6.1 EMPLOYABILITY SKILLS – II

L	T	P
-	-	2

RATIONALE

The present day world requires professionals who are not only well qualified and competent but also possess good communication skills. Our diploma students not only need to possess subject related knowledge but also soft skills to get good jobs or to rise steadily at their work place. The objective of this subject to prepare students for employability in job market and survive in cut throat competition among professionals.

DETAILED CONTENTS

1. Oral Practice

i)	Mock interview	(05 hrs)
ii)	Preparing for meeting	(05 hrs)
iii)	Group discussion	(05 hrs)
iv)	Seminar presentation	(05 hrs)
v)	Making a presentation	(12 hrs)

a) Elements of good presentation
b) Structure and tools of presentation
c) Paper reading
d) Power point presentation

6.2 ENTREPRENEURSHIP DEVELOPMENT AND MANAGEMENT

L	T	P
3	-	-

RATIONALE

In the present day scenario, it has become imperative to impart entrepreneurship and management concepts to students so that a significant percentage of them can be directed towards setting up and managing their own small enterprises. This subject focuses on imparting the necessary competencies and skills of enterprise set up and its management.

DETAILED CONTENTS

SECTION – A ENTREPRENEURSHIP

1. Introduction (14 hrs)

- Concept /Meaning and its need
- Qualities and functions of entrepreneur and barriers in entrepreneurship
- Sole proprietorship and partnership forms of business organisations
- Schemes of assistance by entrepreneurial support agencies at National, State, District –level, organisation: NSIC, NRDC, DC, MSME, SIDBI, NABARD, Commercial Banks, SFC's TCO, KVIB, DIC, Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks

2. Market Survey and Opportunity Identification (10 hrs)

- Scanning of the business environment
- Salient features of National and State industrial policies and resultant business opportunities
- Types and conduct of market survey
- Assessment of demand and supply in potential areas of growth
- Identifying business opportunity
- Considerations in product selection

3. Project report Preparation (8 hrs)

- Preliminary project report
- Detailed project report including technical, economic and market feasibility
- Common errors in project report preparations
- Exercises on preparation of project report

SECTION –B MANAGEMENT

4. Introduction to Management (04 hrs)

- Definitions and importance of management
- Functions of management: Importance and process of planning, organising, staffing, directing and controlling
- Principles of management (Henri Fayol, F.W. Taylor)
- Concept and structure of an organisation
- Types of industrial organisations
  a) Line organisation
  b) Line and staff organisation
  c) Functional Organisation

5. Leadership and Motivation (03 hrs)

a) Leadership

- Definition and Need
- Qualities and functions of a leader
- Manager Vs leader
- Types of leadership

b) Motivation

- Definitions and characteristics
- Factors affecting motivation
- Theories of motivation (Maslow, Herzberg, Douglas, McGregor)

6. Management Scope in Different Areas (06 hrs)

a) Human Resource Management

- Introduction and objective
- Introduction to Man power planning, recruitment and selection
- Introduction to performance appraisal methods

b) Material and Store Management

- Introduction functions, and objectives
- ABC Analysis and EOQ

c) Marketing and sales

- Introduction, importance, and its functions

- Physical distribution
- Introduction to promotion mix
- Sales promotion

d) Financial Management

- Introductions, importance and its functions
- Elementary knowledge of income tax, sales tax, excise duty, custom duty and VAT

7. Miscellaneous Topics (03 hrs)

a) Customer Relation Management (CRM)

- Definition and need
- Types of CRM

b) Total Quality Management (TQM)

- Statistical process control
- Total employees Involvement
- Just in time (JIT)

c) Intellectual Property Right (IPR)

- Introductions, definition and its importance
- Infringement related to patents, copy right, trade mark

Note: In addition, different activities like conduct of entrepreneurship awareness camp extension lecturers by outside experts, interactions sessions with entrepreneurs and industrial visits may also be organised.

INSTRUCTIONAL STRATEGY

Some of the topics may be taught using question/answer, assignment or seminar method. The teacher will discuss stories and case studies with students, which in turn will develop appropriate managerial and entrepreneurial qualities in the students. In addition, expert lecturers may also be arranged from outside experts and students may be taken to nearby industrial organisations on visit. Approach extracted reading and handouts may be provided.

