

CURRICULUM

FOR

DIPLOMA PROGRAMME

IN

ARCHITECTURE ASSISTANTSHIP

FOR THE STATE OF HIMACHAL PRADESH



(Implemented w.e.f. Session 2014-15)

Prepared by:-

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July,2014

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PREFACE

India, in last two decades, has made significant progress in all major spheres of activity. Since 1947, the Technical Education System has grown into fairly large sized system, offering opportunities for education and training in wide variety of trades / disciplines at different levels. Needless to say that well trained technical manpower is the backbone of any growing economy in the era of fast industrialization. It has been the endeavor of the Technical Education Department to take decisive steps to enhance the capacities of technical institutions with major emphasis on quality and excellence in technical education .Our country is the only country in the world which has 50% population below the age of 25 years whereas America has 30% and China 40%.Working Age Population (WAP) is increasing in India whereas it is decreasing in other parts in the world. Challenge before us is to train this WAP for the world of work .Updated curriculum is one of the most powerful tools to improve the quality of training.

Curriculum Document is a comprehensive plan or a blue print for developing various curriculum materials and implementing given educational programme to achieve desired and formally pre-stated educational objectives. Moreover it (the document) is the output of exhaustive process of curriculum planning and design, undertaken by the implementers under the expert guidance of curriculum designer.

While working out the detailed contents and study and evaluation scheme, the following important elements have been kept in mind:

- i) Major employment opportunities of the diploma holders.*
- ii) Modified competency profile of the diploma holders with a view to meet the changing needs due to technological advancement and requirements of various employment sectors.*
- iii) Vertical and horizontal mobility of diploma pass outs for their professional growth.*
- iv) Pragmatic approach in implementing all the curricula of diploma programmes in engineering and technology in the state of H.P.*

The document is an outcome of the feedback received from field organizations/ industry of different categories viz. small, medium and large scale which offer wage employment for the diploma pass outs. In every stage of planning and designing of this curriculum, suggestions and advice of experts representing industry, institutions of higher learning, research organizations etc. were sought and incorporated as per the requirement of curriculum . The document contains the study and evaluation scheme and detailed subject/course contents to enable the H.P. Polytechnics to implement revised curriculum and to achieve the desired objectives.

Time has specifically been allocated for undertaking extra-curricular activities. Emphasis has been laid on developing and improving communication skills in the students for which Communication Lab has been introduced during the first year itself.

We hope that this revision will prove useful in producing competent diploma holders in the state of Himachal Pradesh. The success of this curriculum depends upon its effective implementation and it is expected that the managers of polytechnic education system in Himachal Pradesh will make efforts to create better facilities, develop linkages with the world of work and foster conducive and requisite learning environment.

Er. L.R. Rana
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3rd YEAR OF THREE YEAR DIPLOMA PROGRAMME IN ARCHITECTURE ASSISTANSHIP

1. SALIENT FEATURES

- | | |
|-------------------------------|---|
| 1) Name of the Programme : | Three year Diploma Programme
Architecture Assistantship |
| 2) Duration of the Programme: | Three years (06 Semesters) |
| 3) Entry Qualification : | As prescribed by H.P. Takniki
Shiksha Board |
| 4) Intake : | As approved by H.P. Takniki
Shiksha Board |
| 5) Pattern of the Programme : | Semester Pattern |
| 6) Curriculum for : | 3 rd year of Three year Diploma
Programme(Technical Stream) |

7) Student Centred Activities:

A provision of 2-4 hrs per week has been made for organizing Student Centred Activities for overall personality development of students. These activities will comprise of co-curricular & other activities such as expert lectures, games, seminars, declamation contests, educational field visits, NCC, NSS and cultural activities & hobby classes like photography, painting, singing etc.

2. GUIDELINES

2.1 GUIDELINES FOR ASSESSMENT OF STUDENT CENTRED ACTIVITIES (SCA)

Distribution of 25 marks for SCA will be as follows:

- i. 5 Marks shall be given for general behaviour
- ii. 5 Marks for attendance shall be based on the following distribution:
 1. Less than 75% Nil
 2. 75-79.9% 3 Marks
 3. 80-84.9% 4 Marks
 4. Above 85% 5 Marks
- iii. 15 Marks shall be given for the Sports/NCC/Cultural and Co-curricular activities/other activities after due consideration to the following points:
 1. For participation in sports/NCC/Cultural/Co-curricular activities at National or above level, shall be rewarded with minimum of 10 marks
 2. For participation in sports/NCC/Cultural/Co-curricular activities at Inter-polytechnic level, shall be rewarded with minimum of 08 marks
 3. For participation in two or more of the listed activities, 5 extra marks should be rewarded

Note: *Head of Department shall ensure that these marks are conveyed to the H.P. Takniki Shiksha Board, Dharamshala at the end of semester along with sessional record.*

2.2 GUIDELINES FOR SESSIONAL ASSESSMENT

- The distribution of marks for Internal Assessment in theory subjects and drawing shall be made as per the following guidelines:
 - i. 60% of internal assessment shall be based on the performance in the tests. At least three tests shall be conducted during the semester out of which at least one should be house test. 30% weightage shall be given to house test and 30% to class test(One best out of two).
 - ii. 20% marks shall be given to home assignments, class assignments, seminars etc.
 - iii. 20% marks shall be given for attendance/punctuality in the subject concerned.
- The distribution of marks for Internal/External Assessment in practical subjects shall be made as per the following guidelines:
 - i. 60% marks shall be awarded for performance in practical.
 - ii. 20% marks shall be given for Report/Practical book and punctuality in equal proportion.
 - iii. 20% marks shall be for Viva-voce conducted during the practicals.
- The distribution of mark for internal assessment in drawing subjects shall be as per following guidelines:-
 - (i) 60% marks for sheets
 - (ii) 40% for test.

FIFTH SEMESTER (ARCHITECTURAL ASSISTANTSHIP)

Sr. No.	SUBJECTS	STUDY SCHEME Hrs/Week		MARKS IN EVALUATION SCHEME								TOTAL MARKS IN INT. & EXT.
				INTERNAL ASSESMENT			EXTERNAL ASSESMENT					
				Th	Pr	Th	Pr	Total	Th	Hrs	Pr	
5.1	Building Construction-IV	1	6	-	50	50	100	4	50 (viva)	3	150	200
5.2	Architectural Design-IV	1	6	-	100	100	100	6	50 (viva)	3	150	250
5.3	Structural Design-I	3	0	50	-	50	100	4	-	-	100	150
5.4	Estimating & Specification Writing	4	0	50	-	50	100	4	-	-	100	150
5.5	*Generic Skill & Entrepreneurship Development	2	1	50	50	100	50	2	-	-	50	150
5.6	Working Drawing & Detailing Using CAD	0	8	-	100	100	-	-	100 (Practical + Viva)	3	100	200
5.7	Elective -I	4	0	50	-	50	100	3	-	-	100	150
5.8	Professional Training	-	-	-	50	50	-	-	50 (viva)	3	50	100
5.9	Student Centered Activity		4	-	25	25	-	-	-	-	-	25
TOTAL		15	25	200	375	575	550	-	250	-	800	1375

* Common with other diploma programmes.

