTCOMES

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

- Define principles and objectives of product's display.
- Understand the features and components required to make a proper/attractive display.
- Understand the needs and circulation pattern for an Exhibition area.
- Identify the requirement of electrical and electronic gadgets for a display.
- Draw detailed working Drawings of plans/elevations/sections/ electrical /furniture etc.
- Evaluate the quantity of various materials to be used in design.
- Analyze, Select and apply the specifications for a certain design.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time	L	T	P/D
1.	Topic-1		6	-	4
2.	Topic-2		6	-	6
3.	Topic-3		5	-	8
4.	Topic-4		8	-	6
5.	Topic-5		5	-	8
6.	Topic-6		8	-	8
7.	Topic-7		5	-	6
8.	Topic-8		5	-	8
9.	Topic-9		5	-	8
10.	Topic-10		1	-	10
11.	Topic-11		2	-	12
		Total	56	-	84

DETAILED CONTENTS

1. Introduction : Display of various products/commodities, display and their scopes for sales promotion.

2. Broad Classification : store display, window display, exhibition display, wall display, counter display and Island display.

3. Types of Lettering : Bold, Decorative, Free hand, etc.

4. Effect of colour and light on display, colour and its effects lighting preferences for different seasons, light and its effects, light as a means to highlight or subdue the display feature, different types of light.

5. Designing of logo trademarks, poster, banner, leaflets, hoarding, etc.

6. Importance of balance and harmony, different types of compositions, centre of interest and composing in three dimension.

7. Application of accessories and fixtures in display :

   - Special equipments and display aids,
   - Different types of partitions and panels,
   - Materials for stand construction.
   - Electronic and Mechanical Devices such as CC TV Camera, Audio-Video recorders, projectors, Air conditioners etc. for movement and light control and their use in display.

8. Role of exhibitions and trade fairs in promoting sales (both at National and International levels), types of exhibition (Education, Commercial mobile exhibitions), Retail Design.

9. Concept planning: Selection of the theme and preparing in display scheme based on it -

   - Preparation of plans, elevations, working drawings, perspective, materials specifications. With suggested audio visual effects and estimated costs for show window island display, corner display, etc. for the shop.

   - Preparation of layouts plans, elevations, sections, working details and perspective for designing and planning of small exhibitions, stalls, pavilions for trade fairs, etc.

10. Visits to various shops and stores, exhibitions and trade fairs during their constructions stages to gain knowledge of construction techniques and technology involved.

11. Detail display design of store/mega store/showrooms/Layout , circulation ,Display area, types of apparel display fixture, payment counter.

SUGGESTED DISTRIBUTION OF MARKS

Unit	**Time Allotted (Periods)**	**Marks Allotted (%)**
1	10	5
2	12	10
3	13	10
4	14	10
5	13	10
6	16	10
7	11	5
8	13	10
9	13	20
10	11	-
11	14	10
TOTAL	140	100

5.3 ESTIMATING, COSTING AND SPECIFICATIONS

L	T	P
5	2	-

RATIONALE :

Estimating is a process of deciding the cost and material requirements for a definite purpose. The paper aims to develop such capacity in the student. Diploma holders in IDD are supposed to prepare material estimates for various civil works and Interior works namely; Brick work, R.C.C. casting, flooring, surface Plaster work, Electrical work, plumbing and Sanitary work, False ceiling, P.O.P. work, Painting and polishing etc. In addition, they must have basic knowledge regarding analysis of rates, contracting and tendering principles.

LEARNING OUTCOMES

After completing the course, the students will be able:

- To understand the conversion of units and their application.
- To understand the methods of finding the various quantities to be used in buildings.
- To take out the quantity based estimates of the components of building .
- To analyze be rates of varies materials and labour components of the building.
- To acquire knowledge of specifications of various materials to be finalized for the application in a building or construction site.
- To find out the complete valuation of a constructed building or a purposed building.
- To acquire the detail knowledge of application of public health engineering components and their estimated quantities and the rates .
- To develop record keeping skills and drawing management in offices.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time	L	T	P
1.	Specification		14	6	-
2.	Estimating & Costing		30	12	-
3.	Tendering		18	6	-
4.	Preparation		04	2	-
5.	Unit		04	2	-
	Total		70	28	-

DETAILED CONTENTS

1. SPECIFICATION :,

   Specification and analysis of all types of interior decoration material such as paneling, partitioning, false ceilings, flooring and floor covering, furniture, making specification for modern materials.

2. ESTIMATING :

   Types of Estimates:
   - Preliminary estimates
   - Plinth area estimate
   - Cubic rate estimate
   - Estimate per unit base

   - Detailed estimates
   - Definition
   - Stages of preparation
   - details of measurement and calculation of quantities and abstract

   Methods of preparing estimates, Preparing bills of quantities from drawings and pricing Preparing estimates from bills of quantities.

