

| STATE BOARD OF TECHNICAL EDUCATION, JHARKHAND   |                                     |              |          |                 |           |           |                    |            |           |                          |           |            |           |            |           |            |
|---|-------------------------------------|--------------|----------|-----------------|-----------|-----------|--------------------|------------|-----------|--------------------------|-----------|------------|-----------|------------|-----------|------------|
| TEACHING AND EXAMINATION SCHEME FOR POST S.S.C. DIPLOMA COURSES   |                                     |              |          |                 |           |           |                    |            |           |                          |           |            |           |            |           |            |
| COURSE NAME : DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP  |                                     |              |          |                 |           |           |                    |            |           |                          |           |            |           |            |           |            |
| COURSE CODE : AA  |                                     |              |          |                 |           |           |                    |            |           |                          |           |            |           |            |           |            |
| DURATION OF COURSE : 6 SEMESTERS  |                                     |              |          |                 |           |           |                    |            |           | WITH EFFECT FROM 2011-12 |           |            |           |            |           |            |
| SEMESTER : FOURTH   |                                     |              |          |                 |           |           |                    |            |           | DURATION : 16 WEEKS      |           |            |           |            |           |            |
| PATTERN : FULL TIME - SEMESTER  |                                     |              |          |                 |           |           |                    |            |           |                          |           |            |           |            |           |            |
| SR. NO.   | SUBJECT TITLE                       | Abbreviation | SUB CODE | TEACHING SCHEME |           |           | EXAMINATION SCHEME |            |           |                          |           |            |           |            |           |            |
|   |                                     |              |          | TH              | TU        | PR        | PAPER HRS          | TH (01)    |           | PR (04)                  |           | OR (08)    |           | TW (09)    |           | SW (16004) |
|   |                                     |              |          |                 |           |           |                    | MAX        | MIN       | MAX                      | MIN       | MAX        | MIN       | MAX        | MIN       |            |
| 1   | Building Construction System - II   | BCS          | 12487    | 02              | --        | 02        | 02                 | 50         | 20        | --                       | --        | 50@        | 20        | --         | --        | 50         |
| 2   | Design of Steel Structures          | DSS          | 12488    | 03              | --        | 02        | 03                 | 100        | 40        | --                       | --        | --         | --        | 25@        | 10        |            |
| 3   | Building Services                   | BSE          | 12489    | 02              | --        | 02        | 02                 | 50         | 20        | --                       | --        | --         | --        | 25@        | 10        |            |
| 4   | Professional Practice               | PPR          | 12490    | 02              | --        | -         | 02                 | 50         | 20        | --                       | --        | --         | --        | --         | --        |            |
| 5   | Architectural Drawing & Design - II | ADD          | 12491    | 01              | --        | 06        | 06                 | 100        | 40        | --                       | --        | 50#        | 20        | 25@        | 10        |            |
| 6   | Interior Design                     | IDE          | 12492    | 01              | --        | 02        | --                 | --         | --        | --                       | --        | --         | --        | 50@        | 20        |            |
| 7   | Development of Life Skills - II     | DLS          | 12041    | 01              | --        | 02        | --                 | --         | --        | --                       | --        | 25@        | 10        | --         | --        |            |
| 8   | Computer Aided Drawing -II          | CAD          | 12555    | --              | --        | 04        | --                 | --         | --        | 50#                      | 20        | --         | --        | 25@        | 10        |            |
| <b>TOTAL</b>  |                                     |              |          | <b>12</b>       | <b>--</b> | <b>20</b> | <b>--</b>          | <b>350</b> | <b>--</b> | <b>50</b>                | <b>--</b> | <b>125</b> | <b>--</b> | <b>150</b> | <b>--</b> | <b>50</b>  |
| Student Contact Hours Per Week: <b>32 Hrs.</b>  |                                     |              |          |                 |           |           |                    |            |           |                          |           |            |           |            |           |            |
| <b>THEORY AND PRACTICAL PERIODS OF 60 MINUTES EACH.</b>   |                                     |              |          |                 |           |           |                    |            |           |                          |           |            |           |            |           |            |
| Total Marks : <b>725</b>  |                                     |              |          |                 |           |           |                    |            |           |                          |           |            |           |            |           |            |
| @ Internal Assessment, # External Assessment, <span style="background-color: #cccccc; padding: 2px 10px;"> </span> No Theory Examination.   |                                     |              |          |                 |           |           |                    |            |           |                          |           |            |           |            |           |            |
| Abbreviations: TH-Theory, TU- Tutorial, PR-Practical, OR-Oral, TW- Termwork, SW- Sessional Work   |                                     |              |          |                 |           |           |                    |            |           |                          |           |            |           |            |           |            |
| <ul style="list-style-type: none"> <li>➤ Conduct two class tests each of 25 marks for each theory subject. Sum of the total test marks of all subjects is to be converted out of 50 marks as sessional work (SW).</li> <li>➤ Progressive evaluation is to be done by subject teacher as per the prevailing curriculum implementation and assessment norms.</li> <li>➤ Code number for TH, PR, OR and TW are to be given as suffix 1, 4, 8, 9 respectively to the subject code.</li> </ul> |                                     |              |          |                 |           |           |                    |            |           |                          |           |            |           |            |           |            |

**Course Code : Diploma in Architectural Assistantship**  
**Course Code : AA**  
**Semester : Fourth**  
**Subject Title : Building Construction System – II**  
**Subject Code : 12487**

**Teaching & Examination Scheme:**

| Teaching Scheme |    |    | Examination Scheme |    |    |     |    |       |
|-----------------|----|----|--------------------|----|----|-----|----|-------|
| TH              | TU | PR | PAPER HRS.         | TH | PR | OR  | TW | TOTAL |
| 02              | -- | 02 | 02                 | 50 | -- | 50@ | -- | 100   |

**NOTE:**

**Two tests each of 25 marks to be conducted as per the schedule given by SBTE.**

**Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

**Rationale:**

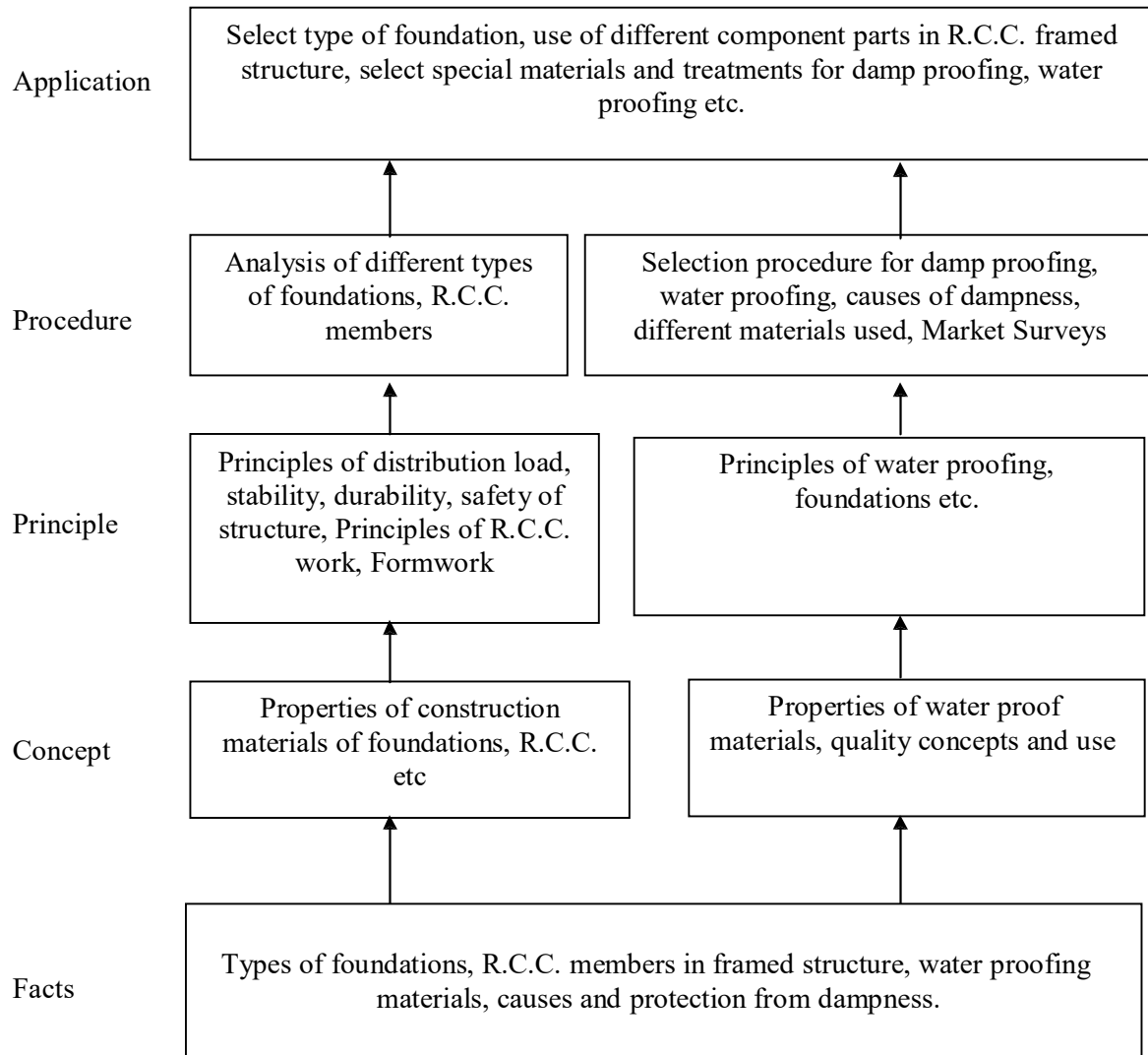
This subject will help the students to comprehend the construction system of different parts of the structure and to secure knowledge about strength, stability and use of different materials used. It will also help the students to know about special materials used in construction for specific work and do market survey and know their trade names, different size and uses.