SIXTH SEMESTER (ARCHITECTURAL ASSISTANTSHIP)

Sr. NO.	SUBJECTS	STUDY SCHEME Hrs/Week		MARKS IN EVALUATION SCHEME								TOTAL MARKS IN INT. & EXT.
				INTERNAL ASSESMENT			EXTERNAL ASSESMENT					
				Th	Pr	Total	Th	Hrs	Pr	Hrs	Total	
6.1	Structure Design-II	3	-	50	-	50	100	4	-	-	100	150
6.2	Architectural Professional Practice	3	-	50	-	50	100	3	-	-	100	150
6.3	Earth Quake Resistant Building Construction Techniques	3	-	50	-	50	100	3	-	-	100	150
6.4	*Basics of Management	3	-	50	-	50	100	3	-	-	100	150
6.5	Comp. Graphics-III	0	6	-	50	50	-	-	100 (viva)	3	100	150
6.6	Major Project	1	11	-	200	200	-	-	100 (viva)	6	100	300
6.7	Elective-II	0	4	-	50	50	-	-	100 (viva)	3	100	150
6.8	*Practices in Communication Skills	0	2	-	50	50	-	-	50	3	50	100
6.9	Student Centered Activity	0	4	-	25	25	-	-	-	-	-	25
TOTAL		13	27	200	375	575	400		350		750	1325

* Common with other diploma programmes.

5.1 BUILDING CONSTRUCTION-IV

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RATIONALE

Students of architectural Assistantship at diploma level are supposed to prepare structural drawings, working drawings and detailed drawings of various components of buildings. Also students are expected to design small residential buildings. For this purpose, it is essential that students are taught various components of building construction comprising of: foundations, super structure, openings, roofs, staircases, flooring and finishing and other allied building components. Therefore, the subject of building construction is very important for students undergoing diploma course in architectural Assistantship. Teachers while imparting instructions are expected to show various components of buildings under construction, make use of models or other audio-visual media to clarify the concepts .While preparing drawings, teachers should lay considerable stress on proportioning, dimensioning, specification writing and printing and composition of drawing work. Teachers should also emphasis on environmental aspects like lighting, ventilation and orientation of buildings. Students should be asked to maintain ask etch book for recording the observations from site visits. While conducting viva, teachers should point out specific mistakes done by students in the preparation of drawings.

DETAILED CONTENTS

Theory

1. Doors and Windows

- 1.1 Using different aluminum sections.
- 1.2 Anodizing of aluminum sections.
- 1.3 Beadings in conjunction with aluminum section.

2. Interiors of Buildings:

- 2.1 False ceilings
- 2.2 Different counters as per usage
- 2.3 Paneling of wall, side boards and ward robes
- 2.4 Design and Drawing Partition

3. Exteriors of Buildings:

- 3.1 Letter box.
- 3.2 Expansion joints
- 3.3 Boundary walls and gates
- 3.4 Drawing and detailing staircase

Practical

1 Doors and Windows

- 1.1 Drawing of aluminum door and window showing fixing, beading, hardware's etc. (3)
- 1.2 Sketch of sliding, folding, sliding and revolving doors. (1)

2 Interiors of Buildings:

- 2.1 Drawing of false ceiling details. (1)
- 2.2 Drawing of counter (1)
- 2.3 Drawing of paneling (1)
- 2.4 Side board of wardrobe (1)

3 Exteriors of Buildings:

- 3.1 Letter box, name plate details (1)
- 3.2 Drawing and detailing staircase (1)
- 3.3 Drawing of boundary wall & gates. (1)
- 3.4 Drawing of Expansion Joints (1)
- 3.5 Drawing and detailing staircase (1)
- 3.6 Drawing of grill railing parapet (1)

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)	
1	30	40	The marks percentage for board exam will be 20% for theory & 80% for practical
2	32	30	
3	36	30	
Total	98	100	

5.2 ARCHITECTURAL DESIGN –IV

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Rationale:

Large percentage of diploma holders in Architectural Assistantship find employment with private Architects and also majority of them go for self-employment. Therefore, diploma holders are required to design small residential and public buildings. This course aims at providing practical exercises in designing so as to develop appropriate knowledge and skills in building design. Teachers are expected to show various types of designs of small to medium residential buildings to develop an appreciation of different designs. Teachers should also motivate students to maintain their sketch book in which they draw line sketches of different architectural styles.

1 Study Report on Parking

1.1 Sizes of Vehicles

1.2 Turning radius

1.3 Road Width

1.4 Different practical layouts

1.5 Working of parking areas

2 Design Building involving more than 4 floor (Multistory concept building)The building can be Hotel/Motel/Hostel, Educational and public buildings.

3 Design housing scheme for group of 50 houses with parking area.

4 Time Problem

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	8	10
2	42	80
3	40	
4	8	10
Total	98	100

5.3 STRUCTURAL DESIGN – I

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RATIONALE

The students of diploma level are expected to prepare drawings at different levels of sanction and execution of project. The students are expected to design small residential buildings when working in an independent capacity and are involved in complex buildings of larger magnitude when working in large office. The students are also expected to have good knowledge of structural members. Knowledge of structural design is essential as it helps in preparation of various drawings. Teachers while imparting instructions are expected to take the students to the site to explain the position of reinforcement in context with the chapters being undertaken. The students can be asked to prepare models of various reinforcements in a group of 4-6 students.

DETAILED CONTENTS

RCC Structural Elements:-

1. Reinforced concrete materials and properties, grades of concrete, working Stresses.
2. **Reinforcing materials**
 - 2.1 Suitability of steel as a reinforcing material
 - 2.2 Different types of reinforcing materials including cold twisted deformed bars
 - 2.3 Loads as per IS-875
- 3 **Theory of RCC beams**
 - 3.1 Assumptions in theory of simple bending in RCC beams
 - 3.2 Flexural strength of reinforced concrete beams
 - 3.3 Flexural members: Neutral axis, critical neutral axis, balanced, under reinforced, over reinforced sections, lever arms, resisting moment of sections
 - 3.4 Shear in beams
 - Effects of shear stresses, permissible shear stresses
 - Diagonal tensions measured as shear stress
 - Vertical stirrups and inclined bars as reinforcement for shear and diagonal tension as per IS provision
 - Length of embedment and anchorage
 - Anchorage value of bends and hooks
- 4 **Singly reinforced beams**
 - 4.1 Calculation of moment of resistance of a simply supported beam for a given data as load span and properties of materials used
 - 4.2 Design of singly reinforced rectangular simply supported beam as per IS from the given data as load span and properties of material used with structural drawing
 - 4.2.1 Design of cantilever beams and its drawings
- 5 **Slabs**
 - 5.1 Design of one way simply supported slab with drawing
 - 5.2 Design of two way slab with the help of IS:456. Design coefficients(continuous) with drawings⁸²
 - 5.3 Structural behaviour and design of continuous beams/slab in one direction showing position of main reinforcement in the drawings using coefficients given in IS:456