3. TENDERING :

   Essential of tender documents. Preparation of schedules and progress charts.
   Study of writing schedules for civil work, furniture items finishing items, services, etc. Study of units, mode of measurements, system of calculating quantities of different items like furniture, wall finishes, floor finishes, civil and plumbing works related to interiors.

   N.B.: Class problems should be given based on Estimation.

4. Preparation of measurement book for BOQ.

5. Units for measurement & prepare BOQ.
   - Units of measurement for various items of work as per BIS:1200
   - Rules for measurements
   - Different methods of taking out quantities
     - centre line method and short wall and long wall method

INSTRUCTIONAL STRATEGY

This is an applied engineering subject. Teachers are expected to provide working drawings for various civil works and students be asked to calculate the quantities of materials required for execution of such works. Teachers should conceptualize making analysis of rates for different items of works. It will be advantageous if students are given valuation reports for reading.

RECOMMENDED BOOKS

1. Estimating and costing in civil engineering by Dutta B.N (in English & Hindi) UBS Publishers Distributors Ltd .
2. Estimating costing and valuation by Dr. R.P. Retholiya Prof. Bhavesh V. Modi and Mayur R. Rethaliya atal prakashan , Ahemdabad .
3. Civil Engineering Hand Book by P.N. Khanna UBS Publishers .
4. सिविल अभियांत्रिकी प्राक्कलन एवं मूल्यांकन (Civil Engineering & Costing) by Dr. Vinod Gupta and Manisha Agarwal Neelkanth Publishers Pvt. Ltd.
5. Estimating, Costing and Valuation (Civil) by Pasrija, HD, Arora, CL and S. Inderjit Singh; New Asian Publishers, Delhi,
6. Estimating and Costing by Mahajan Sanjay; Satya Parkashan, Delhi
7. Estimating and Costing", Rangwala, BS; Anand, Charotar Book Stall
8. "A Text Book on Estimating and Costing (Civil) with Drawings"Kohli, D; and Kohli, RC;Ambala ; Ramesh Publications

SUGGESTED DISTRIBUTION OF MARKS

Unit	Time Allotted (Periods)	Marks Allotted (%)
1	20	15
2	42	35
3	24	30
4	06	10
5	06	10
Total	**98**	**100**

5.4 BUILDING CONSTRUCTION & MATERIALS - III

L	T	P
4	-	12

RATIONALE :

A diploma student of interior design and decoration is supposed to prepare design and detailed drawing representing interior design, constructional systems and components. Through this paper they will learn to prepare design and details of door, windows, internal partitions, false ceiling, movable furniture, built in furniture, etc. by using various materials.

LEARNING OUTCOMES

After completing the course, the students will be able :

- To acquire knowledge about various construction materials and their application.
- To understand the planning and details of sound proof cabin and their acoustical treatment on walls ,floor, doors and Windows.
- To draw the details of various types and elements of doors.
- To draw the details of various elements of false ceiling and their application methods.
- To acquire knowledge of modern building materials, modular furniture ,modular kitchen and other prefabricated materials.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time	L	T	P/D
1.	Practice-I		10	-	30
2.	Practice-II		06	-	18
3.	Practice-III		08	-	24
4.	Practice-IV		08	-	24
5.	Practice-V		06	-	18
6.	Practice-VI		06	-	18
7.	Practice-VII		06	-	18
8.	Practice-VIII		06	-	18
	Total		56	-	168

DETAILED CONTENTS

PREPARING DRAWING FOR

1. Doors & Windows :

A. Aluminium and steel doors and windows with grills.
B. Swing doors/ Pivot doors.
C. Revolving doors.
D. Shop window front.
- Brief description of uPVC Doors and Windows .

2. Movable Partition; Sliding and folding partitions, collapsible shutters and Rolling Shutter.

3. Sound proof cabin design.

4. Different methods of support and finishes of false ceilings.

5. Movable Furniture.

6. Built in furniture and fixtures.

7. Modular furniture and modular kitchen; Types of steel baskets –Grain Trolley, cutlery tray, cup and Saucer baskets, Carousels etc .
- Hardware like Spring hinges, soft close hinges, telescopic channels etc used in kitchen and other modular furniture.
- Prefabricated interior materials and techniques.

8. Introduction of contemporary building materials as per current demand and availability in the Market.

STUDY REPORT AS AN ASSIGNMENT

Students are supposed to pick any one “Live project site” where they have to make; as-made drawings and complete report on; Stone/ tile Flooring work, False ceiling work, sanitary fixture installations, Electrical layout and fixture installations, wood work, painting and polishing work , quantity analysis, Specification Chart and Estimate..

NOTE :

Emphasis should be on studio work for original design and its detailing. The lecture and studio are inter related and the teacher should explain the basic concepts before actually starting the drawing work.