RECOMMENDED BOOKS

1. Soft Skills for Interpersonal Communication by S.Balasubramaniam; Published by Orient BlackSwan, New Delhi
2. Generic skill Development Manual, MSBTE, Mumbai.
3. Lifelong learning, Policy Brief (www.oecd.orf)

4. Lifelong learning in Global Knowledge Economy, Challenge for Developing Countries – World Bank Publication
5. Towards Knowledge Society, UNESCO Paris Publication
6. Your Personal Pinnacle of Success by DD Sharma, Sultan Chand and Sons, New Delhi
7. Human Learning, Ormrod
8. A Handbook of Entrepreneurship, Edited by BS Rathore and Dr JS Saini; Aapga Publications, Panchkula (Haryana)
9. Entrepreneurship Development by CB Gupta and P Srinivasan, Sultan Chand and Sons, New Delhi
10. Handbook of Small Scale Industry by PM Bhandari

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	14	28
2	10	20
3	08	16
4	04	10
5	03	06
6	06	14
7	03	06
Total	**48**	**100**

6.3 QUANTITY SURVEYING AND VALUATION

L	T	P
5	-	-

RATIONALE

Diploma holders in Architectural Assistantship are supposed to prepare material estimates for various civil works namely; buildings, irrigation works, public health works and roads etc. In addition, they must have basic knowledge regarding analysis of rates, contracting principles of valuation. Therefore, this subject has great importance for diploma holders in Architecture Assistantship.

DETAILED CONTENTS

1. Introduction to quantity surveying and its importance. Duties of quantity surveyor (02 hrs)

2. Types of estimates (04 hrs)

   - 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

3. Measurement (04 hrs)

   - 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

4. Preparation of Detailed and Abstract Estimates from Drawings (14 hrs)

   - A small residential building with a flat roof
   - Temporary shelters/sheds
   - Water supply lines for a house
   - Sanitary and water supply fittings

   - Septic tank for a domestic building

- Roads/streets network of group housing project
- RCC work in footings, beams, slab, column and lintel

5. Calculation of quantities of materials from working drawings (10 hrs)

- Cement mortars of different proportion
- Cement concrete of different proportion
- Brick masonry in cement mortar
- Plastering and pointing
- Painting and polishing
- Steel reinforcement of RCC elements – Beam, lintels, slab and column

6. Analysis of Rates (14 hrs)

- Steps involved in the analysis of rates. Requirement of material, labour, sundries, contractor's profit and overheads
- Analysis of rates for finished items when data regarding labour, rates of material and labour is given:
    - Earthwork in excavation hard/ordinary soil and filling with a concept of lead and lift
    - Cement concrete in foundation
    - RCC in roof slab
    - Brick masonry in cement mortar
    - Cement Plaster
    - Painting and polishing
- Running and maintenance cost of construction equipment

7 Measurement Book and Billing (6 hrs)

Entries in measurement book, standard measurement book, checking of measurement, preparation of bill, first and final bill, running account bill, advance payment, secured advance payment, refund of security money

8 Valuation (6 hrs)

- Purpose of valuation, principles of valuation
- Definition of various terms related to valuation like – depreciation, sinking fund, salvage and scrap value, market value, fair rent, year's purchase etc
- Methods of valuation
    - Replacement cost method
    - Rental return method

9. Contractorship (06 hrs)

- Meaning of contract
- Qualities of a good contractor and their qualifications
- Essentials of a contract
- Types of contracts, their advantages, dis-advantages and suitability, system of payment
- Single and two cover-bids; tender, tender forms and documents, tender notice, submission of tender and deposit of earnest money, security deposit, retention money, maintenance period

10 Preparation of Tender Document based on Common Schedule Rates (CSR) (14 hrs)

- Introduction to CSR and calculation of cost based on premium on CSR

Specifications

General and detailed specifications of :

- Single storey buildings
- Double storey buildings
- General specification 1st, 2nd, 3rd and 4th class buildings

Exercises on writing detailed specifications of different types of building works from excavation to foundations, superstructure and finishing operation

- Exercises on preparing tender documents for the following :

a) Earth work
b) Construction of a small house as per given drawing
c) RCC works
d) Pointing, plastering and flooring
e) White-washing, distempering and painting
f) Wood work including polishing
g) Sanitary and water supply installations
h) False ceiling, aluminum (glazed) partitioning
i) Tile flooring including base course