6 Columns

- 6.1 Concept of long and short columns as per IS:456. Effective length of Columns
- 6.2 Design of axially loaded long and short columns as per IS:456 provision
- 6.3 Drawing of reinforcement for a column

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	3	10
2	3	
3	8	40
4	8	
5	10	30
6	10	20
Total	42	100

5.4 ESTIMATING AND SPECIFICATION WRITING

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RATIONALE

Diploma holders in Architectural Assistantship find employment with private architects and also some percentage of them start their own enterprises. Therefore, the profession demands the development of basic knowledge and skills of estimating and specification writing. This course covers different methods of taking out quantities, units of measurement, calculation of quantities of materials and preparation of cost estimates and elements of specification writing. Teachers are expected to lay considerable emphasis on estimating and costing exercises from given drawings. Practice of writing broad specifications should also be dealt with.

DETAILED CONTENTS

1. Introduction to estimating - Types of estimates:
2. Different methods of taking out quantities - centre line, in-to-in, out-to-out.
3. Various performas used in estimates - measurement form, abstract of cost and material statement form.
4. Units of measurement and units of payment of different items of work including building services.
5. Preparation of a rough cost estimate, detailed estimates complete with detailed reports, specifications, abstract of cost and material and statement for a small residential building with a flat roof.
6. Calculation of quantities of materials and analysis of rates for: Plain cement concrete of different proportions, Brick and stone masonry in cement and limemortar, plastering and pointing with cement mortar in different proportions; white washing, Thumb rule methods of calculating steel in RCC.
7. Specifications writing: Principles of specifications writing; writing broad specifications of items with special reference to two storied building.
8. Exercises involving choosing of relevant specifications.
9. Accounts: Explanation of ordinary terms used in book keeping, cash book, work order, measurement book, petty cash and imprest, classification of stores, receipts and meaning of rate analysis.

LIST OF BOOKS

1. *Estimating, Costing and Accounts* by DD Kohli and RC Kohli(S Chand and Co)
2. *Estimating and Costing* by BN Dutta

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	3	20
2	6	
3	6	
4	4	10
5	10	20
6	10	20
7	4	10
8	4	
9	9	20
Total	56	100

5.5 GENERIC SKILLS & ENTREPRENEURSHIP DEVELOPMENT

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RATIONALE

In present scenario, there is an urgent need to develop right kind of attitude, knowledge and skills amongst the Diploma engineers leading them to achieve gainful wage/ self employment. There is a huge gap in perceptions of employers and employees regarding meeting the job requirements. Also the dual challenges of competing in global working environment and keeping pace with the rapid technological advancements call for re-design of curricula and thus enabling the importance of employability or generic skills. Entrepreneurship development aim at developing conceptual understanding for setting up owns' business/enterprise to cope up with the problem of unemployment and also to promote the socio- economic development of our country.

Both the subject areas, "generic skills and entrepreneurship development" are supplementary to each other. Knowledge and skills of these must be imparted to diploma engineering students for enhancing their employability and confidence in their personal and professional life.

DETAILED CONTENTS

- 1. Introduction to Generic Skills (02 Hrs)**
 - 1.1 Concept and importance
 - 1.2 Local and global scenario
 - 1.3 Concept of life-long learning (LLL)

- 2. Self-Management and Development (07 Hrs)**
 - 2.1 Concept of Personality Development, Ethics and Moral values
 - 2.2 Concept of Intelligence and Multiple intelligence Types viz, linguistic, mathematical & Logical reasoning, emotional, and social intelligence (interpersonal & intrapersonal).
 - 2.3 Concept of Physical Development; significance of health, hygiene, body gestures & kinesics.
 - 2.4 Time Management concept and its importance
 - 2.5 Intellectual Development; reading skills (systematic reading, types and SQ5R), speaking, listening skills, writing skills (Note taking, rough draft, revision, editing and final drafting), concept of critical Thinking and problem solving (approaches, steps and cases).
 - 2.6 Psychological Management; stress, emotions, anxiety and techniques to manage these.
 - 2.7 ICT & Presentation skills; use of IT tools for good and impressive presentations.

- 3. Team Management (03 Hrs)**
 - 3.1 Concept of Team Dynamics. Team related skills such as; sympathy, empathy, leading, coordination, negotiating and synergy. Managing cultural, social and ethnic diversity.
 - 3.2 Effective group communication and conversations.
 - 3.3 Team building and its various stages like forming, storming, norming, performing and adjourning (Bruce Tuckman's five stage Model)

- 4. Project Management (02 Hrs)**
 - 4.1 Concept of Management and features
 - 4.2 Stages of Project Management; initiation, planning, execution, closing and review (through case studies)

- 4.3 SWOT analysis concept.
- 5. Introduction to Entrepreneurship (02 Hrs)**
- 5.1 Entrepreneurship, Need of entrepreneurship, and its concept, Qualities of a good entrepreneur
- 5.2 Business ownerships and its features; sole proprietorship, partnership, joint stock companies, cooperative, private limited, limited, public limited, PPP mode.
- 5.3 Types of industries viz, micro, small, medium and large
- 6. Entrepreneurial Support System (features and roles in brief) (03 Hrs)**
District Industry Centres (DIC's), State Financial Corporation's (SFC's), Small Industries Service Institutes(SISI), Commercial Banks, Micro Financing Institutions, SIDBI, NABARD, National Small Industry Corporations (NSIC), Cooperative Societies and Venture Capitalists. Various Consultancy Organizations; HIMCON, Khadi and Gramodyog Board (H.P.) etc.
- 7. Market Study and Opportunity Identification (04 Hrs)**
Types of study; primary and secondary, product or service identification, assessment of demand and supply, type of surveys and important features; qualitative, empirical, schedules, questionnaire, interview.
- 8. Project Report Preparation (05 Hrs)**
- 8.1 Preliminary Report, Techno-Economic Feasibility Report, Detailed Project Report (DPR) and illustration of these through examples.
- 8.2 Exercises on writing project reports of micro and small projects.