**Objectives:**

The students will be able to: -

- 1) Know the types of foundation & different component parts in Reinforced cement concrete (R.C.C.) framed structure.
- 2) Select special material and treatment for damp proofing, water proofing etc. with their properties, uses and approximate sizes.

**Learning Structure:**



**Contents: Theory**

| <b>Chapter</b> | <b>Name of the Topic</b>  | <b>Hours</b> | <b>Marks</b> |
|----------------|---|--------------|--------------|
| <b>1</b>       | <b>Additives &amp; Mixtures</b> <ul style="list-style-type: none"> <li>• Functions of admixtures</li> <li>• Classification</li> </ul> 1.1 Water repellants – Characteristics, availability and uses<br>1.2 Accelerators - Characteristics, , availability and uses<br>1.3 Retarders - Characteristics, , availability and uses<br>1.4 Air entraining agents - Characteristics, , availability and uses<br>1.5 Concept & use of hardeners<br>1.6 Workability increasing agent - Characteristics, trade names, availability and uses<br>1.7 Fly ash – Concept, Characteristics, , availability and uses | <b>05</b>    | <b>10</b>    |
| <b>2</b>       | <b>Adhesives</b><br>2.1 Synthetic resins - Characteristics, trade names and uses  | <b>03</b>    | <b>04</b>    |
| <b>3</b>       | <b>Foundations</b><br>3.1 Functional requirements: - Site investigation<br>3.2 Types of Foundation: Construction, Sketches and applications <ul style="list-style-type: none"> <li>a) Grillage</li> <li>b) Raft</li> <li>c) Inverted arches</li> <li>d) Piles</li> <li>e) Combined footing</li> <li>f) Machine and Basement</li> </ul>  | <b>08</b>    | <b>12</b>    |
| <b>4</b>       | <b>R.C.C. Construction</b><br>4.1 Principles of R.C.C. construction, Time periods of deshuttering & curing<br>4.2 R.C.C. members in framed structure<br>4.3 R.C.C. details of slabs, beams, columns, footings, foundations & Staircase<br>4.4 Introduction to equipments to be used in R.C.C construction<br>4.4 Form work for R.C.C.   | <b>06</b>    | <b>12</b>    |
| <b>5</b>       | <b>Water proofing &amp; damp proofing</b><br>5.1 Meaning of the term water proofing & damp proofing<br>5.2 Causes of dampness and effects of dampness<br>5.3 Material used for water proofing & damp proofing<br>5.4 Methods of Water proofing & damp proofing<br>5.5 Protection from dampness caused through floors, roofs and walls   | <b>10</b>    | <b>12</b>    |
| <b>Total</b>   |   | <b>32</b>    | <b>50</b>    |

**Practical:**

Skills to be developed:

**Intellectual skills:**

- 1) Understand and get familiarised with different types of foundations and functional requirements such as soil conditions etc. for that.
- 2) Understand and give specifications of materials used for damp proofing and water proofing
- 3) Understand the properties and uses of additives, adhesives. etc. Try to decide the required material for particular situations.

**Motor skills:**

- 1) To draw the sketches of constructional details
- 2) Work out construction details for foundations & R.C.C.members
- 3) To visit the sites under construction

**List of Practical:**

- a) Market survey reports related to chapter -
  - 1) Additives and mixtures
  - 2) Adhesives
  - 3) Damp Proofing materials
- b) Minimum 5 full imperial size drawing sheets to the scale:
  - 1) Two sheets on Foundation
  - 2) Two sheets on R. C. C. Construction
  - 3) One sheet on Water Proofing and Dam Proofing

**Note:**

- 1) Site visits should be arranged to construction sites.
- 2) Term work under Building materials consists of assignments and market survey report on all the topics.

**Learning resources:**

**Books:**

| Sr. No. | Author        | Title                                | Publisher & address                 |
|---------|---------------|--------------------------------------|-------------------------------------|
| 1       | Barry         | Building Construction<br>Vol I to IV | ELBS London                         |
| 2       | J.K.Mckay     | Building Construction<br>Vol I to IV | Longmans, London                    |
| 3       | Chudley       | Building Construction<br>Vol I to IV | Longmans group Ltd. London          |
| 4       | Rangwala S.C. | Engineering Materials                | Charotar Publishing House,<br>anand |

**Course Name : Diploma in Architectural Assistantship**  
**Course Code : AA**  
**Semester : Fourth**  
**Subject Title : Design of Steel Structures**  
**Subject Code : 12488**

**Teaching & Examination Scheme:**

| Teaching Scheme |    |    | Examination Scheme |     |    |    |     |       |
|-----------------|----|----|--------------------|-----|----|----|-----|-------|
| TH              | TU | PR | PAPER<br>HRS.      | TH  | PR | OR | TW  | TOTAL |
| 03              | -- | 02 | 03                 | 100 | -- | -- | 25@ | 125   |

**NOTE:**

**Two tests each of 25 marks to be conducted as per the schedule given by SBTE.**

**Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

**Rationale:**

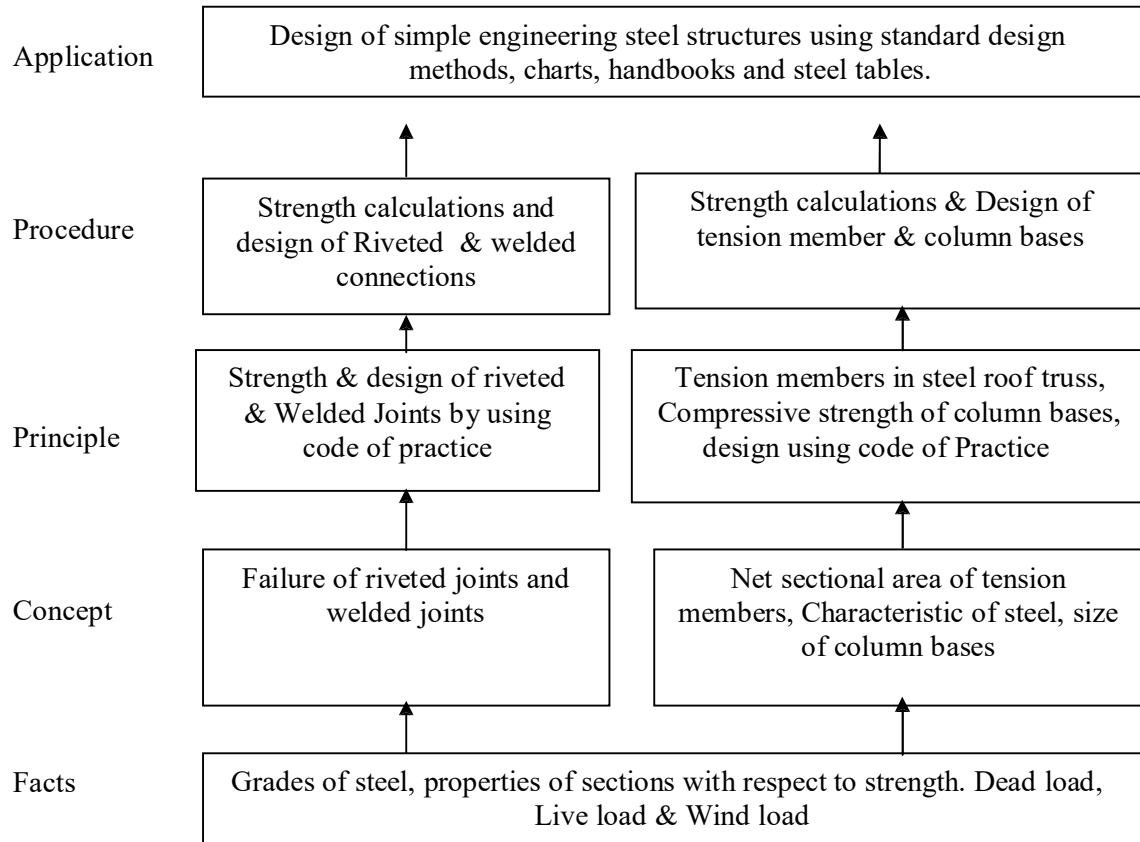
The subject will help the student to comprehend the fundamental facts & concepts about designing the different structural members & secure sufficient knowledge about strength and stability of the structural members.

**Objectives: -**

The student will be able to: -

- 1) Calculate strength of welded and riveted joints as well as design welded and riveted joints.
- 2) Calculate strength of tension and compression member as well as design tension and compression members.
- 3) Know different steel sections (sizes and properties) available in market.