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, Costing and Valuation (Civil)", Pasrija, HD; Arora, CL and S. Inderjit Singh, Delhi, New Asian Publishers
2. Estimating and Costing", Rangwala, BS; Anand, Charotar Book Stall
3. "A Text Book on Estimating and Costing (Civil) with Drawings"Kohli, D; and Kohli, RC;Ambala ; Ramesh Publications
4. "Estimating, Costing and Specification in Civil Engineering", Chakraborti, M; Calcutta
5. "Estimating and Costing"Dutta, BN;

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	02	02
2	04	06
3	04	06
4	14	18
5	10	12
6	14	18
7	06	06
8	06	08
9	06	08
10.	14	16
Total	**80**	**100**

Elective

6.4.1 LANDSCAPE DESIGN (ELECTIVE-I)

L	T	P
3	-	-

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. Elements of Landscape (06 hrs)

   a) Plants (Trees, shrubs, ground covers, Flowering species, climbers)
   b) Water
   c) Earth forms and stones
   d) Artificial or man-made elements

2. Principles of landscape design with respect to architectural functions (16 hrs)

   a) Form
   b) Symmetry and Balance
   c) Texture
   d) Colour
   e) Contrast
   f) Proportions and scale
   g) Simplicity
   h) Focus
   i) Rhythm
   j) Aesthetics (Visual aspects and functional aspects)

3. Relationship of landscape & climate (06 hrs)

   a) Orientation
   b) Sun Control by Plants
   c) Wind control by plants
   d) Microclimate and Human comfort

4. Outdoor functional spaces with respect to different building types (06 hrs)

5. Various types of gardens – Japnese gardens, Mughal gardens, Topiary gardens (04 hrs)

6. Exercises (10 hrs)

- Landscape design of an outdoor area within an existing building or group of buildings/ Park design
- Landscape design of the architectural design project students are currently working on.
- Representation of Landscape drawings (1 sheet)

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/audio visual 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

1. Landscape Architecture by John O. Simonds published by MC. Graw Hill, Book Company
2. Urban Landscape Design by Garnett Eckko Published by M.C. Graw Hill, Book Company
3. Landscape Design that save energy by Anne Simon Majfat & Marc Schiler
4. Flowering trees of India and beautiful gardens of India by M.S. Randhawa
5. The Landscape of Man – Geoffrey Jellicoe, Publisher Thames and Hudson London (1995)
6. A Visual Approach to Park Design – Albert J Rutledge, Publisher Garland STPM Press, New York (1981)
7. Landscape Architecture – Simonds John O, Publisher Mc Graw Hill Book Company London (1961)
8. Earthscape : A Manual of Environmental Planning – John O. Simonds, Publisher Mc Graw Hill Book Company London (1978)
9. Trees of Chandigarh – Chhattar Singh, Dhillon and Rajnish Wattas,

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	06	15
2	16	25
3	06	15
4	06	15
5.	04	10
5	10	20
Total	**48**	**100**

6.4.2 BUILDING MAINTENANCE (ELECTIVE-I)

L	T	P
3	-	-

RATIONALE

Besides planning/designing new buildings, the students of Architectural Assistantship working in the estate development have to plan and execute the repair works of existing civil works. The aim is to provide in depth understanding of building repair and maintenance to the students.

DETAILED CONTENTS

1. Importance of Building Maintenance, its significance, objectives and economic considerations (06 hrs)

2. Materials for repair and maintenance (06 hrs)

3. Identification of defects in interiors and exteriors of building and their repairs (10 hrs)

4. Defects due to dampness and remedies for their removal (08 hrs)

5. Surface finishes: defects and repairs (06 hrs)

6. Preventive maintenance considerations: sweeping/washing, joint maintenance, dusting of floors, termite control etc. (06 hrs)

7. Maintenance of water supply and sanitary systems (6 hrs)

INSTRUCTIONAL STRAGEGY

Field visits may be arranged and students should be encouraged to prepare reports of the observations made by them during the field visits. Experts from the field may be invited to deliver lectures.

RECOMMENDED BOOKS

1. Building Repair and Maintenance Management by PS Gahlot and Sanjay Sharma, CBS Publishers and Distributors, New Delhi
2. Building construction by Sushil Kumar
3. Building construction by B.C. Punia
4. Maintenance of building by Gurcharan Singh

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	06	12
2	06	12
3	10	20
4	08	18
5	06	12
6	06	12
7	06	14
Total	**48`**	**100**

6.4.3 SITE MANAGEMENT (ELECTIVE-I)

L	T	P
3	-	-

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 labour welfare schemes.