List of Practical Exercises

1. *Understanding Self Management and Development (Related to Chapter 02); through examples, cases, exercises, panel discussions, seminars, meditation and yoga techniques.*
2. *Team Management (Related to chapter 03); through examples, cases, role plays, group discussions and panel discussions.*
3. *Market Study and Opportunity Identification (Related to Chapter 07); through literature reviewing, making questionnaires, conducting mock interviews and analysing data for product/service identification and demand assessment.*
4. *Project Management and Project Report Preparation (Related to chapter 04 and 08); through exercises on making project reports on micro and small enterprises. Case studies and SWOT analysis of projects can be taken.*

Instructional Strategy

Since the emphasis of present training need and work requirements is on budding entrepreneurs as well as intelligent and multi skilled work force. Therefore skill development and knowledge imparting should be focussed on generic and entrepreneurial skill development. Thus instructional strategy of the subject should be more practical oriented and theories must be taught up to conceptual or informal levels. Different methodologies may be used with inclusive approach and must be supported with different training tools such as group and panel discussions , role plays, case studies, field surveys through questionnaires, schedules and interviews, presentations, seminars and expert talks in practical lectures and through student centred activities. Students may also be provided with extracted study material and handouts too.

Recommended Books:

1. *Generic Skill Development Manual, MSBTE, Mumbai*
2. *Lifelong Learning, Policy Brief (www.oecd.org)*
3. *Towards Knowledge Society, UNESCO Publication, Paris*
4. *Human Learning, Ormrod*
5. *What Work Requires of Schools? SCANS Report: U.S. Department of Labour*
6. *Entrepreneurship Development by CB Gupta and P Srinivasan: Sultan Chand and sons: New Delhi*
7. *Entrepreneurship Development by S. L. Gupta and Arun Mittal: IBH Publication*
8. *A Handbook of Entrepreneurship, Edited by B S Rathore and Dr. J S Saini*
9. *Entrepreneurship Development and Small Business Enterprises by Poornima M: Pearson Education India*
10. *Handbook of Small Scale Industry by P M Bhandari*

Inspirational Books

1. *Stay Hungry stay Foolish by Rashmi Bansal*
2. *An Autobiography by Lee Iacocca*
3. *Steve Jobs: The Biography by Walter Isaacson*

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs.)	Marks Allotted %
1	2	7
2	7	26
3	3	10
4	2	7
5	2	10
6	3	10
7	4	15
8	5	15
Total	28	100

5.6 WORKING DRAWING AND DETAILING USING CAD

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RATIONALE

Preparation of working drawings and detailing forms the most important activities of diploma holder in Architectural Assistantship. Students are expected to develop mastery of skills in preparing working drawings of different building components and their detailing. Therefore, the courses in working drawing and detailing is very important. Teachers while imparting instructions are expected to show various components of building under construction by organizing field visits or use models and other audio-visual media to clarify the concepts involved in preparing working drawings. Teachers are expected to lay considerable stress on proportioning, dimensioning, specification writing, lettering and composition of drawing work whilst supervising students. Teachers should also take into consideration environmental aspects while teaching preparation of working drawings.

DETAILED CONTENTS

To prepare a working drawing of a design project in Auto Cad

1	Site plan	1 sheet
2	Foundation plan and details	1 sheet
3	Ground floor plan	1 sheet
4	Upper floor plans, one for each floor	
5	Terrace plan with rain water drainage details	1 sheet
6	Sections, cross section through staircase and a section through kitchen	2 sheets
7	Elevations - 4 on all sides	2 sheets
8	Details :	
	- Toilet (including plan elevation and section)	1 sheet
	- Modular Kitchen details like overhead cabinet , Working shelf , (including plan elevation and section)	1 sheet
	- Flooring Details	
	- Drawings of water supply, Electrical and sanitation disposal lay out	3sheet

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	8	10
2	8	
3	16	30
4	16	
5	8	
6	12	20
7	12	
8	32	40
Total	112	100

5.7 ELECTIVE- I

- 5.7.1 HOUSING
- 5.7.2 TOWN PLANNING
- 5.7.3 GREEN BUILDINGS
- 5.7.4 CONSTRUCTION MANAGEMENT
- 5.7.5 VAASTU – SHASTRA

5.7.1 HOUSING

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RATIONALE

The students of Architectural Assistantship should have sufficient understanding about the various policies of EWS, LIG, MIG, HIG etc. Through this subject, they shall be given an idea about the housing policy, financing schemes and state housing development agencies.

DETAILED CONTENTS

1. Housing as a human need, social, cultural and economic factors affecting the housing needs. (6 hrs.)
 - Type of housing
 - Detached, semidetached, Patio Type, Row houses, apartments. (7 hrs.)
2. Layouts of housing
Row type, curvilinear, cluster, cul-de-sacs, high rise (any one example of each layout) (9 hrs.)
3. Housing standards with reference to building codes Zoning, Density, FAR, Setbacks, height (5 hrs.)
4. Housing for (9 hrs.)
 - Economically weaker sections
 - Low income group/Middle income group.
 - Site and services scheme.
 - Slum clearance/Slum up-gradation
 - Various standards & policy with one example of each type.
5. Cost effective building technology and materials in housing. (5 hrs.)
6. Housing policy & finance
Role of Government (Hudco and National Housing Board) in housing, Public private participation, cooperative housing. (7 hrs.)
7. Study of housing in a neighborhood unit with reference to circulation pattern, open spaces shopping, health and educational facilities. (e.g. study to be done as a group project) (8 hrs.)

RECOMMENDED BOOKS

1. *Town & country planning by V.N. Modhak.*
2. *Town Planning made plain-Louis Keeble.*

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	13	20
2	9	16
3	5	10
4	9	16
5	5	10
6	7	12
7	8	16
Total	56	100

5.7.2 TOWN PLANNING

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4 - -

RATIONALE

Sum percentage of students find employment in the state department of town and country planning housing board and urban development authorities Student are expected to prepare master plan and layout of housing schemes road parking etc Therefore the course in Town Planning equip the student with appropriate knowledge to perform above said functions .While teaching this subject teachers should show some of the typical master plan and layout plan to bring conceptual clarity the mind of students.

DETAILED CONTENTS

- 1. Introduction to town planning**
 - 1.1 Objects of town planning
 - 1.2 Importance of town planning
 - 1.3 Principle of town planning
- 2 Origin and growth of old India cities**
 - 2.1 Mohanjodaro and Harappa
 - 2.2 Taxila and Nalanda
- 3 Planning Process**
 - 3.1 Site selection
 - 3.2 Site planning
 - 3.3 Tow an Villages
 - 3.4 Ancient For of Village Planning
- 4 The city of Delhi origin and growth from ancient to modern**
- 5 The process of urbanization**
 - 5.1 Urban and rural definition
 - 5.2 Migration
- 6 City development plan:-**
 - 6.1 Master plan regional plan in relation to Chandigarh
 - 6.2 Neighborhood unit housing group
- 7 Urban traffic roads regional roads local street footpath cycle path junction**
- 8 Zoning -use zoning height zoning density zone density net and gross.**

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	5	10
2	9	15
3	9	15
4	5	25
5	7	
6	7	15
7	7	10
8	7	10
Total	56	100

5.7.3 GREEN ARCHITECTURE

L T P
4 - -

RATIONALE

One of the most challenging area of concern for the upcoming Architecture students of this country is to think in terms of Energy Saving & sustainable planning of the buildings. Students are expected to prepare building plan based up on the Green Building concept. Therefore the course in Green Architecture will equip the student with appropriate technologies to achieve the above said functions. While teaching this subject teacher should show some of the Building plans based upon Green Architecture concept bring conceptual clarity in the mind of students.