RECOMMENDED BOOKS :-

1- Modular kitchen planning and designing guide by Gopal Dwivedi ; published by Notion Press.
2- Door and Window Design by Antonio Corcuera ; Published by TeNeues Media GmbH & KG, USA

SUGGESTED DISTRIBUTION OF MARKS

Unit	Time Allotted (Periods)	Marks Allotted (%)
1	40	25
2	24	12
3	32	16
4	32	16
5	24	08
6	24	08
7	24	05
8	24	10
Total	**224**	**100**

5.5 COMPUTER AIDED DESIGN – II

L	T	P
-	-	6

RATIONALE

To enable the student to develop the confidence to prepare the drawings of a given project through knowledge acquired in previous semester by preparing a set of drawings for any one project. To enable the student to create three dimensional objects in space with special emphasis on presentation and visualization of interiors and exteriors of building using different rendering techniques using auto CAD 2007 or the latest programme.

DETAILED CONTENTS

Note: Relevant theory may be taught along with practical exercises in each topic.

1. Project (Rendering of CAD drawing) (20 hrs)

The design problem done in 4th semester as main project shall be taken up for preparing a complete set of drawings. These include all plans, elevations (minimum 2) and sections (2 minimum), showing all interior layouts, joinery schedule, tree plantations, parking layout etc.

2. Fundamentals of 3-D Drafting (08 hrs)

2.1 Basic Features
2.2 Coordinate system
2.3 3-D entities and surfaces
Exercises – 1: Converting simple geometric shapes into 3-D Objects

3. Making an existing 2-D plan drawing compatible to 3-D drafting (12 hrs)

3.1 Commands and modifications to 2-D drawings
3.2 B. Poly, rectangle, elevation, extrude – requirements and applications
3.3 3-D of exterior of blocks – preparation, modification of 2-D drawing
3.4 3-D of interiors of block – preparation, modification of 2-D drawings

4. 3-D Modeling (20 hrs)

4.1 Wire frame, surface and 3-D solid modeling
4.2 Viewing 3-D models
4.3 Rendering, shading , hide commands, lights and Camera
4.4 Material representation
4.5 Importing, exporting library and printing 3-D
Exercises – 2: 4th Semester design proposal to be converted in 3-D model

5. Demonstration of 3D max, Corel Draw, Adobe Photoshop as rendering tool for 3D blocks/ walk through etc. (4 hrs)

Exercises
1. Converting simple geometrical shapes into 3-D objects
2. Students will take their second year design proposals and convert them in Three-dimensional presentation model.

INSTRUCTIONAL STRATEGY

This is a highly practical oriented subject. Efforts should be made by the teachers to procure relevant softwares and give practical exercises to individual students, so that they develop proficiency in operating computer softwares as applied to the profession of architecture. The theoretical instructions should be dovetailed with practical work. Toward the end of the session each student should be given independent computer based project assignment. Expert lectures from practicing architectural field may be invited to deliver talks and for presentation of live case studies on computers to motivate the students and increase their level of awareness. Special efforts should be made by the teachers to develop well defined small tutorial exercises on each topic and supervise the exercises being performed by the student throughout the session. If need be some basic operational fundamental exercises may be repeated in the beginning of the session. Special emphasis may be laid in training the students, to avail help from the user friendly software so that they develop confidence and are able to work independently.

Note :- The Board will set the Question Paper for exercises for external examination

SIXTH SEMESTER

6.1 CONSTRUCTION MANAGEMENT, ACCOUNTS AND PROFESSIONAL PRACTICE

(Common with Architectural Assistantship)

L	T	P
6	2	-

RATIONALE

This paper aims to develop the students as professional architects to face the challenges in the world of work. To face these challenges, they should have thorough knowledge of various Architect's Act, Code of conduct in effect, handling the accounts and personnel management. The paper is expected to fulfill such a need.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	L	T	P
1.	Management	25	8	-
2.	Accounts	25	8	-
3.	Professional Practice	25	8	-
4.	Intellectual Property Rights	9	4	-
	Total	84	28	-

DETAILED CONTENTS

1. MANAGEMENT:

Introduction, Classification of construction - Light and Heavy, Stages of construction, Construction team - Owner, Engineer and Contractor their functions and interrelationship, Resources of construction industry -Man, Material, Machine, Money. Functions of construction management, Planning, Organization and building contracts. Acquaintance with building bye-laws (R.B.O. Act), Accident and Safety.

2. ACCOUNTS:

Introduction, Necessity of accounts, Cash - Definition of cash, Treasury challan and its Procedure of filling Imprest account.

3. PROFESSIONAL PRACTICES:

Introduction, Code of practice, Scale of charges, Code of conduct as per Architects Acts 1972, Council of Architects, Tender documents, Stages of payments, Settlement of disputes and arbitrations.