**Learning structure:**



**Contents: Theory**

| <b>Chapter</b> | <b>Name of the topic</b>   | <b>Hours</b> | <b>Marks</b> |
|----------------|--|--------------|--------------|
| <b>1</b>       | <b>Introduction:</b><br>1.1 Structural steel & sections, Properties of structural steel as per I.S.S.<br>1.2 Designation of structural steel section as per I.S. hand book   | <b>02</b>    | <b>04</b>    |
| <b>2</b>       | <b>Structural Steel Riveted Connections</b> (Axially Loaded only)<br>2.1 Introduction<br>2.2 Types of rivets, Types of Riveted Joints AND Nature of failure of Riveted Joints<br>2.3 Strength and efficiency of riveted Joint<br>2.4 I.S. Specifications for Riveted Joints<br>2.5 Design of riveted joints  | <b>14</b>    | <b>28</b>    |
| <b>3</b>       | <b>Structural Steel Welded connections</b> (Axially Loaded only)<br>3.1 Introduction<br>3.2 Types of welds, Advantages & disadvantages of welded Connections, Types of Welded Joints and Different Technical Terms used, I.S. specifications for welded joints<br>3.3 Strength of welded joints<br>3.4 Unsymmetrical section subjected to an axial load<br>3.5 Design of butt weld and fillet weld | <b>10</b>    | <b>24</b>    |
| <b>4</b>       | <b>Tension members</b> (Axially Loaded only)<br>4.1 Introduction<br>4.2 Forms of sections, Net sectional area required<br>4.3 Strength of tension members,<br>4.4 Design of tension member   | <b>16</b>    | <b>28</b>    |
| <b>5</b>       | <b>Column Bases</b><br>5.1 Types of column bases<br>5.2 Slab base- design of slab base and concrete block<br>5.3 Gusseted base – Design of Gusseted base   | <b>06</b>    | <b>16</b>    |
| <b>Total</b>   |  | <b>48</b>    | <b>100</b>   |

**Practical:****List of Assignments:**

- 1) One Assignment of four problems on strength calculation and design of riveted joint.
- 2) One Assignment of four problems on strength calculation and design of welded joint.
- 3) One Assignment of four problems on strength calculation and design of tension member
- 4) One Assignment of four problems on design of slab base and gusseted base.



**Learning Resources:**

**Books:**

| Sr. No.                               | Author                          | Title   | Edition                 | Year of Publication | Publisher & Address  |
|---------------------------------------|---------------------------------|---|-------------------------|---------------------|--|
| 1                                     | M.Malhotra                      | Design of Steel Structures  | 3 <sup>rd</sup>         | 1986                | Shri Madan Lal Jain & Jain Brothers, 873, East Park Raod New Delhi – 5 |
| 2                                     | Dr.Anand S.Arya & Dr.J.L.Ajmani | Design of Steel Structures  | 3 <sup>rd</sup>         | 1986                | Nem Chand & Bros. Roorkee (U.P.)                                       |
| 3                                     | Ramamurtham                     | Steel Table   | 2 <sup>nd</sup>         | 1985                | J.C.Kapur, B.A. For Dhanpat Rai & sons 1682, Nai Sarak, Delhi – 6      |
| 4                                     | Ramamurtham                     | Design of Steel Structure (Vol .I)  | 2 <sup>nd</sup>         | 1985                | J.C.Kapur, B.A. For Dhanpat Rai & sons 1682, Nai Sarak, Delhi – 6      |
| Codes of practice by – B.I.S.C.R.R.I. |                                 |   |                         |                     |  |
| 1                                     | I.S. 800 – 1984                 | Code of practice for design general construction steel  | 2 <sup>nd</sup> revised | 1984                | B.I.S.   |
| 2                                     | I.S. 875 – 1987                 | Code of practice of design loads (other than earthquake) for building & structure (Part I & II) | 2 <sup>nd</sup> revised | 1987                | B.I.S.   |

**Course Name : Diploma in Architectural Assistantship**  
**Course Code : AA**  
**Semester : Fourth**  
**Subject Title : Building Services**  
**Subject Code : 12489**

**Teaching & Examination Scheme:**

| Teaching Scheme |    |    | Examination Scheme |    |    |    |     |       |
|-----------------|----|----|--------------------|----|----|----|-----|-------|
| TH              | TU | PR | PAPER<br>HRS.      | TH | PR | OR | TW  | TOTAL |
| 02              | -- | 02 | 02                 | 50 | -- | -- | 25@ | 75    |

**NOTE:**

**Two tests each of 25 marks to be conducted as per the schedule given by SBTE.**  
**Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

**Rationale:**

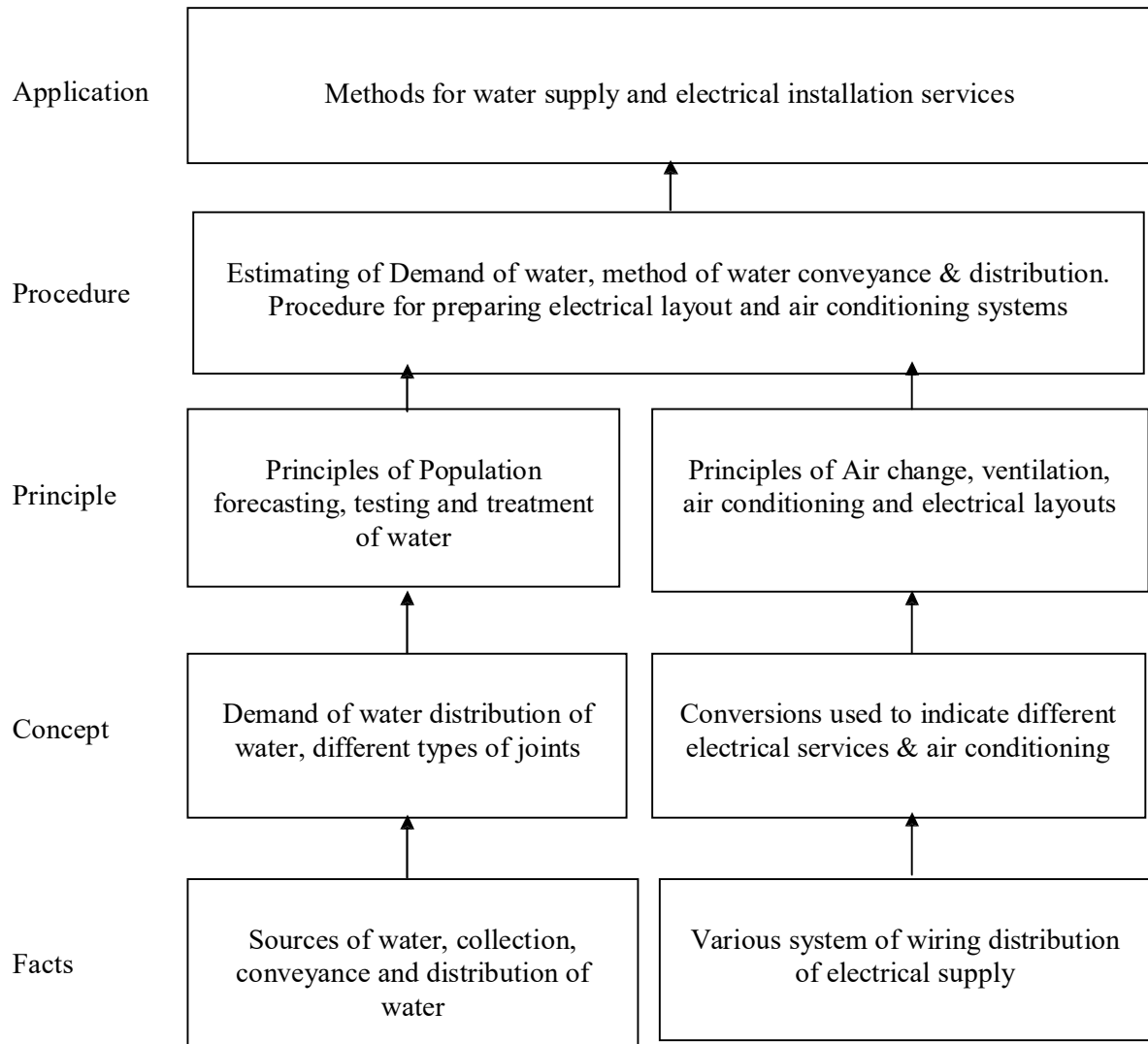
This subject will help the students to familiarize with commonly used methods and equipments for water supply and electrical sources and working of such systems

**Objectives:**

The student will be able to: -

- 1) Understand the commonly used methods of water supply
- 2) Draw electrical layout
- 3) Know terms and principles in air conditioning.