DETAILED CONTENTS

1. Site Organization: (08 hrs)

   1.1 Principle of storing and stacking materials at site

   1.2 Location of equipment

   1.3 Preparation of actual job layout for a building

   1.4 Organizing labour at site

2. Construction Labour: (10 hrs)

   2.1 Conditions of construction workers in India, wages paid to workers

   2.2 Important provisions of the following Acts:

   - Labour Welfare Fund Act 1936 (as amended)
   - Payment of Wages Act 1936 (as amended)
   - Minimum Wages Act 1948 (as amended)

3. Control of Progress: (06 hrs)

   3.1 Methods of recording progress

   3.2 Analysis of progress

   3.3 Taking corrective actions keeping head office informed

   3.4 Cost time optimization for simple jobs - Direct and indirect cost, variation with time, cost optimization

4. Inspection and Quality Control: (10 hrs)

4.1 Need for inspection and quality control

4.2 Principles of inspection

4.3 Stages of inspection and quality control for

- Earth work
- Masonry
- RCC
- Sanitary and water supply services

5. Accidents and Safety in Construction: (14 hrs)

5.1 Accidents – causes and remedies

5.2 Safety measures for

- Excavation work
- Drilling and blasting
- Hot bituminous works
- Scaffolding, ladders, form work
- Demolitions

Safety campaign and safety devices

INSTRUCTIONAL STRAGEGY

Field visits may be arranged and students should be encouraged to prepare reports of the observations made by them during the field visits. Experts from the field may be invited to deliver lectures.

RECOMMENDED BOOKS

1. Consturction Planning & Management by PS Gahlot & BM Dhir International (P) ltd., Publisher, New Delhi.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	08	16
2	10	20
3	06	12
4	10	22
5	14	30
Total	**48**	**100**

6.5.1 INTERIOR DESIGN (ELECTIVE-II)

L	T	P
-	-	3

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. Introduction to Interior Design – Principles, elements, objectives of the Interior design.
2. Space Analysis (3 sheets)

   Prepare the layout of the following on scale. :

   a) Living Room
   b) Dinning
   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, water falls 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. Students should carry out the case study by measuring the existing interior space and should represent it through plan elevations and sections along with photographs to show the real effects.

3. Materials

Market survey of materials relevant to interior only, materials for wall finishes, flooring/ceiling and arrangement of electrical fixtures, lighting systems and other items. Collection of samples and catalogue from market

4. Interior Design problem of Restaurants, Houses, Offices, Shop (Any one project to be taken up for design and detailing) (5 sheets)
   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

5. Others (1sheet)
   Total No. of sheets= 9 sheets; Samples and Report

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

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

1. Time Saver standards for Interior Design and space planning.
2. Interior Design by Ahmed Kasu.
3. Nufert Architect’s data
4. Interior Design and Detailing by OK Ching

MAGAZINES

a) Inside Outside Magazine
b) Indian design magazine
c) Society exteriors
d) Architecture + Design (A+D)

RECOMMENDED BOOKS

1. Time saver for store planning and design-Charles E. Brondy, *publishing*, *Charles* H. Kerr & Company began
2. The best interiors and life styles of India-by the Indian and Eastern Engineering Co Ltd.,
3. Human Relations oliver (latest volume), Publishers: *New* Brunswick, NJ, 2007)
4. Indian Interiors (by Angelika Tashen.). Publisher*:* Taschen GmbH; Greene Street, New York
5. Inter-wood (Publiched by Monica International)
6. Design & decorate: Living room; Wardell Publications Inc, P.O. Box 480069, Fort Lauderdale, FL, USA 33348-0069
7. Design & decorate: Bathroom; Publisher: Adams Media Corporation, UK

6.5.2 TOWN PLANNING (ELECTIVE-II)

L	T	P
3	-	-

RATIONALE

To develop an understanding about the components of town planning and to equip the student with requisite knowledge to assist in the preparation of master plans, layout of housing/urban development schemes.