8. INTELLECTUAL PROPERTY RIGHTS :

Introduction to IPR (Patents, Copy Right, Trade Mark), Protection of undisclosed information, Concept and history of patents, Indian and International Patents Acts and Rules, Patentable and Non patentable invention including product versus Process. Basic terms used in land acquisition, Khasra, Khatauni, possession, allotment, free hold, Mutation (Dakhil-Kharij)

RECOMMENDED BOOKS

1- Construction planning and Management by Ketaki B. Dalal & Rangwala, charotar publishing house Pvt. Ltd.
2- Construction Engineering and Management of project by S.C.Sharma ,Khanna Publishers .
3- Professional practice by K.G. Krishnamurthy, and S.V.Ravindra : Published by prentice hall India learning Pvt. Ltd.
4- Professional Practice of Architecture by Prof. S.C. Garg and Dr. Yogesh K.Garg, Satya publishers , New Delhi .
5- The Architecture student's handbook of professional practice published by John Wiley and sons, New Jersey, United States.

SUGGESTED DISTRIBUTION OF MARKS

Unit	Time Allotted (Periods)	Marks Allotted (%)
1	33	30
2	33	30
3	33	30
4	13	10
Total	**112**	**100**

6.2 INTERIOR DESIGN - III

L	T	P/D
4	-	16

RATIONALE :

A diploma student of interior decoration and design is supposed to prepare drawings for interiors of various types of spaces. Through this paper they are supposed to achieve the skill for preparing the interiors of various types of buildings, i.e. corporate offices, Showrooms, banks, restaurants, hotel lounge, Airport and station lounges and cinema theatre.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	Coverage Time	L	T	P/D
1.	Practice-I		24	-	80
2.	Practice-II		20	-	64
3.	Practice-III		12	-	80
	Total		56		224

DETAILED CONTENTS

1. Preparing Interior schemes for offices, shops, banks, restaurants, hotel lounge, airport and Station Lounges, Cinema theater. The schemes will include plans, Elevations, Views with working drawing, Furniture details, design, furnishing chart, Fittings accessories. Lighting, ventilation, plumbing, climate control, plants (Indoor/Outdoor).
   Drawing and rendering perspectives of large spaces in different mediums.
   The work to be completed in all respects for design problem to cover a minimum area of 200-300 Sq. mts.
2. Interior landscaping (Plants, Water bodies, Fountains, etc. rock garden, Terrace garden).
3. Drawing to be presented on white paper either on cartridge or scholars or similar Size- full imperial.

NOTE:

Drawings of atleast 2 submission to be prepared on CAD.

INSTRUCTIONAL STRATEGY

This is one of the most important practical oriented subject for diploma in interior Design and decoration. While imparting instruction, special visits may be arranged to demonstrate and explain important architectural features of different types of residential, commercial and public buildings. Practicing architects may be invited from time to time to present case studies and to deliver expert lectures on important elements like form, function, balance, light of 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 architects 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.

RECOMMENDED BOOKS

1- The interior design hand book by Frida Ramstedt; Published by Particular books.
2- The Colour Scheme Bible by Anna Starmer ; Published by Firefly Book Ltd.
3- Interior design and decoration by Premavathy Seetharaman and Parveen Pannu ; Published by CBS.
4- Elements of Style by Erin Gates ;Published by Simon & Schuster.
5- Landscape Architecture by John O. Simonds published by M.C. Graw Hill, Book Company
6- Urban Landscape Design by Garnett Eckko Published by M.C. Graw Hill, Book Company
7- Landscape Design that save energy by Anne Simon Majfat & Marc Schiler

8- Flowering trees of India and beautiful gardens of India by M.S. Randhawa

SUGGESTED DISTRIBUTION OF MARKS

Unit	Time Allotted (Periods)	Marks Allotted (%)
1	104	34
2	84	33
3	92	33
Total	**280**	**100**

6.3 PORTFOLIO (PROJECT WORK)

L	T	P
4	-	12

RATIONALE :

The purpose of introducing the project is to enable students to apply the knowledge, skill and attitude, acquired during this course, to solve real life problems. Each student will be assigned a specific problem for solving, right from conception of the design up to the execution of design

PROJECT DETAILS

Design project shall be of four months duration. The main emphasis will be on developing the problem for coordinating various factors affecting the interior design. It will be supported by discussion and seminars arranged time to time. Design project problems shall be interior design proposals of house/ hotel/ office/ bank/ restaurant/ shop.

A project report along with the following will be submitted :
Plans, elevations, sections, view coloured, working drawing of furniture or interior elements. Detailed specification, estimations, material and finishes charts, general lay-out of necessary services. There shall be an external jury (Architect/ Interior Designer of at least 10 years professional/ teaching experience) for the final assessment of the project

NOTE : MARKS DISTRIBUTION

125 marks : For documentation of project reports giving details of drawing and presentation & viva-voice

50 marks : For sessional - 50 marks report and documentation and method of preparation and for all efforts put by the students in preparing reports or solving the problems

10. RESOURCE REQUIREMENT:

10.1 Physical Resources:

10.1.1 Total Space Requirements

The total space for lecture room, tutorial rooms and drawing halls is work out by using following formula as per AICTE norms for all five disciplines i.e. civil, electrical, mechanical, automobile engineering and architectural assistantship