**Learning Structure:**



**Contents: Theory**

| <b>Chapter</b> | <b>Name of the Topic</b>   | <b>Hours</b> | <b>Marks</b> |
|----------------|--|--------------|--------------|
| <b>1</b>       | <b>Domestic Water Supply</b><br>1.1 Consumption and demand of water for domestic and public purposes<br>1.2 Leakage and wastage of water and its preventive measures, different methods of distribution, boosting water, gravity and pressure distribution by storage tanks<br>1.3 Laying & joining cast iron water mains, different types of joints.<br>1.4 Services connections from mains, house service design, fittings, pipes of different materials, choice of piping cast iron, steel, wrought iron, galvanized lead, copper cement, concrete and asbestos pipes, P.V.C. pipes | 14           | 20           |
| <b>2</b>       | <b>Electrical Layouts and Fittings for building</b><br>2.1 Preparing Layout and conventions used to indicate lights, fans Telephone and other communication lines.<br>2.2 Types of lamps: Reflection lamps, fluorescent lamps, tubular fluorescent lamps, fluorescent mercury lamps<br>2.3 Measurement of Electricity: Candles, power, lumens, foot candle<br>2.4 Various systems of wiring and their suitability, distribution boards<br>2.5 Precautions to avoid electrical accidents, fire caused by electricity & safety measures  | 10           | 18           |
| <b>3</b>       | <b>Air conditioning</b><br>3.1 Drawing of Layout of plants for air conditioning<br>3.2 Basic principles of air changes, ventilations and air conditioning<br>3.3 General Principle of ducting and distribution, package unit, window units, air cooling and their normal distribution  | 08           | 12           |
| <b>Total</b>   |  | <b>32</b>    | <b>50</b>    |

**Practical:**

Skills to be developed:

**Intellectual Skills:**

- 1) Identify various conventional signs for electrical equipments mentioned in syllabus
- 2) To identify different types of joints in water distribution system and to know demand of water
- 3) To understand principle of air conditioning and air conditioning cycle

**Motor Skills:**

- 1) Should be able to draw electrical layout for small structure.
- 2) Should be able to draw water supply layout for particular small structure.
- 3) To calculate demand of water
- 4) To design overhead and under ground water tank.

**List of Practical:**

The term work consists of drawing sheets and assignment as follows: -

Drawing Sheets: -

- 1) Sheet showing layout of water supply for particular small structure (one B.H.K & two B.H.K).
- 2) Design of overhead and underground tank with drawing.
- 3) Showing in detail 3D view of a bathroom fitting, showing all accessories
- 4) Sheet showing electrical layout for a particular small structure showing all the signs and symbols.

Assignments: -

- 1) Assignment on consumption and demand of water.
- 2) Assignment on methods of water distribution, leakage & wastage of water.
- 3) Assignment on types of pipes, joints and their connection.
- 4) Assignment on symbols for electrical equipments & types of lamps.
- 5) Assignment on systems of wiring, safety measures, precaution and causes of fire accidents due to electricity.
- 6) Assignment on ventilation and air conditioning.

**Note:**

Site visits should be arranged by the subject teacher to water distribution and treatment plant.

**Learning Resources:**

**Books:**

| Sr. No. | Author                   | Title   | Publisher & Address                    |
|---------|--------------------------|---|--|
| 1       | Rangwala S.C.            | Water Supply and Sanitary Engineering                 | Charotar Publishing House, Anand       |
| 2       | I.S.I                    | National Building Code                                | B.I.S. Publication                     |
| 3       | J.S.Birdie<br>G.S.Birdie | Water Supply and Sanitary Engineering                 | Dhanpatrai Publication Co., New Delhi  |
| 4       | S.L. Uppal               | Electrical Wiring Estimating & costing                | Khanna Publication, New Delhi          |
| 5       | V.N. Gharpure            | Water Supply engineering                              | Engineering Book Publication, C.O.Pune |
| 6       | I.S.I.                   | Code of basic requirement for Water Supply I.S. -1172 | B.I.S.                                 |

**Course Name : Diploma in Architectural Assistantship**  
**Course Code : AA**  
**Semester : Fourth**  
**Subject Title : Professional Practice**  
**Subject Code : 12490**

**Teaching & Examination Scheme:**

| Teaching Scheme |    |    | Examination Scheme |    |    |    |    |       |
|-----------------|----|----|--------------------|----|----|----|----|-------|
| TH              | TU | PR | PAPER<br>HRS.      | TH | PR | OR | TW | TOTAL |
| 02              | -- | -- | 02                 | 50 | -- | -- | -- | 50    |

**NOTE:**

**Two tests each of 25 marks to be conducted as per the schedule given by SBTE.**

**Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

**Rationale:**

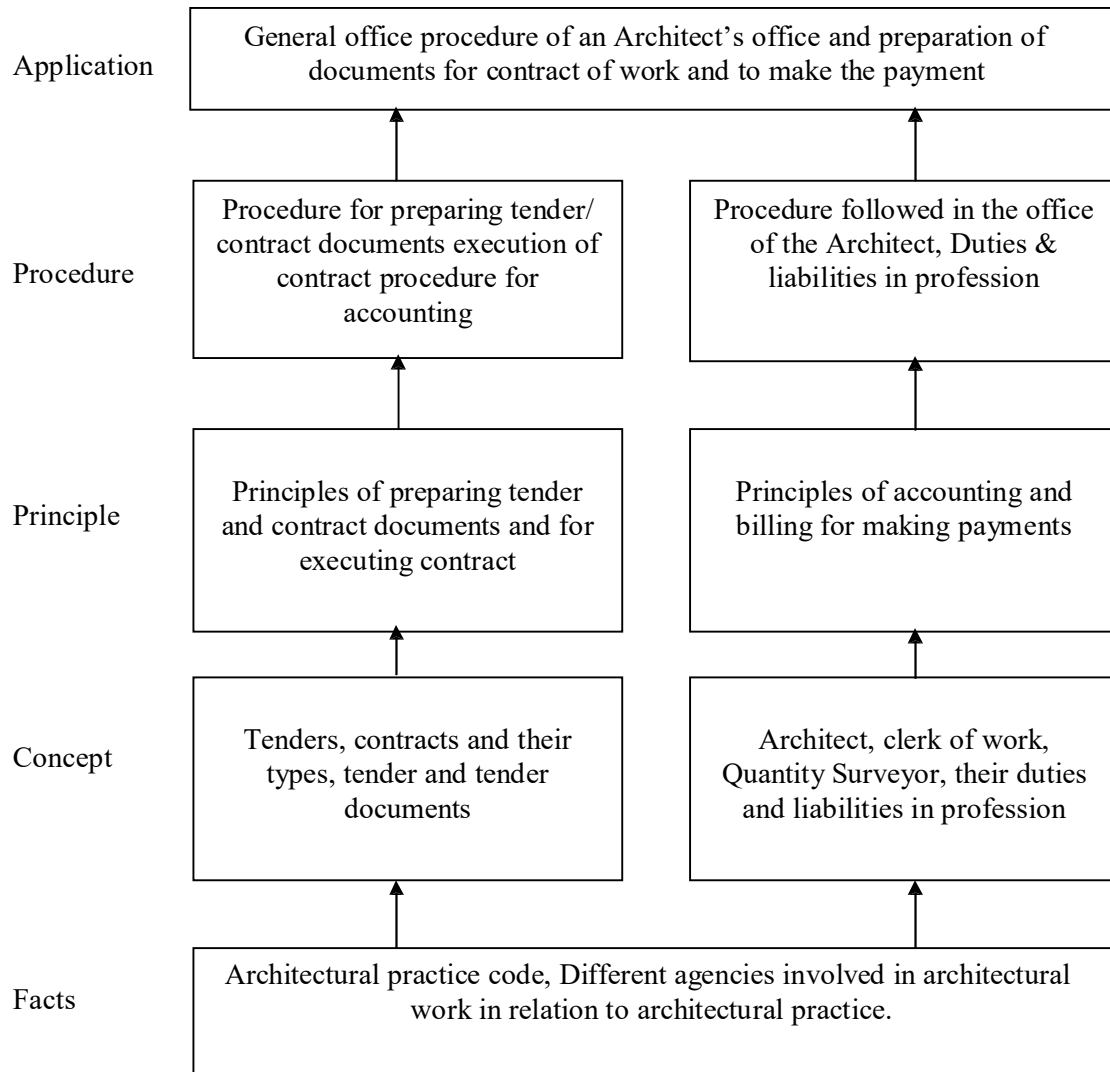
The subject will help the students to understand General office procedure of Architects office, duties and liabilities in profession and tendering and contracts for works.

**Objectives:**

The students will be able to: -

- 1) Understand general office procedure, accounting of an Architect's office.
- 2) Prepare documents for contract of work.
- 3) Know different methods of execution of works.
- 4) Know different certificates to be issued during completion of work and make the payment.