Unit-I

Introduction to concept of green buildings, efficient use of energy, water and other resources. Protecting occupant health and improving employee productivity.

Unit II

Reduction in waste, pollution and environment de gradation. Sustainable design to achieve environmental, economic and social benefits. Concept of L.C.A (life cycle assessment)

Unit-III

Energy Efficiency – active and passive techniques. Importance of passive techniques. Role of orientation, shading and vegetation. Solar gain for winters. Optimization of daylight. Solar water heating. Solar, wind, hydro and biomass power generation and use.

Unit-IV

Operation and maintenance optimization, waste reduction and recycling. An eco-Friendly concept.

Unit-V

Developing a small residential building plan /layout based up on the concept of Green Architecture

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	11	20
2	11	20
3	12	20
4	11	20
5	11	20
Total	56	100

5.7.4 CONSTRUCTION MANAGEMENT

L T P
4 - -

RATIONALE

Many a times the contractors engage the services of Architectural Assistants to manage the construction sites. The students should have sufficient knowledge of CPM/PET, Safety at site and labor welfare schemes.

DETAILED CONTENTS

- 1. Introduction to Site Planning & Management (8 hrs.)**
 - Significance
 - Objectives & Functions of Construction Management.
 - Resources for construction
 - Construction Team
- 2. Construction Planning (8 hrs.)**
 - Introduction to planning
 - Latest Breakdown Structure.
 - Schedule
 - Preparation of material, equipment, labor & finance schedules.
- 3. Network Technique (14 hrs.)**
 - Introduction
 - Critical Path Method (CPM)
 - Progressive Evaluation & Review Technique (PERT)
 - Introduction network development & analysis (with simple examples)
- 4. Site organization (8 hrs.)**
 - Principles of organization
 - Communication, leadership & Human relation
 - Site organization
 - Temporary services
 - Job Layout
- 5. Inspection & Quality Control (10 hrs.)**
 - Need for inspection & Quality Control
 - Principles of inspection
 - Enforcement of specification
 - Stage of inspection & Quality Control
- 6. Safety in Construction (8 hrs.)**
 - Importance of safety
 - Safety measures in different construction activities
 - Excavation, Form Work, Shuttering Removal Process Etc.

RECOMMENDED BOOKS

Construction Planning & Management by PS Gahlot & BM Dhir International (P) Ltd., Publisher, New Delhi.

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	8	5
2	8	15
3	14	20
4	8	20
5	10	20
6	8	20
Total	56	100

5.7.5 VAASTU – SHASTRA

L T P
4 - -

RATIONALE

Student of Architectural Assistantship at the diploma level are Expected to know Design and execute building interiors. The atmosphere contains lot of energy, such as solar energy, magnetic energy, cosmic energy, wind energy, light energy, sound energy & so on. Man also breaths, vibrates & maintains certain magnetic waves if these waves are in resonance then the inside of the house produces an ambience for happy & wealthy life. Vaastu Shastra is an ancient science of building & town planning. Teacher while imparting instruction are expected to explain concept and principles of VaastuShastra

DETAILED CONTENTS

1. Generals:

- 1.1 Importance of different Directions in Vaastushastra
- 1.2 Location of water source Etc.
- 1.3 Location of water storage tanks , Septic Tank, Entrance Gate Etc.(22 Hrs)

2 Site Selection (16 Hrs)

3 General residential building planning as per Vaastu considering various points like Position of rooms, Position of doors & windows,Staircase Etc. (18 Hrs.)

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1	22	40
2	16	20
3	18	40
Total	56	100

6.1 STRUCTURAL DESIGN –II

L T P
3 - -

1. Steel Structural Elements:

- 1.1 Structural steel and steel sections, study of steel tables and reading of data for steel sections
- 1.2 Structural connections
 - 1.2.1 Riveted connections, types of rivets, forces in rivets, types of riveted joints with Sketches
 - 1.2.2 Welded connections, types of welds, forces in welds, types of welded connections with sketches.
 - 1.2.3 connections with sketches.

2 Beams –

- 2.1 Design of beams with single RS section as per IS:800 and handbook for span and Loads
- 2.2 Design of tension and axially loaded compression members
- 2.3 Design of usually loaded compression members

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1	21	50
2	21	50
Total	42	100

6.2 ARCHITECTURAL PROFESSIONAL PRACTICE

L T P
3 - -

Rationale

The knowledge of this subject is required for all engineer/technicians who wish to choose industry/field as their career. This course is designed to develop understanding of various functions of management, role of workers and architects and providing skills with respect to marketing, industrial safety, CPM, PERT, communication and entrepreneurship etc. which are essential attributes for a successful technician.

DETAILED CONTENTS

- 1 **Tenders and Quotations** (7hrs)
Tenders, essential characteristics of a tender notice, types of tender, tender documents, simple exercises on preparation of tender document, comparative statements (technical and cost comparisons), work order, supply order, Inspection
- 2 **Contract** (7hrs)
 - 2.1 General Principles of contract
 - 2.2 Types of contract and their advantages and disadvantages and suitability
 - 2.3 Architect duties and liabilities under the contract
 - 2.4 Contractors duties and liabilities
 - 2.5 Employer's duties and liabilities
- 3 **Architect and his work** (4hrs)
 - 3.1 Structure of an architect's office
 - 3.2 Office and management
 - 3.3 Architects duties to his employees under labor welfare provision
- 4 **Code, competition fees** (4hrs)
Architectural competitions, professional conduct, conditions of engagement and Scale of professional fees and charges.
- 5 **Architect act, 1972** (7hrs)
- 6 **CPM and PERT** (13hrs)
 - 6.1 Introduction to CPM & PERT
 - 6.2 Development of CPM networks Pertaining to simple engineering works

REFERENCE BOOKS

1. *Professional practice by Roshan Namavati*
2. *Tender Documents by Labour Law*

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1	7	16
2	7	16
3	4	10
4	4	10
5	7	18
6	13	30
Total	42	100

6.3 EARTHQUAKE RESISTANT BUILDING CONSTRUCTION TECHNIQUES

L T P
3- -

RATIONAL

Diploma holders in Arch. Astt have to supervise construction of various earthquake resistant buildings. Therefore, the students should have requisite knowledge regarding terminology of earthquake and the precautions to be taken while constructing earthquake resistant buildings

DETAILED CONTENTS

1.Elements of Engineering Seismology

General features of tectonic of seismic regions. Causes of earthquakes, Seismic waves, earthquake size (magnitude and intensity), Epicentre, Seismograph, Classification of earthquakes, Seismic zoning map of India, Static and Dynamic Loading, Fundamental period.