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N = (Ns/Cs)(H/Hw)(1/fu) where

N = Number of rooms required for each type.
N may be number of class rooms(Nc),
Number of tutorial rooms (Nt) or
Number of drawing halls (Nd)

Ns = Total Number of students in all years/semesters/disciplines

Cs = Class size (Number of students)

H = Number of hours per week of class room, lecture, tutorial or drawing as the case may be

Hw = Number of working hours per week

Fu = Utilisation factor (taken as 0.75)
Number of class rooms Nc = 10
Number of Tutorial rooms Nt = 2
Number of Drawing Halls Nd = 6

Space for Laboratories and workshops may be worked out as per AICTE norms(1995).

Note: A separate space and infrastructure for Art Studio is recommended for Architectural Assistantship department.

10.1.2 Equipment requirement:

1. Name of Laboratory: Drafting Studio

Sr No	Particular	Qty.	Tentative Cost (Rs)
1.1	Adjustable drafting machines, AO size with drafter and adjustable revolving stools	20	80,000
a.	Soft board panels for pining drawing 4'x 8', 3/4" thick	04	2,000
b.	Rapidograph pens (set of 8 pens) (Rotering)	04	10,000
1.4	Set up templates (for lettering, furniture, sanitary, geometric forms, kitchen, electric symbols)	04 each	1,600
1.5	Drawing instrument box (Stadtler) set of 12 pieces	04 set	2,000
1.6	Beam compass 36" long	04	400
1.7	Miscellaneous drawing equipment: Scales, french curves, different kind of colours (water, oil and poster) brushes of different sizes, coloured inks, clutch pencils, razors, mixing Pallets, cutters for model making, vanishing stick, spray gun, drawing sheets etc.	LS	5,000
	Total		**1,01,000**

2. Name of Laboratory/Workshop : Art Studio

2.1	Donkey 1' x 3' with stand for sketch book	20	12,000
2.2	Wooden platform (revolving) for life study	01	1,500
2.3	Still life stand	02	1,000
2.4	Reflector with stand	02	5,000
2.5	Draperies for still life and model drawing	LS	2,500
2.6	Still life objects made of different materials	LS	5,000
2.7	Other miscellaneous items like: Calligraphy pen set, instrument box, inking pens, french curves, scissors, steel rules, mount cutters, pencils, erasers, sketch pens, brushes and papers, inks drawing pins, palettes etc.	LS	20,100
	Total		**47,100**

3. Name of Laboratory/Workshop : Materials and Building Museum

Sr No.	Particulars	Qty.	Tentative Cost (Rs)
3.1	Different types of bricks		
3.2	Different types of building stones		
3.3	Different types of sands		
3.4	Different types of paints and distempers		
3.5	Different types of wood		
3.6	Different types of wood products		
3.7	Different types of glass samples		
3.8	Different types of fasteners and adhesives		
3.9	Different types of sanitary wares		
3.10	Samples of plumbing, fixtures to be installed as working Prototypes	LS	1,00,000
3.11	Samples of electric wires and conducting materials		
3.12	Samples of electric fixtures and fittings		
3.13	Samples of floor finishes and wall finishes		
3.14	Samples of different roofing materials		
3.15	Samples of false ceiling fixtures and finishes		
3.16	Samples of acoustics materials		
3.17	Samples of thermal insulating materials		
3.18	Samples of building hard ware		
3.19	Models, charts and other teaching aids		
	Total		**1,00,000**

4. Name of Laboratory/Workshop: Workshops

Carpentry Shop

4.1 Jig saw, 300 mm x 300 mm with 1/2 horse power motor	1	4,500
4.2 Wood planner, 2 horse power, 440 volts, width of plank 300 mm and length of table 1100 mm	1	15,000
4.3 Drilling machine, bench type 600x4000 rpm, size of table 250x250 mm	1	8,000
4.4 Universal wood working machine - 14 in one	1	1,50,000
4.5 Bench grinder	1	5,000
4.6 Carpentry work benches 4'x8'	10	20,000
4.7 Chain and chiesel mortising machine	1	25,000

Sr No	**Particulars**	**Qty.**	**Tentative Cost (Rs)**
4.8	Wood turning lathe	1	10,000
4.9	Vertical sander	1	10,000
4.10	Carpentry hand tools, vices, holds, gauges and measuring tools	LS	35,000
4.11	Cutters, saws, blades for Acrilic Model Making	LS	10,000

Welding Shop

4.11 Oil cooled arc welding transformer, 3-phase with standard accessories	1	4,000
4.12 M-4 Bench Spot welder	1	5,000
4.13 Oxy-acetylene gas welding set	1	12,000
4.14 Brazing equipment and accessories	1	5,000