**Learning structure:**



**Contents: Theory**

| <b>Chapter</b> | <b>Name of the Topic</b>   | <b>Hours</b> | <b>Marks</b>               |
|----------------|--|--------------|----------------------------|
| <b>1</b>       | <p><b>Duties and Liabilities in Profession</b></p> <p>1.1 The duties, liabilities and relationship of employer, architect &amp; contractor</p> <p>1.2 Duties, liabilities of clerk of works and quantity surveyor.</p> <p><b>Note:</b> The above topic to be taught to very introductory form except duties and liabilities of clerk of works and quantity surveyor.</p>   | <b>04</b>    | <b>06</b>                  |
| <b>2</b>       | <p><b>Tenders</b></p> <p>2.1 Definition, invitation of tender, necessity of inviting tender, classification of tenders.</p> <p>2.2 Other modes of execution of works – day work, piece work, daily labour</p> <p>2.3 Earnest money, security money, retention amount, Mobilization fund</p> <p>2.4 Tender documents - essential characteristics of tender Notice, special notice.</p> <p>2.5 Mode of submission of tenders</p> <p>2.6 Opening of tenders in general in Architect's office, Acceptance of tender, work order letter.</p> <p>2.7 Rejection of the lowest tender, rejection of all tenders, identical tenders</p>   | <b>11</b>    | <b>16</b>                  |
| <b>3</b>       | <p><b>Contracts</b></p> <p>3.1</p> <ul style="list-style-type: none"> <li>• Definition of the term contract, objects and essential requirements of valid contract</li> <li>• Contract documents, types of contracts</li> <li>• Conditions of contract : -<br/>Concept, study of some important conditions of contract, retention, Money, time limit and its importance, compensation for delay, extension of time limit, defect liability period, liquidated damages, extra items,</li> <li>• Arbitration<br/>Concept, Qualification of Arbitrator, powers &amp; duties of Arbitrator, Arbitral award</li> <li>• Termination of contract</li> </ul> <p>3.2 Certificates and payments: -<br/>Functions and purpose of issuing following certificates – interim certificate, certificate of virtual completion, penultimate certificate and final certificate.</p> | <b>11</b>    | <b>14</b><br><br><b>04</b> |
| <b>4</b>       | <p><b>General office procedure</b></p> <p>4.1 Options on entering the profession</p> <p>4.2 Duties and responsibilities of principal (Chief Architect) Factor affecting duties and responsibilities, how to secure clients</p> <p>4.3 offices and its management, structure of an architect's office.</p>  | <b>06</b>    | <b>10</b>                  |



|  |   |           |           |
|--|---|-----------|-----------|
|  | 4.4 General accounting : -<br>Balance sheet assets, liabilities, profits and loss account,<br>petty cash book, cash book and ledger |           |           |
|  | <b>Total</b>  | <b>32</b> | <b>50</b> |

**Notes:**

Expert lectures/ Guest lectures are invited from field for better understanding of the subject.

**Learning Resources:**

**Books:**

| <b>Sr. No.</b> | <b>Author</b>          | <b>Title</b>                                | <b>Publishers &amp; Address</b>              |
|----------------|------------------------|---|--|
| <b>1</b>       | Dr.Roshan<br>H.Namavat | Professional Practice                       | Mr. Anup Lakhani, Lakhani Book Depot, Mumbai |
| <b>2</b>       | I.I.A.                 | Handbook on Professional Practice by I.I.A. | Indian Institute of Architects, Mumbai       |
| <b>3</b>       | B.S.Patil              | Civil Engineering Contracts & Estimates     | Orient Longman, Mumbai                       |
| <b>4</b>       | S. C. Rangwala         | Estimation, Costing and Valuation           | Charotar Publication, Anand                  |

**Course Name : Diploma in Architectural Assistantship**  
**Course Code : AA**  
**Semester : Fourth**  
**Subject Title : Architectural Drawing and Design – II**  
**Subject Code : 12491**

**Teaching & Examination Scheme:**

| Teaching Scheme |    |    | Examination Scheme |     |    |     |     |       |
|-----------------|----|----|--------------------|-----|----|-----|-----|-------|
| TH              | TU | PR | PAPER<br>HRS.      | TH  | PR | OR  | TW  | TOTAL |
| 01              | -- | 06 | 06                 | 100 | -- | 50# | 25@ | 175   |

**NOTE:**

**Two tests each of 25 marks to be conducted as per the schedule given by SBTE.**  
**Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

**Rationale:**

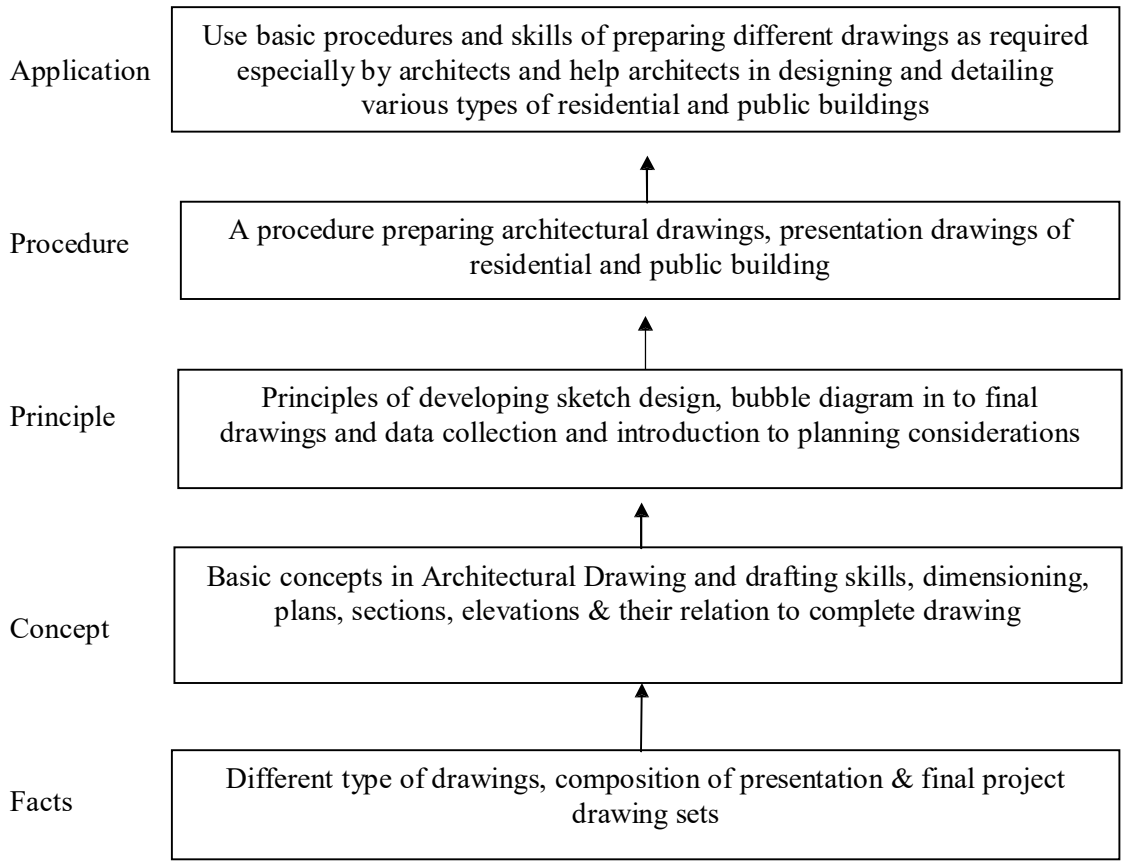
Architectural drawing is basic of architecture. It prepares the students to become a good architectural assistant. It helps in learning further aspects of architectural drawings. Also this subject will help the students to understand and attain basic skills of Developing Architectural Drawing from given bubble diagram in order to graphically represent what they learn in other subjects.

**Objectives:**

The students will be able to: -

- 1) Understand basic procedure and skills of preparing different drawings
- 2) Understand bubble diagram of activities and circulation
- 3) Develop the Architectural Drawing from given bubble diagram of activities and circulation in to final drawings
- 4) Know requirements & Building Bye Laws of residential and public buildings

**Learning Structure:**



**Contents: Theory**

| <b>Chapter</b> | <b>Name of the Topic</b>   | <b>Hours</b> | <b>Marks</b> |
|----------------|--|--------------|--------------|
| <b>1</b>       | Development of architectural design and drawing from given bubble diagram (of Activities and circulation) of small building like Apartment, Row house, Library, Hostel, Bungalow, Health club, Medical clinic etc.<br>(The subject teacher may choose different problems of identical scope)<br>Collection of data from library and case studies for the given problem                             | <b>16</b>    | <b>100</b>   |
|                | Problem on development of architectural design and drawing from given bubble diagram<br><br>(Total Marks: - 100)<br><br>Break up as follows: -<br>a) Well developed plan with schedule of openings – <b>44 Marks</b><br>b) Section/Sections– <b>24 Marks</b><br>c) Elevation – <b>16 Marks</b><br>d) Site plan -- <b>10 Marks</b><br>e) Plinth area (Built up Area) calculations – <b>06 Marks</b> |              |              |
| <b>Total</b>   |  | <b>16</b>    | <b>100</b>   |

**Practical:**

Skills to be developed:

Intellectual skills:

- 1) Read bubble diagram of activities and circulation
- 2) Understand basic requirements of developing architectural drawings from given bubble diagram
- 3) Decide procedure for developing architectural drawing
- 4) Interpret presentation drawing
- 5) Do case study and report the same

Motor skills:

- 1) Draw sketch design from bubble diagram
- 2) Choose suitable scales for drawing
- 3) Develop designed sketch in to final drawing
- 4) Prepare presentation drawing

**List of Practical:**

- 1) At least one project should be completed on development of architectural drawing from given bubble diagram of activities and circulation. The project should include –
  - a) Preliminary sketch designs
  - b) Detailed developed plan/plans of different floors with schedule of openings
  - c) Sections

- d) All side elevations
- e) Rendered site plan showing landscaping and all required details
- f) Model / Two point perspective View / Sketch perspective view

**Learning Resources:**

**Books:**

| <b>Sr. No</b> | <b>Author</b> | <b>Title</b>                        | <b>Publisher &amp; Address</b> |
|---------------|---------------|-------------------------------------|--------------------------------|
| <b>1</b>      | J.Calendar    | Time saver Standards                | Mc – Graw Hill Publication     |
| <b>2</b>      | Bousmaha B.   | Neuferts Data Book                  | Black well science Home page   |
| <b>3</b>      | E & O.E.      | Planning – The Architects Handbook  | Illiffe & Sons, London         |
| <b>4</b>      | V.S.Parmar    | Design Fundamentals in Architecture | Somaiyya Publication, Mumbai   |