2.Seismic Behavior of Prevailing Building constructions Methods in India

Performance of building during earthquakes and Mode of failure (Out-of plane failure, in-plane failure, Diaphragm failure, Connection failure, Nonstructural components failure)

3. Special construction techniques, tips and precautions to be observed while planning, and constructing earthquake resistant buildings.

4. Introduction to IS: 4326, IS: 13828, IS: 1893(Part 1), 154326 and IS: 13920 (latest edition)

5. Seismic Provision of Strengthening and Retrofitting Measures for Traditionally-Built Constructions, Brick and RCC Structures

INSTRUCTIONAL STRATEGY

The student may be taken for visit to various building construction sites where precautions related to earthquake resistant construction are being taken so that the students may appreciate the importance of the subject.

RECOMMENDED BOOKS

1. *Elements of Earthquake Engineering by Jai Krishana and AR Chandrasekaran; Sarita Parkashan, Meerut. 115*
2. *Building Construction by BL Gupta and NL Arora, Satya Prakashan, New Delhi*
3. *Manual Published by Earthquake Engineering department, IIT Roorkee / IIT Kanpur*
4. *IS 13920, IS: 13827, IS: 13828, IS 1893-2002, IS 4326 (latest edition)*

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1	10	25
2	10	25
3	10	20
4	4	10
5	8	20
Total	42	100

6.4 BASICS OF MANAGEMENT

L T P
3 - -

RATIONALE:

Diploma holders are expected to take up middle level managerial positions, their exposure to basic management principles is very essential. Some topics like Structure and ownership of Organization, Leadership, Motivation, Customer Relationship Management (CRM), Legal Environment of Business, Environmental Management, Accident and Safety: Total Quality Management (TQM), Intellectual Property Rights (IPR) etc. have been included in the subject.

DETAILED CONTENTS

1. **Introduction:** (12 hrs)
Definition and concept of management, functions of management- planning, organizing, staffing, coordinating and controlling. Various areas of management-
 - (a) Human Resource Management(HRM)-Manpower recruitment and selection, induction , training and development and performance appraisal.
 - (b) Financial Management- Meaning of financial management, its importance, various sources of finance- long term and short term. Concept of Internal Rate of Return(IRR), Net Present Value (NPV) and Average Rate of Return.
 - (c) Marketing Management- Product life cycle, concept of pricing, promotion strategies- advertising, sales promotion and market research.
 - (d) Material Management – Inventory management, concept of economic order quantity and waste management.

2. **Structure and Ownership of Organization:** (04 hrs)
Concept and structure of an organization, hierarchical management structure (top, middle and lower level management), functional management structure and matrix organizational structure. Types of business ownership (salient features)- Sole Proprietorship, Partnership, Joint Stock Companies and Cooperative Ownership.

3. **Leadership:** (02 hrs)
Meaning, importance , types of leadership and qualities of a good leader.

4. **Motivation:** (04 hrs)
Concept and importance of motivation-drives and incentives, types of motivation and theories of motivation- Abharam Maslow Theory and Herzberg Two Factor Theory.

5. **Customer Relationship Management:** (04hrs)
Need, various types of customers, customer satisfaction, Customer Satisfaction Index(CSI) and its significance in playing effective role of engineers in changing scenario.

- 6. Legal Environment and Business:** (08 hrs)
- Various labour laws and its necessity. Salient features of Income Tax Act – computation of income tax on salary income, Sales and Excise Tax Act- VAT & Excise duty and Factory Act. 1948.
 - Labour Welfare Schemes including wage payment-types, system of wage payment and incentives.
 - Intellectual Property Rights(IPR)- Concepts, infringements and remedies related to patents, copy rights, trademarks and designs.
 - Accident and Safety- Meaning and concept of accident and safety, causes, safety precautions and various measures after accidents.
- 7. Total Quality Management:** (04 hrs)
- Meaning and concept of Total Quality Management(TQM), various factors/measures to achieve TQM in an organization. Standards and Codes- National & International.
- 8. Environmental Management:** (04 hrs)
- Concept of ecology and environment, factors contributing to air pollution, water pollution and noise pollution. Different measures to control pollution. Disaster management-features and measures.

INSTRUCTIONAL STRATEGY:

Generally the diploma holders occupy middle level managerial positions in an organization, therefore, their exposure to basic management principles is very essential. Accordingly students may be given conceptual understanding of different topics related to management. Some of the topics may be taught using question answer, assignment or seminar. The teacher will discuss success stories and case studies with students, which in turn, will develop appropriate managerial qualities in the students. In addition, expert lectures may also be arranged from within the institutions or from management organisations. Appropriate extracted reading material and handouts may be provided.

RECOMMENDED BOOKS:

- Principles of Management by Philip Kotler TEE Publication*
- Principles and Practice of Management by Shyamal Bannerjee: Oxford and IBM Publishing Co, New Delhi.*
- Financial Management by MY Khan and PK Jain, Tata McGraw Hill Publishing Co.: 7, West Patel Nagar , New Delhi.*
- Modern Management Techniques by SL Goel: Deep and Deep Publications Pvt. Limited , Rajouri Garden, New Delhi.*
- Management by James AF Stoner, R Edward Freeman and Daniel R Gilbert Jr. : Prentice Hall of India Pvt Ltd, New Delhi.*
- Essentials of Management by H Koontz, C O' Daniel , Mc Graw Hill Book Company, New Delhi.*
- Marketing Management by Philip Kotler, Prentice Hall of India, New Delhi*
- Total Quality Management by Dr DD Sharma, Sultan Chand and Sons, New Delhi.*
- Intellectual Property Rights and the Law by Dr. GB Reddy.*
- Service Quality Standards, Sales & Marketing Department, MarutiUdyog Ltd.*
- Customer Relationship Management: A step-by-step approach, Mohamed & Sagadevan Oscar Publication, Delhi*
- Customer Relation Management, Sugandhi RK, Oscar Publication, Delhi*
- Environment Engineering by GN Pandey & GC Pandey, Tata McGraw Hill Publication.*

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	12	20
2	4	10
3	2	08
4	4	12
5	4	10
6	8	18
7	4	10
8	4	12
TOTAL	42	100

6.5 COMPUTER GRAPHICS-III

L T P
- - 6

RATIONALE

This subject is introduced to make the diploma students of architecture aware of the applications of computer technology in the field of architectural visualization. The aim is to provide an opportunity to the students to learn and develop themselves as professionals who can work of their own and are able cater to the needs of architecture industry. This isa highly skilled field and can generate a lot of job opportunities for the diploma students. The subject will be taught through practical classes using the 3D visualization software such as Revit, 3DS max and Sketch Up etc. The faculty for the subject has to be well trained in developing the architectural 3D models and architectural animation.