Painting Shop

4.15 Spray painting gun with a small compressor	1	5,000
4.16 Miscellaneous painting brushes and materials	LS	500

Electrical Shop

4.17 General hand tools i.e. Screw driver sets, pliers, wrenches, tweezers, workshop scissors, hand drill machine, chisel, hammers	LS	5,000
4.18 Different types of wires, conduits, batteries, switches and other fixtures, testers, soldering iron	LS	10,000
	Total	**3,39,000**

5. Name of Laboratory/Workshop : Building Yard

5.1 The material required for Building Yard is mostly bricks, stones, cement, sand, mason tools, mild steel rods and timber planks	LS	5,000
	Total	**5,000**

6. Name of Laboratory/Workshop : Survey Laboratory

Sr No	**Particulars**	**Qty.**	**Tentative Cost (Rs)**
6.1	Metric Chain 20 m length and set of arrows as per IS 1492	08	1,600
6.2	Metallic tape 20 m length in leather case and winding device as per IS 1492	06	1,200
6.3	Ranging rods made of conduit pipe 30 mm dia painted white and black with iron shoe	25	2,500
6.4	Optical square, prism type as per IS 7009	06	1,200
6.5	Prismatic Compass as per IS 1957 100m diameter made of brass	06	4,200
6.6	Plane table with all accessories as per IS 2539	06	7,200
6.7	Dumpy level as per IS 9613, Telescope lens 300 mm with plate bubble	06	13,200
6.8	Levelling staff, telescope type, 4m long	05	5,000
6.9	Transit vernier theodolite telescope lens 150-210 mm magnification 25 to 30 x Minimum focusing distance 1.5 m	02	20,000
		Total	**56,100**

7. Name of Laboratory/Workshop : Computer Laboratory

7.1 Intel Pentium-4 @ 1.4 GHz, Mother Board D 850 GB,400 Mhz FSB, Intel 850 Chipset, Ultra 100 ATA, 256 MB RDRAM, AGP Card, 4 MB RAM 20 GB ULTRA ATA 100, 7200 RPM, IDE HDD, 1.44 MB 3.5" FDD, 52 x CDROM drive with MM kit, Multimedia Key Board, Mouse Logitech, Modem, 15" Color Monitor Digital, Dual Speed 10/10 Mbps Fast Eathernet CARD, Pair of Speakers, Integrated video and audio ISO 9002 certified, Y2K Certified or the latest high speed and high memory PC systems			20 Nos.
7.2 Laser Printer HP 1200 series or Equivalent UPS 0.652 Kw (one for each system)			1 No.
7.3 Software: DOS Wordprocessor, Spread sheet Storyboard, Autocad		LS	3,00,000

Sr No	Particulars	Qty.	Tentative Cost (Rs)
7.4	Video LCD Projector	1	2,40,000
7.5	Computer Furniture	10	20,000
Total 6,60,000			

8. Name of Laboratory/Workshop : Reprographic & AV Cell

8.1 Electronic stencil cutting machine (with 2 speeds 300/600 rpm 230V)	01	30,000
8.2 Photocopier (1.5 kw, 240 V, 50 Hz, warm Uptime 60 sec, 240 paper capacity 2000 sheets)	01	90,000
8.3 Duplicating machine electric operated	01	20,000
8.4 Overhead Projector (240 V, 650 W, focal length 254 mm at f/2.86, lens dia 90mm)	01	5,000
8.5 TV & VCR with remote control set	01	40,000
8.6 Automatic slide projector (240 W)	01	5,000
8.7 Ammonia printing machine with auto time switch	01	8,000

8.8 Glass Top Tracing Table	01	3,000
8.9 Edge binding machine, trimming machine and large stapler	LS	2,000
8.10 Drawing Sheet (4 Nos)	LS	12,000
	Total	**2,15,000**

NOTE:

In addition to the above, laboratories in respect of physics, chemistry, applied mechanicsstrength of materials, general engineering, workshops, Computer Centre etc will be required for effective implementation of the course. Provision for overhead projector, TV with VCR facility, slide cum strip projector, 16 mm film projector, photocopier, PC-XT facilities, duplicating machines, drafting machines etc has also to be made.

10.3 Furniture Requirement

Norms and standards laid down by AICTE be followed for working out furniture requirement for this course

10.4 Human Resources:

Weekly work schedule, annual work schedule, student teacher ratio for various group and class size, staffing pattern, work load norms, qualifications, experience and job description of teaching staff workshop staff and other administrative and supporting staff be worked out as per norms and standards laid down by the AICTE.

11. EVALUATION STRATEGY

11.1 INTRODUCTION

Evaluation plays an important role in the teaching-learning process. The major objective of any teaching-learning endeavor is to ensure the quality of the product which can be assessed through learner's evaluation.