**Course Name : Diploma in Architectural Assistantship**  
**Course Code : AA**  
**Semester : Fourth**  
**Subject Title : Interior Design**  
**Subject Code : 12492**

**Teaching & Examination Scheme:**

| Teaching Scheme |    |    | Examination Scheme |    |    |    |     |       |
|-----------------|----|----|--------------------|----|----|----|-----|-------|
| TH              | TU | PR | PAPER<br>HRS.      | TH | PR | OR | TW  | TOTAL |
| 01              | -- | 02 | --                 | -- | -- | -- | 50@ | 50    |

**Rationale:**

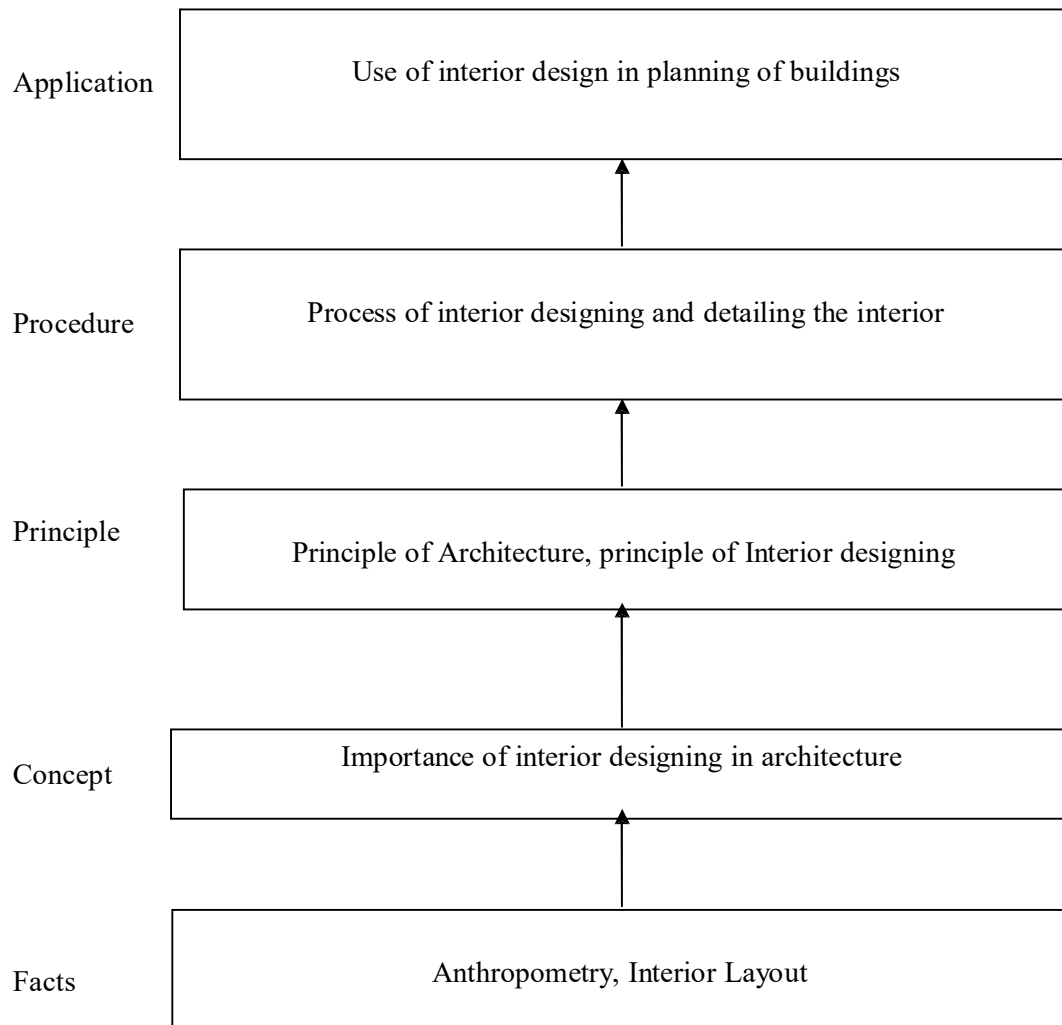
Interior designing is very important aspect related to architectural planning. It is basic study of planning for interior designing and architectural planning.

**Objectives:**

The student will be able to: -

- 1) Know the idea of interior designing
- 2) Practice independently as interior designer.
- 3) Use Anthropometry

**Learning Structure:**



**Contents: Theory**

| Chapter      | Name of the Topic   | Hours     |
|--------------|---|-----------|
| 1            | <b>Interior Designing</b><br>1.1 Introduction of Interior Designing<br>1.2 Principles of Interior Designing<br>1.3 Elements of Interior Designing                             | 04        |
| 2            | <b>Anthropometry</b><br>2.1 what is Anthropometry<br>2.2 Relation between Anthropometry, circulation and interior designing<br>2.3 Use of Anthropometry in interior designing | 04        |
| 3            | <b>Interior designing of single unit of :-</b><br>a) Living room<br>b) Kitchen<br>c) Bed room<br>d) Bathroom<br>e) W.C.   | 04        |
| 4            | <b>Project Guidelines for: -</b><br>Single/Double couple residence  | 04        |
| <b>Total</b> |   | <b>16</b> |

**Practical:**

Skills to be developed:

**Intellectual skills:**

- 1) To know the importance of Interior design
- 2) To attain the knowledge of interior designing
- 3) To attain knowledge of Anthropometry
- 4) To attain the knowledge of orientation and circulation of furniture

**Motor Skills:**

- 1) Use of interior layout s in architectural design
- 2) Prepare interior layouts
- 3) Use of drafting material
- 4) Use of colouring

**List of Practical:**

- 1) Two sheets on chapter 02
- 2) Four sheets on chapter 03
- 3) Project of interior design based on chapter 04

**Learning Resources:**

**Books:**

| Author      | Title                               | Publisher & Address          |
|-------------|-------------------------------------|------------------------------|
| V.S.Parmar  | Design Fundamentals in Architecture | Somaiyya Publication, Mumbai |
| Robert Gill | Architectural rendering             | B.T.Batsford Ltd. London     |
| G.Bhagawat  | Visual art and Basic study          | Somaiyya Publication, Mumbai |



**Course Name : Diploma in Architectural Assistantship**  
**Course Code : AA/CO/CM/CD/ID/EE/EP/DE/MU/EJ/ET/EX/EN/IE/IS/IC/IU/ED/EV  
FC/ML/SC/TX/SC**  
**Semester : Fourth**  
**Subject Title : Development of Life Skills - II**  
**Subject Code : 12041**

**Teaching and examination scheme:**

| Teaching Scheme |    |    | Examination Scheme |    |    |     |    |       |
|-----------------|----|----|--------------------|----|----|-----|----|-------|
| TH              | TU | PR | PAPER<br>HRS.      | TH | PR | OR  | TW | TOTAL |
| 01              | -- | 02 | --                 | -- | -- | 25@ | -- | 25    |

**Rationale:**

In today's competitive world, the nature of organizations is changing at very rapid speed. In this situation the responsibility of diploma holder is not unique. He will be a part of a team in the organization. As such the individual skills are not sufficient to work at his best.

This subject will develop the student as an effective member of the team. It will develop the abilities and skills to perform at highest degree of quality as an individual as well as a member of core group or team. Such skills will enhance his capabilities in the field of searching, assimilating information, managing the given task, handling people effectively, and solving challenging problems.