DETAILED CONTENTS

Note: Teachers will give theoretical inputs (instructions) while conducting practical's.

1. File management

Import, export, file link, file save, merge etc.

2. Customization

Setting units, grids, snap setting etc.

3. Layer management

Naming layers, renaming layers deleting layers etc.

4. Creating and Editing objects and parameters 10 hrs

Standard primitives, extended primitives compound objects, splines, nurbs, patches, solid objects, 3D mesh etc. working on AutoCAD drawing to develop 3Dmodel

5. Edit tools

Mirror, array, align, copy, move, rotate, rename objects, hide, unhide, group objects, ungroup objects etc.

6. Modifiers and application Simple exercises

7. Utilities and application Simple exercises

8. Materials and mapping Simple exercises

9. Rendering

Environment, camera, lights, rendering, saving the views

ASSIGNMENTS

- Develop a 3 D model from an AutoCAD drawing of an existing building or design studio project.
- Develop a 3D model of any building of the final semester Design project.
- Using latest versions of Cad Softwares like Ravit Series, 3-D Max etc.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1,2,3	14	20
4,5,6	20	20
7,8,9	50	60
Total	84	100

6.6 MAJOR PROJECT

L T P
1 - 11

Objective

To use and synthesise knowledge of various disciplines in an architectural project of the students' own choice.

Content

- A. The major project will comprise the following:
An illustrated report, which will include the validity and scope of the chosen project, methodology, prototype studies, site analysis, client's and architect's briefs, delineation of programme and design criteria.

A fully worked-out design proposal including consideration of site planning structures, services, and any other aspects/specific to the project.

Stages of Work:

1. Approval of project:
The intent of the major project as well as the criteria for selection of the project will be introduced to the students in the previous semester, i.e. 5th Semester or after exams
2. Rough Report, comprising all analytical aspects of the project including the synopsis, library studies, prototype studies, site analysis, delineation of building program, etc.
Evolution of Design, to be worked out in a minimum of four stages.
The original copy of the report, the final drawings and models will be returned to the student after the declaration of the result. The photocopy of the report will be retained for reference in the college library.
3. Schedule of submissions/examination.

Stages of Work		Time allocated	Max. Marks
1.	Sessional Work		
(a)	Rough Report		
	i) Introduction & topic finalization	12	10
	ii) Synopsis	12	10
	iii) Preliminary Library studies	12	10
	iv) Site analysis, Prototypes additional library studies	24	10
b)	Evolution of Design		
	i) Design Criteria and Concept	24	10
	ii) Design Proposal Stage-I (COMPUTER ADDED DRAWING/ SITE PLAN/PLAS /SECTION /ROUGH SKETCHES VIEWS	12	10

	iii)	Design Proposal Stage-2 (incorporating structures & services) Block model	12	10
	iv)	Pre-final Design	12	30
(c)	<u>Draft Final report</u> (Incorporating improvements suggested in Rough Report, Design Criteria and explanatory sketches of Evolution of Design). Presentations drawings with computer added /views along with detail model clearing the concept.		48	100
2.	External Examination		168	200

NOTE:

Students are required to submit the Final Report, all final drawings and model/s in the standard format prescribed.

6.7 ELECTIVE-II

- 6.7.1 ARCH. GRAPHICS
- 6.7.2 INTERIOR DESIGN
- 6.7.3 HILL ARCHITECTURE
- 6.7.4 LANDSCAPE DESIGN
- 6.7.5 ADVANCE MODEL MAKING

6.7.1 ARCHITECTURAL GRAPHICS

L T P
- - 4

RATIONAE

Student graduating from the diploma programmes are expected to assist in the preparation of presentation of drawing for different purpose in different mediums Student, expert in this area can use this knowledge even for self-employment. This subject would cover all the aspect concerned with the preparation and rendering of drawing an perspective views

DETAILED CONTENTS

i. Rendering of Basic Drawing in Ink and Pencil Separately:

- 1.1 Darwin human figures vehicle and trees
- 1.2 Scoigraphy rendering techniques
- 1.3 Site rendering techniques
- 1.4 Elevational rendering

2 Darwin an Rendering of Views:

- 2.1 Darwin practice of one point and two point perspective
- 2.2 Rendering of perspective in black an white and colour

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1	28	50
2	28	50
Total	56	100

6.7.2 INTERIOR DESIGN

L T P
- - 4

RATIONALE

Students of Architectural Assistantship at the diploma level are expected to know, design and execute building interiors. Therefore, the basic knowledge of building construction and detailed knowledge of building materials is required. With the knowledge of this subject the students can help in handling interior projects from the concept stage to the project implementation stage. Also this exercise is necessary since the interiors are becoming more integral part of architecture and considerable stress is being laid in interior design. Teachers while imparting instructions are expected to explain concepts and principles introducing various building finishing materials. The course would be supplemented with literature and samples of materials. Note:- There shall be no theory in this subject. However, relevant theory shall be taught along with drawing work only.

DETAILED CONTENTS

1. **Space Analysis** **(3 sheets)**
 - a. Living Room
 - b. Dining
 - c. Kitchen
 - d. Bedrooms, Children bedrooms
 - e. Toilets (Public, Residential)
 - f. Restaurants/fast foods
 - g. Lobbies/Waiting space
 - h. Office
 - i. Shops

2. Case Studies of Live projects with respect to circulation, activities, furniture, colour scheme, wall, floor finishes, Electrical fixtures and other items (Paintings, murals, waterfalls etc.)
 - a. Houses
 - b. Offices
 - c. Shops
 - d. Restaurant/Fast Food

Note: Any one case study to be taken in the form of report with the help of sketches and photographs.

3. **Materials**
Market survey of materials, appropriate uses of materials for wall finishes, flooring/ceiling and arrangement of electrical fixtures and other items. Collection of samples and catalogue from market

4. Interior Design problem of Restaurants, Houses, Offices, Shop (Any one project to taken) (5sheets)
 - a. Detailed Plan showing furniture, partition, storage and plants etc.
 - b. Elevations
 - c. Sectional elevations (wall treatments)
 - d. Colour schemes and one point perspective
 - e. False ceiling and electrical layout

Total No. of sheets= 8 sheets; Samples and Report

Following books/magazines may be used for reference study material:

BOOKS

1. Time sever standards for Interior Design and space planning.
2. Interior Design by Ahmed Kasu.
3. Nufert Archtect's data

MAGAZINES

- a) Inside out side
- b) Indian design magazine
- c) Society exteriors
- d) A+D
- e) Publication of council of Architecture

INSTRUCTIONAL STRATEGY

While imparting the instructions in the class room, teachers should present case studies of some typical interior design works of houses, offices, shops, restaurants and other public buildings of national and international fame. The teacher should procure relevant audio visual material on the subject and present them to the students. Field visits' to the local buildings with typical interior designs may also be arranged. Experts working in the area of interior design may be invited to deliver lectures and presenting case studies. Students may be encouraged to take up some independent assignment for interiors of local buildings with the help of practicing interior designers. Students should maintain portfolio and give seminar towards the end of the session.