DETAILED CONTENTS

1. Overview of town planning: Principal elements and the location of public functions with reference to (09 hrs)

   a) Greek towns
   b) Roman Military Towns
   c) Italian Hill Towns
   d) Medieval Fortified Towns
   e) Renaissance Ideal Towns

2. Growth of the Industrial Town (09 hrs)

   a) Need & Purpose
   b) Characteristics of the Factory Town
   c) Trends in Modern town Planning:

      - Linear city- Soria Y Mata
      - Garden city- Ebenezer Howard
      - Vertical garden city- Le Corbusier

3. Planning Process: Site Selection, Land uses in a town, their hierarchy and location. Types of town shapes with reference to circulation (Linear, Star, grid, Satellite). (06 hrs)

4. Introduction to Urban land uses & their management. (16 hrs)

   a) Zoning: Need and purpose in a master plan. Density-net and gross, bulk & height. FAR, FSI
   b) Neightbourhood- The neighbourhood concept by Clarence Stein. Functions of a neighbourhood, population size and layout, with respect to the Chandigarh sector. Distributions of facilities within a neighbourhood (shopping, health, education and recreation).

   c) Circulation System- Hierarchy of road network in a town. Modes of transport and modal split in a town. Familiarisation with terms: Traffic flow, peak hour volume, traffic distribution.

d) Commercial Areas: Hierarchy of Commercial Area in a Town/City (Vis-à-vis the population they serve)
e) Open Spaces: Their location, distribution and hierarchy within a town.

Note: For each of the above land uses a suitable town plan is to be studied, analysed to be submitted as a report

5. Legislation and Urban Controls (08 hrs)

a) Need and purpose of development controls in towns.
b) Obligatory and discretionary functions of Urban Local Bodies and Development Authorities.

INSTRUCTIONAL STRATEGY

Town planning and human settlements are important aspects of architectural design and development. The teacher should procure relevant audio-visual material for presentation to the students. Some leading architects working in the area may be invited to present case studies to the students. Students may be encouraged to take some live or hypothetical cases for designing human settlements. Field visits to the cities, towns and villages may be arranged to explain the important features of the subject. Relevant BIS codes and standards may be referred by the teacher, while imparting instructions in the classroom

RECOMMENDED BOOKS

1. Urban Design of Towns & Cities – Paul D. Spreiregen, Publisher- Mc Graw Hill Book Company, New York
2. Urban Pattern- Gallion & Eisner, Publisher – Van Nostrand Reinhold, USA (1984)
3. From Pre History to Post Modernism- Marvin Trachtenberg, Isabelle Hyman
4. Town Planning in Ancient India- Binode Behari Dutt
5. World Architecture-Patrick Nutgens
6. Fundamentals of Town Planning- G. K. Hiraskar
7. The Making of Cities- Walter G. Bor
8. Town and Country Planning-John Ratctiffe
9. Townscape-Gordon Cullen
10. Town Planning – SC Rangwala
11. Ancient and Medieval Town Planning in India-Prabhakar V. Begde
12. Text Book of Town Planning-Abir Bandyo Padhyay
13. Space, Time & Architecture-Sigrfried Gideon

14. Text Book of Town Planning – Abir Bandyopadhyay Publisher – Arunabha Sen Books and Allied (P) Ltd. 8/1 Chintamani Das Lane, Calcutta 700 009

15. Urban Pattern –Architecture of Towns & Cities – Paul D.Spreiregen, Publisher- Mc Graw Hill Book Company, New York (1969)

16. Town Design – Frederick Gibberd , Publisher – Architectural Press, Great Britain (1967)

17. Fundamentals Of Town Planning – G. K. Hiraskar

18. Town and Country Planning & Housing – VN Modak,

19. Town Planning made Plain – Lewis Keeble, 1983,Publisher Longman Group Ltd.

20. Matrix of Man – Moholy Sibyl Nagy, Publisher – Pall Mall Press, London (1968)

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Hrs)	Marks Allotted (%)
1	09	18
2	09	18
3	06	14
4	16	30
5	08	20
Total	**48**	**100**

6.5.3 ADVANCED COMPUTER APPLICATIONS (ELECTIVE-II)

L	T	P
-	-	3

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 is a 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 AutoCAD, 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 practicals.

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

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

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

10. Animation and walkthrough

Simple exercises

ASSIGNMENTS

- Develop a 3 D model from an AutoCAD drawing of an existing building or design studio project.

- Develop a 3D animation/walkthrough of the final semester Design project.

Instructional Strategy

The teachers should give theoretical instructed along with practicals and give live demonstration with the practicing architects.