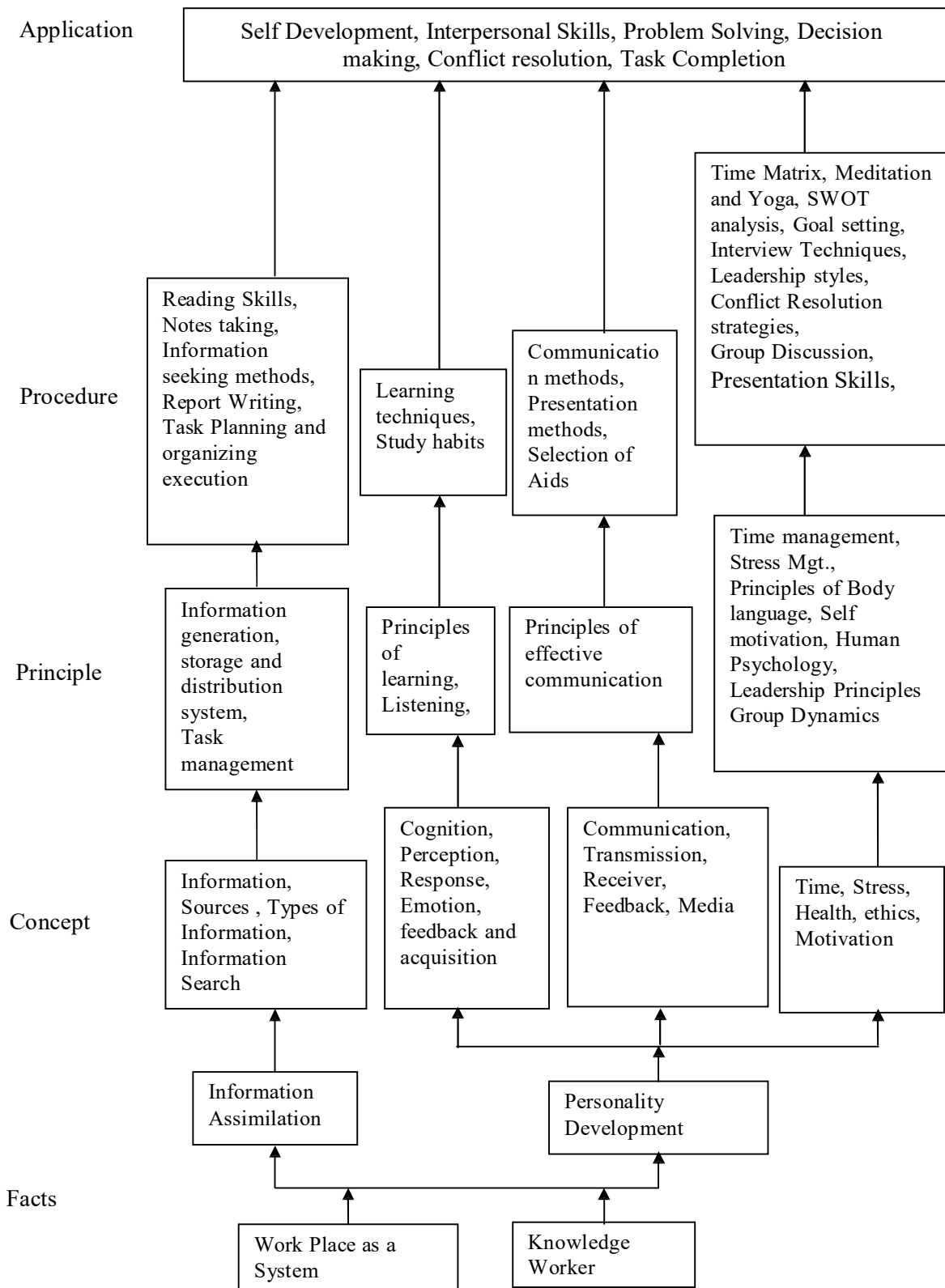
The subject is classified under human science.

**Objectives:**

The students will be able to: -

1. Developing working in teams.
2. Apply problem solving skills for a given situation.
3. Use effective presentation techniques.
4. Apply techniques of effective time management.
5. Apply task management techniques for given projects.
6. Enhance leadership traits.
7. Resolve conflict by appropriate method.
8. Survive self in today's competitive world.
9. Face interview without fear.
10. Follow moral and ethics.
11. Convince people to avoid frustration.

**Learning Structure:**



**Contents: Theory**

| <b>Chapter</b> | <b>Name of the Topic</b>   | <b>Hours</b> |
|----------------|--|--------------|
| <b>1</b>       | <b>Social skills</b><br>Societies, social structure, develop sympathy and empathy.   | <b>01</b>    |
| <b>2</b>       | SWOT Analysis – Concept, How to make use of SWOT.  | <b>01</b>    |
| <b>3</b>       | <b>Inter personal Relation</b><br>Sources of conflict, Resolution of conflict ,<br>Ways to enhance interpersonal relations.  | <b>02</b>    |
| <b>4</b>       | <b>Problem Solving</b><br><b>I) Steps in problem solving,</b><br>1) Identify and clarify the problem,<br>2) Information gathering related to problem,<br>3) Evaluate the evidence,<br>4) Consider alternative solutions and their implications,<br>5) Choose and implement the best alternative,<br>6) Review<br><b>II) Problem solving technique.</b> (Any one technique may be considered)<br>1) Trial and error, 2) Brain storming, 3) Lateral thinking | <b>02</b>    |
| <b>5</b>       | <b>Presentation Skills</b><br>Body language --<br>Dress like the audience<br>Posture, Gestures, Eye contact and facial expression.<br>Presentation Skill –<br>Stage fright,<br>Voice and language – Volume, Pitch, Inflection, Speed, Pause<br>Pronunciation, Articulation, Language,<br>Practice of speech.<br>Use of aids –OHP,LCD projector, white board  | <b>03</b>    |
| <b>6</b>       | <b>Group discussion and Interview technique –</b><br>Introduction to group discussion,<br>Ways to carry out group discussion,<br>Parameters— Contact, body language, analytical and logical thinking,<br>decision making<br><b>Interview technique</b><br>Necessity,<br>Tips for handling common questions.  | <b>03</b>    |
| <b>7</b>       | <b>Working in Teams</b><br>Understand and work within the dynamics of a groups.<br>Tips to work effectively in teams,<br>Establish good rapport, interest with others and work effectively with<br>them to meet common objectives,<br>Tips to provide and accept feedback in a constructive and considerate<br>way,<br>Leadership in teams, Handling frustrations in group.  | <b>02</b>    |

|              |   |           |
|--------------|---|-----------|
| <b>8</b>     | <b>Task Management</b><br>Introduction,<br>Task identification,<br>Task planning, organizing and execution,<br>Closing the task | <b>02</b> |
| <b>Total</b> |   | <b>16</b> |

**Practical:**

**List of Assignment:** (any Eight Assignment)

- 1) SWOT analysis: - Analyse yourself with respect to your strength and weaknesses, opportunities and threats. Following points will be useful for doing SWOT.
  - a) Your past experiences,
  - b) Achievements,
  - c) Failures,
  - d) Feedback from others etc.
- 2) Undergo a test on reading skill/memory skill administered by your teacher.
- 3) Solve the puzzles.
- 4) Form a group of 5-10 students and do a work for social cause e.g. tree plantation, blood donation, environment protection, camps on awareness like importance of cleanliness in slum area, social activities like giving cloths to poor etc.( One activity per group)
- 5) Deliver a seminar for 10-12 minutes using presentation aids on the topic given by your teacher.
- 6) Watch/listen an informative session on social activities. Make a report on topic of your interest using audio/visual aids. Make a report on the programme.
- 7) Conduct an interview of a personality and write a report on it.
- 8) Discuss a topic in a group and prepare minutes of discussion. Write thorough description of the topic discussed
- 9) Arrange an exhibition, displaying flow-charts, posters, paper cutting, photographs etc on the topic given by your teacher.

**Note:** - Please note that these are the suggested assignments on given contents/topic. These assignments are the guide lines to the subject teachers. However the subject teachers are free to design any assignment relevant to the topic. The **term work** will consist of any eight assignments.

**Mini Project** on Task Management. Decide any task to be completed in a stipulated time with the help of teacher. Write a report considering various steps in task management.

**Learning resources:**

**Books:**

| Sr. No | Author                                   | Title   | Publisher                       |
|--------|--|---|---------------------------------|
| 1      | Marshall Cooks                           | Adams Time Management                         | Viva Books                      |
| 2      | E.H. Mc Grath , S.J.                     | Basic Managerial Skills for All               | Pretice Hall of India, Pvt Ltd  |
| 3      | Allen Pease                              | Body Language                                 | Sudha Publications Pvt. Ltd.    |
| 4      | Lowe and Phil                            | Creativity and problem solving                | Kogan Page (I) P Ltd            |
| 5      | Adair, J                                 | Decision making & Problem Solving             | Orient Longman                  |
| 6      | Bishop , Sue                             | Develop Your Assertiveness                    | Kogan Page India                |
| 7      | Marion E Haynes                          | Make Every Minute Count                       | Kogan page India                |
| 8      | Steven L McShane and Mary Ann Glinow     | Organizational Behavior                       | Tata McGraw Hill                |
| 9      | Stephen P. Robbins                       | Organizational Behavior                       | Pretice Hall of India, Pvt. Ltd |
| 10     | Michael Hatton ( Canada – India Project) | Presentation Skills                           | ISTE New Delhi                  |
| 11     | --                                       | Stress Management Through Yoga and Meditation | Sterling Publisher Pvt. Ltd.    |
| 12     | Richard Hale, Peter Whilom               | Target setting and Goal Achievement           | Kogan page India                |
| 13     | Chakravarty, Ajanta                      | Time management                               | Rupa and Company                |
| 14     | Harding ham .A                           | Working in Teams                              | Orient Longman                  |

**Learning Web sources:**

1. <http://www.mindtools.com>
2. <http://www.stress.org>
3. <http://www.ethics.com>
4. <http://www.coopcomm.org/workbook.htm>
5. <http://www.mapfornonprofits.org/>
6. <http://www.learningmeditation.com> <http://bbc.co.uk/learning/courses/>
7. <http://eqi.org/>
8. <http://www.abacon.com/commstudies/interpersonal/indisclosure.html>
9. <http://www.mapnp.org/library/ethics/ethxgde.htm>
10. [http://www.mapnp.org/library/grp\\_cnfl/grp\\_cnfl.htm](http://www.mapnp.org/library/grp_cnfl/grp_cnfl.htm)
11. <http://members.aol.com/nonverbal2/diction1.htm>
12. [http://www.thomasarmstron.com/multiple\\_intelligences.htm](http://www.thomasarmstron.com/multiple_intelligences.htm)
13. <http://snow.utoronto.ca/Learn2/modules.html>
14. <http://www.quickmba.com/strategy/swot/>

**Course Name : Diploma in Architectural Assistantship**  
**Course Code : AA**  
**Semester : Fourth**  
**Subject Title : Computer Aided Drawing – II**  
**Subject Code : 12555**