The purpose of student evaluation is to determine the extent to which the general and the specific objectives of curriculum have been achieved. Student evaluation is also important from the point of view of ascertaining the quality of instructional processes and to get feedback for curriculum improvement. It helps the teachers in determining the level of appropriateness of teaching experiences provided to learners to meet their individual and professional needs. Evaluation also helps in diagnosing learning difficulties of the students. Evaluation is of two types: Formative and Summative (Internal and External Evaluation)

Formative Evaluation

It is an on-going evaluation process. Its purpose is to provide continuous and comprehensive feedback to students and teachers concerning teaching-learning process. It provides corrective steps to be taken to account for curricular as well as co-curricular aspects.

Summative Evaluation

It is carried out at the end of a unit of instruction like topic, subject, semester or year.The main purpose of summative evaluation is to measure achievement for assigning course grades, certification of students and ascertaining accountability of instructional process. The student evaluation has to be done in a comprehensive and systematic manner since any mistake or lacuna is likely to affect the future of students.

In the present educational scenario in India, where summative evaluation plays an important role in educational process, there is a need to improve the standard of summative evaluation with a view to bring validity and reliability in the end-term examination system for achieving objectivity and efficiency in evaluation.

11.2 STUDENTS' EVALUATION AREAS

The student evaluation is carried out for the following areas:

- Theory
- Practical Work (Laboratory, Workshop, Field Exercises)
- Project Work
- Professional Industrial Training

A. Theory

Evaluation in theory aims at assessing students' understanding of concepts, principles and procedures related to a course/subject, and their ability to apply learnt principles and solve problems. The formative evaluation for theory subjects may be caused through sessional /class-tests, home-assignments, tutorial-work, seminars, and group discussions etc. For end-term evaluation of theory, the question paper may comprise of three sections.

Section-I

It should contain objective type items e.g. multiple choice, matching and completion type. Total weightage to Section-1 should be of the order of 20 percent of the total marks and no choice should be given in this section. The objective type items should be used to evaluate students' performance in knowledge, comprehension and at the most application domains only.

Section-II

It should contain short answer/completion items. The weightage to this section should be of the order of 40 percent of the total marks. Again, no choice should be given in section-II

Section-III

It may contain two to three essay type questions. Total weightage to this section should be of the order of 40 percent of the total marks. Some built-in, internal choice of about 50 percent of the questions set, can be given in this section

Table II : Suggested Weightage to be given to different ability levels

Abilities	Weightage to be assigned
Knowledge	10-30 percent
Comprehension	40-60 percent
Application	20-30 percent
Higher than application i.e. Analysis, Synthesis and Evaluation	Upto 10 percent

B. Practical Work

Evaluation of students performance in practical work (Laboratory experiments, Workshop practicals/field exercises) aims at assessing students ability to apply or practice learnt concepts, principles and procedures, manipulative skills, ability to observe and record, ability to interpret and draw conclusions and work related attitudes. Formative and summative evaluation may comprise of weightages to performance on task, quality of product, general behaviour and it should be followed by viva-voce.

C. Project Work

The purpose of evaluation of project work is to assess students ability to apply, in an integrated manner, learnt knowledge and skills in solving real life problems, manipulative skills, ability to observe, record, creativity and communication skills. The formative and summative evaluation may comprise of weightage to nature of project, quality of product, quality of report and quality of presentation followed by viva-voce.

D. Professional Industrial Training

Evaluation of professional industrial training report and viva-voce/ presentation aims at assessing students' understanding of materials, industrial processes, practices in the industry/field and their ability to engage in activities related to problem-solving in industrial setting as well as understanding of application of learnt knowledge and skills in real life situation. The formative and summative evaluation may comprise of weightages to performance in testing, general behaviour, quality of report and presentation during viva-voce.

12 -RECOMMENDATIONS FOR EFFECTIVE CURRICULUM IMPLEMENTATION

This curriculum document is a Plan of Action and has been prepared based on exhaustive exercise of curriculum planning and design. The representative sample comprising selected senior personnel (lecturers and HODs) from various institutions and experts from industry/field have been involved in curriculum design process.

The document so prepared is now ready for its implementation. It is the faculty of polytechnics who have to play a vital role in planning instructional experiences for the courses in four different environments viz. class-room, laboratory, library and field and execute them in right perspective. It is emphasized that a proper mix of different teaching methods in all these places of instruction only can bring the changes in stipulated students behaviour as in the curriculum document. It is important for the teachers to understand curriculum document holistically and further be aware of intricacies of teaching-learning process (T-L) for achieving curriculum objectives. Given below are certain suggestions which may help the teachers in planning and designing learning experiences effectively. These are indicative in nature and teachers using their creativity can further develop/refine them. The designers of the programme suggest every teacher to read them carefully, comprehend and start using them.

(A) Broad Suggestions:

1- Curriculum implementation takes place at programme, course and class-room level respectively and synchronization among them is required for its success. The first step towards achieving synchronization is to read curriculum document holistically and understand its rationale and philosophy.

2. An academic plan needs to be prepared and made available to all polytechnics well in advance. The Principals have a great role to play in its dissemination and, percolation upto grass-root level. Polytechnics, in turn are supposed to prepare institutional academic plan.