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

6.6 PORTFOLIO (MAJOR PROJECT) & PROFESSIONAL TRAINING

L	T	P
-	-	6
-	-	13
-	-	19

PROJECT WORK

Project work aims at developing skills in the students whereby they apply the totality of knowledge and skills gained through the course in the solution of particular problem or undertaking a project. The students have various aptitudes and strengths. Project work, therefore, should match the strengths of students. For this purpose, students should be asked to identify the type of project work, they would like to execute. It is also essential that the faculty of the respective department may have a brainstorming session to identify suitable project assignments. The project assignment is an individual/group assignment. The student should identify a given project assignment at least two to three months in advance. The project work identified in collaboration with industry may be preferred.

Each teacher is expected to guide the project work of 5-6 students.

The purpose of the portfolio (major project) should be to design and represent a chosen realistic Architectural design problem for presentation to a client and execution on site.

Students will be sent to Professional Architects for training during winter vocations after 5th semester and they shall continue this training in Sixth semester for about 2-3 weeks (LTP:: - - 6). After joining the polytechnics in sixth semester, after completing professional training the students will be assigned to complete one portfolio (Major Project) for about 2 months (LTP :: - - 13). This consolidated time for portfolio and professional training should preferably be given at a stretch, during which there will be no other subject teaching

TRAINING WITH AN ARCHITECT {for about 5-6 weeks (- - 6), including vacation period after 5th semester}

It will be carried out in 2 parts:

a) Working in the Architect office and producing a minimum of four blueprints on which the student has itself worked. This would be evaluated through a viva-voce at the commencement of the VI semester.

b) During the training period, the students must identify the CASE STUDY for his/her team major project and procure its necessary data

PORTFOLIO (Major Project) {for about 6-7 weeks (- - 13)}

One project chosen by individual student/team to be developed in the following stages:

(The project should be having coverage of about 1000 Sqm.) Emphasis to be laid on conserving and harnessing energy resources such as:

a) Rainwater harvesting
b) Solar energy
c) Low energy building materials and techniques
d) Other emerging concepts for green buildings and zero discharge buildings should be studied

- Pre-design studies culminating in a report comprising study of activity, users, individual space analysis, inter-relationship of spaces and conclusions regarding above mentioned aspects. (To be completed, while undergoing training in Architect's Office)
- Detailed design of the project showing structural systems used to be presented through rendering presentation drawings and detailed model to be presented through preliminary and final stage.
- Complete working drawings with details of the design project.

A suggestive criteria for assessing student performance by the external (personnel from industry) and internal (teacher) examiner is given in table below:

Sr. No.	Performance criteria	Max.** marks	Rating Scale				
			Excellent	Very Good	Good	Fair	Poor
1.	Selection of project assignment	10	10	8	6	4	2
2.	Planning and execution of considerations	10	10	8	6	4	2
3.	Quality of performance	20	20	16	12	8	4
4.	Providing solution of the problems or production of final product	20	20	16	12	8	4
5.	Sense of responsibility	10	10	8	6	4	2
6.	Self expression/ communication skills	5	5	4	3	2	1
7.	Interpersonal skills/human relations	5	5	4	3	2	1
8.	Report writing skills	10	10	8	6	4	2
9.	Viva voce	10	10	8	6	4	2
Total marks		100	100	80	60	40	20

Note: It is recommended that the project for Portfolio (Major Project) may be conducted as a continuous studio exercise spanning 6-7 weeks.

The overall grading of the practical training shall be made as per following table:

	Range of maximum marks	Overall grade
i)	More than 80	Excellent
ii)	79 <> 65	Very good
iii)	64 <> 50	Good
iv)	49 <> 40	Fair
v)	Less than 40	Poor

In order to qualify for the diploma, students must get "Overall Good grade" failing which the students may be given one more chance of undergoing 8 -10 weeks of project oriented professional training in the same industry and re-evaluated before being disqualified and declared "not eligible to receive diploma ". It is also important to note that the students must get more than six "goods" or above "good" grade in different performance criteria items in order to get "Overall Good" grade.

Important Notes

1. This criteria must be followed by the internal and external examiner and they should see the daily, weekly and monthly reports while awarding marks as per the above criteria.

2. The criteria for evaluation of the students have been worked out for 100 maximum marks. The internal and external examiners will evaluate students separately and give marks as per the study and evaluation scheme of examination.

3. The external examiner, preferably, a person from industry/organization, who has been associated with the project-oriented professional training of the students, should evaluate the students' performance as per the above criteria.

4. It is also proposed that two students or two projects which are rated best be given merit certificate at the time of annual day of the institute. It would be better if specific nearby industries are approached for instituting such awards.