**Teaching & Examination Scheme:**

| Teaching Scheme |    |    | Examination Scheme |    |     |    |     |       |
|-----------------|----|----|--------------------|----|-----|----|-----|-------|
| TH              | TU | PR | PAPER<br>HRS.      | TH | PR  | OR | TW  | TOTAL |
| --              | -- | 04 | --                 | -- | 50# | -- | 25@ | 75    |

**Rationale:**

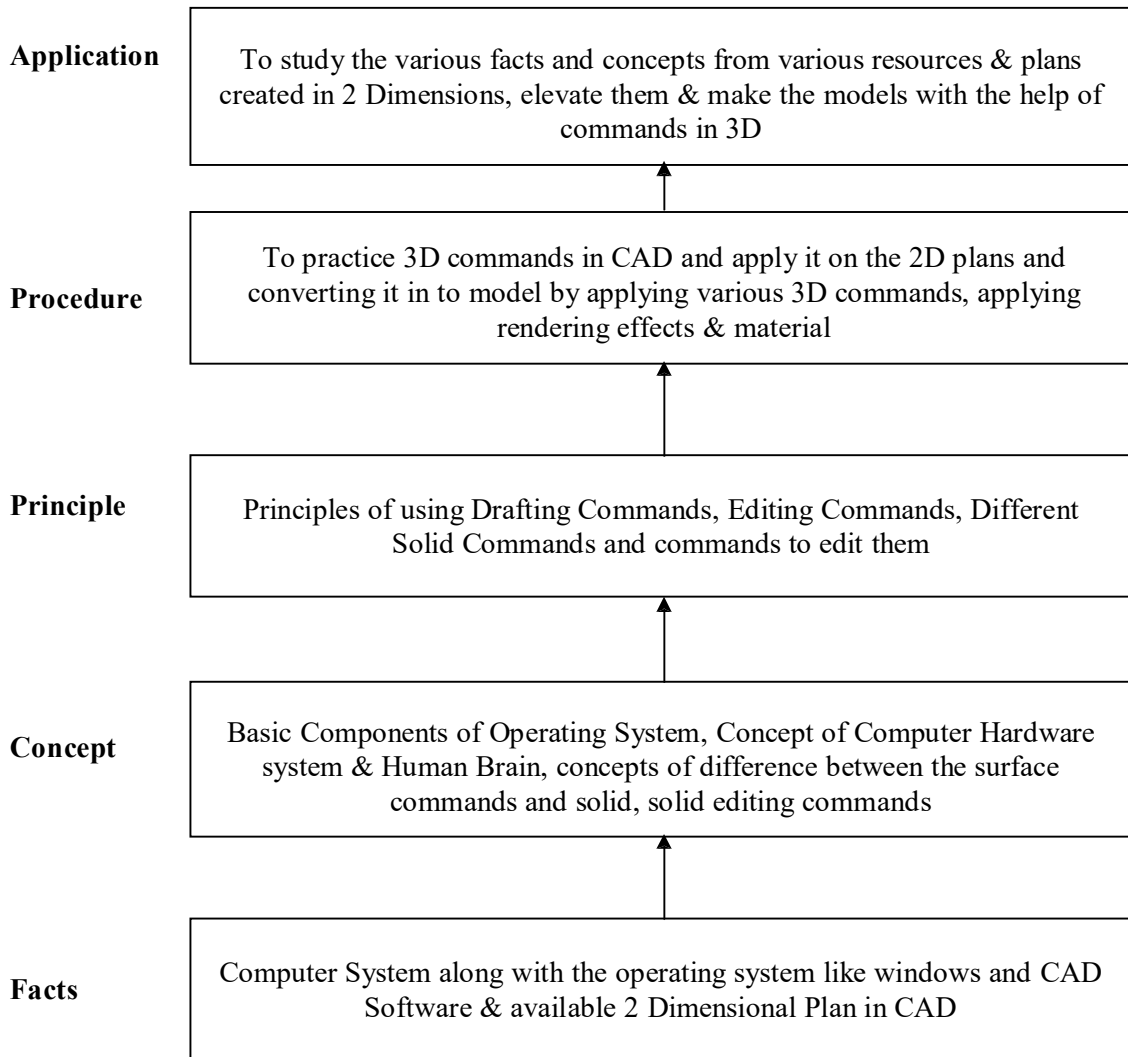
This subject will help the students to convert the two dimensional drawings of plans and elevations of a building in to the three dimensional models by applying the various materials inside it and adding light effects to the building models in 3 dimensioning.

**Objectives:**

The students will be able to: -

- 1) Study the application of the layers in building planning and importance of them
- 2) Make the 2 dimensional models in to 3 dimensional models.
- 3) To elevate the building plan and convert it in to a three dimensional model and
- 4) Render the model through various rendering options.

**Learning Structure:**



**Contents: Theory**

**Note:** Contents of theory are to be taught in practical period

| <b>Chapter</b> | <b>Name of the Topic</b>   |
|----------------|--|
| <b>1</b>       | <b>Basics of 3D in CAD</b><br>1.1 Changing Property of Object like<br>a)Elevation<br>b) Thickness<br>c)Layers<br>1.2 Concept of Layers and Study of Layer properties Manager   |
| <b>2</b>       | <b>Introduction to Surfaces</b><br>2.1 Solid Command<br>2.2 Revolution of surfaces<br>2.3 Tabulated Surfaces<br>2.4 Ruled Surfaces<br>2.5 Edge Surfaces<br>2.6 Use of 3D face, 3D Mesh<br>2.7 2D and 3D Wire frame Structures<br>2.8 Setting Variables for the above surfaces  |
| <b>3</b>       | <b>Entering in 3D</b><br>3.1 Concept of Right Hand Rule about axis Direction<br>3.2 Use of 3D Viewpoint, Tripod View option<br>3.3 Study of View toolbar<br>3.4 Top, Side and Front Views<br>3.5 Dynamic 3D viewing & Perspective View<br>3.6 Concept of Camera and Target<br>3.7 User Co-ordinate System & UCS icon<br>3.8 Various options of UCS Command and Study of UCS toolbars                     |
| <b>4</b>       | <b>Introduction to Solids</b><br>4.1 Extrude Command and selection of Extrusion Direction<br>4.2 Study of Solids toolbar and different solids from solid toolbar<br>4.3 Shading options like Flat Shading, Gouraud Shading with edges on/off<br>4.4 Wire frame and solid modeling<br>4.5 Use of Solid Editing Toolbar<br>4.6 Study of Various options available in Solid editing toolbar                 |
| <b>5</b>       | <b>Applying materials and Various effects</b><br>5.1 Hide options<br>5.2 Model Making<br>5.3 Adding Shadows and Materials<br>5.4 Use of Render toolbar<br>5.5 Different Rendering options<br>5.6 Concept of Slides and scripts<br>5.7 Types of Light and applying various Light effects to a drawing<br>5.8 Applying Background scenes to a model<br>5.9 Insertion of Landscapes and people in a drawing |



**Practical:**

Skills to be developed:

**Intellectual Skills:**

- 1) To identify the various input and output devices of computer.
- 2) To know the basics of 3D commands used in CAD.
- 3) To analyse the various requirements of Architectural drawing.
- 4) To know the various solid commands and Solid editing commands.
- 5) To know the effects of light, applying material to a drawing and rendering effects.

**Motor Skills:**

- 1) Use of Basic 3D Commands to elevate the 2 Dimensional plan in to 3D view.
- 2) To prepare 3 Dimensional objects in CAD.
- 3) To create 3D model of a given drawing in to creative model.
- 4) To observe the various light effects, rendering effects and materials applied.

**List of Practical:**

- 1) Changing the properties of the objects such as thickness, Elevation.
- 2) Creation of objects using surfaces.
- 3) Creation of objects using solid
- 4) Applying materials to 3D objects.
- 5) Applying shadow effects & Light effects to 3D objects.
- 6) Applying rendering effects to 3D objects.

**Term work consists of:**

- 1) Assignment on Changing properties of 2D objects like Thickness, Elevation.
- 2) Assignment on various types of surface commands used.
- 3) Assignment on solid toolbar & its options.
- 4) Assignment on solid editing toolbar & its options.
- 5) Assignment on Light & Rendering & Material applied.

**Note:**

The students are expected to perform the practical work along with the guidelines provided by the Subject teacher

**Learning Resources:**

**Books:**

| Sr. No | Author       | Title                                     | Edition         | Year of Publication | Publisher & Address                                      |
|--------|--------------|---|-----------------|---------------------|--|
| 1      | Sham Titkoo  | Auto CAD 2006 for Engineering & Designing | 1 <sup>st</sup> | 2005                | Dramtas Press, 19/A, Ansari Road, Dariya Ganj, New Delhi |
| 2      | Sham Titkoo  | Auto CAD 2007 for Engineering & Designing | 1 <sup>st</sup> | 2006                | Dramtas Press, 19/A, Ansari Road, Dariya Ganj, New Delhi |
| 3      | Sham Titkoo  | Customsing Auto CAD 2004                  | 2 <sup>nd</sup> | 2006                | B.P.B.Publication, New Delhi                             |
| 4      | George Omura | Auto CAD 2006 & Auto CAD LT 2006          | 1 <sup>st</sup> | 2006                | B.P.B.Publication, New Delhi                             |