3. HOD of every Programme Department along with HODs and incharges of other departments are required to prepare academic plan at department level referring to institutional academic plan.

4. All lecturers/Senior lecturers are required to prepare course level and class level lesson plans referring departmental academic plan.

(B) Course Level Suggestions

Teachers are educational managers at class room level and their success in achieving course level objectives lies in using course plan and their judicious execution which is very important for the success of programme by achieving its objectives.

Polytechnic teachers are required to plan various instructional experiences viz. theory lecture, expert lectures, lab/workshop practicals, guided library exercises, field visits, study tours, camps etc. In addition, they have to carry out progressive assessment of theory, assignments, library, practicals and field experiences. Teachers are also required to do all these activities within a stipulated period of time. It is essential for them to use the given time judiciously by planning all above activities properly and ensure execution of the plan effectively.

Following is the gist of suggestions for subject teachers to carry out T-L process effectively:

1. Teachers are required to prepare a course plan, taking into account departmental academic plan, number of weeks available and courses to be taught.

2. Teachers are required to prepare lesson plan for every theory class. This plan may comprise of contents to be covered, learning material for execution of a lesson plan. They may follow steps for preparing lesson plan e.g. drawing attention, state instructional objectives, help in recalling pre-requisite knowledge, deliver planned subject content, check desired learning outcomes and reinforce learning etc.

3. Teachers are required to plan for expert lectures from field/industry. Necessary steps are to plan in advance, identify field experts, make correspondence to invite them, take necessary budgetary approval etc.

4. Teachers are required to plan for guided library exercises by identification of course specific experience requirement, setting time, assessment, etc. The assignments and seminars can be thought of as terminal outcome of library experiences.

5. Concept and content based field visits may be planned and executed for such content of course which is abstract in nature and no other requisite resources are readily available in institute to impart them effectively.

6. There is a dire need for planning practical experiences in right perspective. These slots in a course are the avenues to use problem based learning/activity learning/ experiential learning approach effectively. The development of lab instruction sheets for the course is a good beginning to provide lab experiences effectively.

7. Planning of progressive assessment encompasses periodical assessment in a semester, preparation of proper quality question paper, assessment of answer sheets immediately and giving constructive feed back to every student

8. The student centred activities may be used to develop generic skills like task management, problem solving, managing self, collaborating with others etc.

9. Where ever possible, it is essential to use activity based learning rather than relying on delivery based conventional teaching all the time.

10. Teachers may take initiative in establishing liaison with industries and field organizations for imparting field experiences to their students.

11. Students be made aware about issues related to ecology and environment, safety, concern for wastage of energy and other resources etc.

12. Students may be given relevant and well thought out project assignments, which are purposeful and develop practical skills. This will help students in developing creativity and confidence for their gainful employment.

13. A Project bank may be developed by the concerned department of the polytechnics in consultation with related Industry, research institutes and other relevant field organizations in the state.

The following experts have participated in workshop for Developing Curriculum Scheme / Competency Profile / Contents of 1st and 2nd Semester's subjects of diploma course in Interior Design and Decoration for UP State on -14th Oct., 2019 at Govt. Polytechnic, Lucknow:

1. Ar. Subodh Jalota, HOD, Interior Design, Government Girls Polytechnic, Lucknow
2. Ar. K.K. Kushwaha, Lecturer, Interior Design, Government Girls Polytechnic, Lucknow
3. Ar.Mahesh Kumar Singh, Lecturer, Interior Design, Government Girls Polytechnic, Lucknow
4. Sh. Ashok Kushwaha, Text Book Officer, I.R.D.T., Kanpur
5. Ar. Vikas Kulshreshtha, Asstt. Prof., I.R.D.T., Kanpur

The following experts have participated/ contributed in workshop for Developing Curriculum Scheme / Competency Profile / Contents of 3rd , 4th ,5th and 6th Semester's subjects of diploma course in Interior Design and Decoration for UP State through online platform and digital communication mediums:

1. Ar. Sanjeev Singh, Principal, MMIT Polytechnic, Siddharthnagar .
2. Ar. Subodh Jalota, HOD, Interior Design, Government Girls Polytechnic, Lucknow
3. Ar. Jitendra Kumar Maurya, HOD, Interior Design, P.W.D.(on Deputation), Lucknow
4. Ar.Mahesh Kumar Singh, Lecturer, Interior Design, Government Girls Polytechnic, Lucknow
5. Ar. Mukesh Singh, Lecturer, Interior Design, Government Girls Polytechnic, Allahabad.
6. Ar. Umesh Yadav, Lecturer, Interior Design, Government Polytechnic, Allahabad
7. Ar. Pankaj Jaiswal, Lecturer, Interior Design, Government Polytechnic, Ghaziabad
8. Ar. Vikas Kulshreshtha, Asstt. Prof., I.R.D.T., Kanpur