RECOMMENDED BOOKS

1. *Time saver for store planning and design-Charles E. Brondy*
2. *The best interiors and life styles of India-by the Indian and Eastern Engineering Co Ltd.,*
3. *Human Relastion'soliver (latest volume)*
4. *Indian Interiors (by Angelika Tashen.).*
5. *Inter-wood (Published by Monica International)*
6. *Design & decorate: Living room*
7. *Design & decorate: Bathroom*

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1	8	20
2	8	
3	8	
4	32	80
Total	56	100

6.7.3 HILL ARCHITECTURE

LTP
- 4

RATIONALE

Building on the hills has been a challenge to man from time immemorial. The constraints of climate, topography and the local building materials produced rich traditions of vernacular architecture. In the present context of environmental concerns that the hills face – a greater responsibility has been thrust on architects and builders. The objectives of this course are to impart a comprehensive knowledge of these historical aspects and present day concerns.

Content

UNIT-I

Historical perspective of hill architecture and its unique contribution & concerns.
The study of Major hill settlements/layouts in various regions of the world.

UNIT-II

Traditional hill settlements of India.

An overview of vernacular hill architecture of Himachal Pradesh.

Building types, techniques and materials of vernacular architecture of Himachal Pradesh.

Study of vernacular architecture and their time tested indigenous technology.

UNIT-III

Study the layout of modern buildings on the hills in India.

Constraints of climate, topography and availability of materials.

Design factors such as access, circulation and gradients.

Structural aspects of modern buildings and necessary safeguards.

Environmental and ecological concerns and safeguards.

Unit-IV

Study of contours, gradient & lay outs of hilly sites/region

Design & detail of retaining walls used in hilly areas

Note:-*The students are required to design a detailed plan of the building situated in hilly region showing various constructional details pertaining to the construction techniques being used in Hilly Region*

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1	8	10
2	8	10
3	16	20
4	24	60
Total	56	100

6.7.4 LANDSCAPE DESIGN

L T P
- - 4

RATIONALE

The basic knowledge of elements related to landscaping and their principles are very essential for the students of Architecture Assistantship. Through this subject, the students shall be introduced to relationship of landscaping and climate, besides an understanding of outdoor functional spaces.

DETAILED CONTENTS

- 1 Principles & Elements of Landscape design
 - a. Plants, water, Earth forms and stones, Artificial or man-made elements,
 - b. Principles of landscape design with respect to architectural functions
Form, Symmetry and Balance, Texture, Colour, Contrast, Proportions and scale, Simplicity, Focus, Rhythm, Aesthetics (Visual aspects and functional aspects).
- 2 Relationship of landscape & climate
 - a. Orientation
 - b. Sun Control by Plants
 - c. Wind control by plants
 - d. Microclimate and Human comfort
- 3 Practical
 - a) Landscape design of an outdoor area within an existing building or group of buildings.
 - b) Park design
 - c) Landscape design of the architectural design project students are currently working on.
 - d) Representation of Landscape drawings

INSTRUCTIONAL STRATEGY

Independent assignments for drawings and case studies followed by viva-voce way and may be given to the students. Students should be encouraged to prepare reports/audiovisual presentation of the observations made by them during the field visits. Experts from the field may be invited to deliver lectures and presentations.

RECOMMENDED BOOKS

- i. *Landscape Architecture by symonds published by MC. Graw Hill, Book Company*
Urban Landscape Design by Garnett Eckko Published by M.C. Graw Hill, Book Company.
- ii. *Landscape Design that save energy by Anne Simon Majfat& Marc Schiler*
- iii. *Flowering trees of India and beautiful gardens of India by M.S. Randhawa*
- iv. *Flowering trees by RajnishWattas*
- v. *The Landscape of Man – Geoffrey Jellicoe, Publisher Thames and Hudson London (1995)*
- vi. *A Visual Approach to Park Design – Albert J Rutledge, Publisher Garland STPM Press, New York (1981)*
- vii. *Landscape Architecture – Simonds John O, Publisher Mc Graw Hill Book Company London (1961)*
- viii. *Earthscape : A Manual of Environmental Planning – Simonds John O, PublisherMc Graw Hill Book Company London (1978)*
- ix. *Trees in Chandigarh – Ms Randhawa, Publisher*

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	8	10
2	16	20
3	32	70
Total	56	100

6.7.5 ADVANCE MODEL MAKING

L T P
- - 4

RATIONALE

Students of Architectural Assistantship at diploma level are expected to assist in the preparation of architectural models of various kinds in their professional career. This skill can also form a basis of self-employment. This subject aims at developing advance-model making skills in the students.

DETAILED CONTENTS

- 1 Making Models of
 - 1.1 Detail of jail
 - 1.2 Gate and grill details
 - 1.3 Railing details
- 2 Model of any one design problem
 - 2.1 Block Model (preferably using thermo coal/wooden blocks)
 - 2.2 Site Presentation Model including vehicles, roads layout and landscape elements etc of any campus building.
- 3 Detailed Model of any double storied building; With site, roads, trees, vehicles

Note:*The materials to be used for making models shall be at the discretion of teacher depending on the availability.*

INSTRUCTIONAL STRATEGY

Students should be given maximum practice developing appropriate skills in modelmaking.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	12	20
2	20	30
3	24	50
Total	56	100

6.8 PRACTICES IN COMMUNICATION SKILLS

L T P
- - 2

RATIONALE

For successful completion of diploma programme, the students should possess adequate command on language and communication skills so that they are able to express themselves with ease and felicity. The language used by the students should be appropriate to objectives and occasion. The contents of this subject shall provide them practical training through language laboratory.

LIST OF PRACTICAL EXERCISES

1. Exercises on phonetics
2. Group Discussion
3. Exercises on self-assessment using tools like SWOT analysis.
4. Internet communication
5. Correspondence
 - 5.1 Resume writing
 - 5.2 Covering letter
 - 5.3 Follow-up correspondence
 - 5.4 Business Correspondence
6. Practice on listening skills.
7. Speaking exercises with emphasis on voice modulation (reading and extempore)
8. Demonstration and practice on Body language and Dress sense.
9. Exercises on etiquettes and mannerism in difficult situations like business meetings, table manners, telephone etiquette and manners related to opposite gender.
10. Mock interviews (telephonic/personal)
11. Cross-cultural Communication
12. Role play for effective Communication.
13. Exercises on wit and humour in conversations and creating lively environment.