
 <b>MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI</b> <b>TEACHING AND EXAMINATION SCHEME FOR POST S.S.C. DIPLOMA COURSES</b>																
<b>COURSE NAME : DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP</b>																
<b>COURSE CODE : AA</b>																
<b>DURATION OF COURSE : SIX SEMESTER</b>										<b>WITH EFFECT FROM 2014 - 15</b>						
<b>SEMESTER : FIRST</b>										<b>DURATION : 16 WEEKS</b>						
<b>PATTERN : FULL TIME - SEMESTER</b>										<b>SCHEME : G</b>						
SR. NO.	SUBJECT TITLE	Abbreviation	SUB CODE	TEACHING SCHEME			EXAMINATION SCHEME									SW (19100)
				TH	TU	PR	PAPER HRS.	TH (1)		PR (4)		OR (8)		TW (9)		
								Max	Min	Max	Min	Max	Min	Max	Min	
1	English \$	ENG	17101	03	--	02	03	100	40	--	--	--	--	25@	10	<b>50</b>
2	Basic Mathematics \$	BMS	17104	04	01	--	03	100	40	--	--	--	--	--	--	
3	Building Materials & Construction	BMC	19102	02	--	03	03	50	20	--	--	--	--	25@	10	
4	Architectural Graphics-I	AGR	19103	02	--	03	04	100	40	--	--	--	--	50@	20	
5	Architectural Drawing-I	ADR	19001	01	--	03	--	--	--	--	--	--	--	50@	20	
6	Visual Arts	VAR	19002	01	--	02	--	--	--	50#	20	--	--	25@	10	
7	Computer Fundamentals \$	CMF	17002	01	--	04	--	--	--	50#*	20	--	--	25@	10	
<b>TOTAL</b>				<b>14</b>	<b>01</b>	<b>17</b>	<b>--</b>	<b>350</b>	<b>--</b>	<b>100</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>200</b>	<b>--</b>	<b>50</b>
<p>Student Contact Hours Per Week: <b>32 Hrs.</b></p> <p><b>THEORY AND PRACTICAL PERIODS OF 60 MINUTES EACH.</b></p> <p>Total Marks : <b>700</b></p> <p>@ Internal Assessment, # External Assessment, \$ Common to All Conventional Diploma, #* Online Examination, <span style="background-color: #cccccc; padding: 2px 10px;"> </span> No Theory Examination.</p> <p>Abbreviations: TH-Theory, TU- Tutorial, PR-Practical, OR-Oral, TW- Termwork, SW- Sessional Work.</p> <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 subject are 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>																

 <b>MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI</b> <b>TEACHING AND EXAMINATION SCHEME FOR POST S.S.C. DIPLOMA COURSES</b>																	
<b>COURSE NAME : DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP</b>																	
<b>COURSE CODE : AA</b>																	
<b>DURATION OF COURSE : SIX SEMESTER</b>										<b>WITH EFFECT FROM 2014-15</b>							
<b>SEMESTER : SECOND</b>										<b>DURATION : 16 WEEKS</b>							
<b>PATTERN : FULL TIME - SEMESTER</b>										<b>SCHEME : G</b>							
SR. NO.	SUBJECT TITLE	Abbreviation	SUB CODE	TEACHING SCHEME			EXAMINATION SCHEME										SW (19200)
				TH	TU	PR	PAPER HRS.	TH (1)		PR (4)		OR (8)		TW (9)			
								Max	Min	Max	Min	Max	Min	Max	Min		
1	Communication Skills \$	CMS	17201	02	--	02	03	100	40	--	--	25#	10	25@	10	<b>50</b>	
2	Building Construction	BCO	19201	02	--	03	03	100	40	--	--	--	--	25@	10		
3	Surveying	SUR	19202	02	--	02	02	50	20	--	--	--	--	25@	10		
4	Applied Mechanics	AME	19203	03	02	--	03	100	40	--	--	--	--	25@	10		
5	Architectural Drawing -II	ADR	19204	01	--	04	04	100	40	50#	20	--	--	25@	10		
6	Architectural Graphics -II	AGR	19014	01	--	04	--	--	--	50#	20	--	--	25@	10		
7	Development of Life Skills \$	DLS	17010	01	--	02	--	--	--	--	--	25@	10	--	--		
<b>TOTAL</b>				<b>12</b>	<b>02</b>	<b>17</b>	<b>--</b>	<b>450</b>	<b>--</b>	<b>100</b>	<b>--</b>	<b>50</b>	<b>--</b>	<b>150</b>	<b>--</b>	<b>50</b>	

Student Contact Hours Per Week: **31 Hrs.**  
**THEORY AND PRACTICAL PERIODS OF 60 MINUTES EACH.**  
Total Marks : **800**  
@ Internal Assessment, # External Assessment, \$ Common to All Conventional Diploma, ## Online Examination,   No Theory Examination.  
Abbreviations: TH-Theory, TU- Tutorial, PR-Practical, OR-Oral, TW- Termwork, SW- Sessional Work.

- Conduct two class tests each of 25 marks for each theory subject. Sum of the total test marks of all subject are to be converted out of 50 marks as sessional work. (SW)
- Progressive evaluation is to be done by subject teacher as per the prevailing curriculum implementation and assessment norms.
- Code number for TH, PR, OR and TW are to be given as suffix 1, 4, 8, 9 respectively to the subject code.

**Course Name : All Branches of Diploma in Engineering and Technology.**

**Course Code : AE/CE/CH/CM/CO/CR/CS/CW/DE/EE/EP/IF/EJ/EN/ET/EV/EX/IC/IE/IS/  
ME/MU/PG/PT/PS/CD/CV/ED/EI/FE/IU/MH/MI/DC/TC/TX/FG/AA/SC/FC/  
HM/PN/PC/TR/ML/DD**

**Semester : First**

**Subject Title : English**

**Subject Code : 17101**

**Teaching and Examination Scheme:**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER 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 MSBTE.
- 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:**

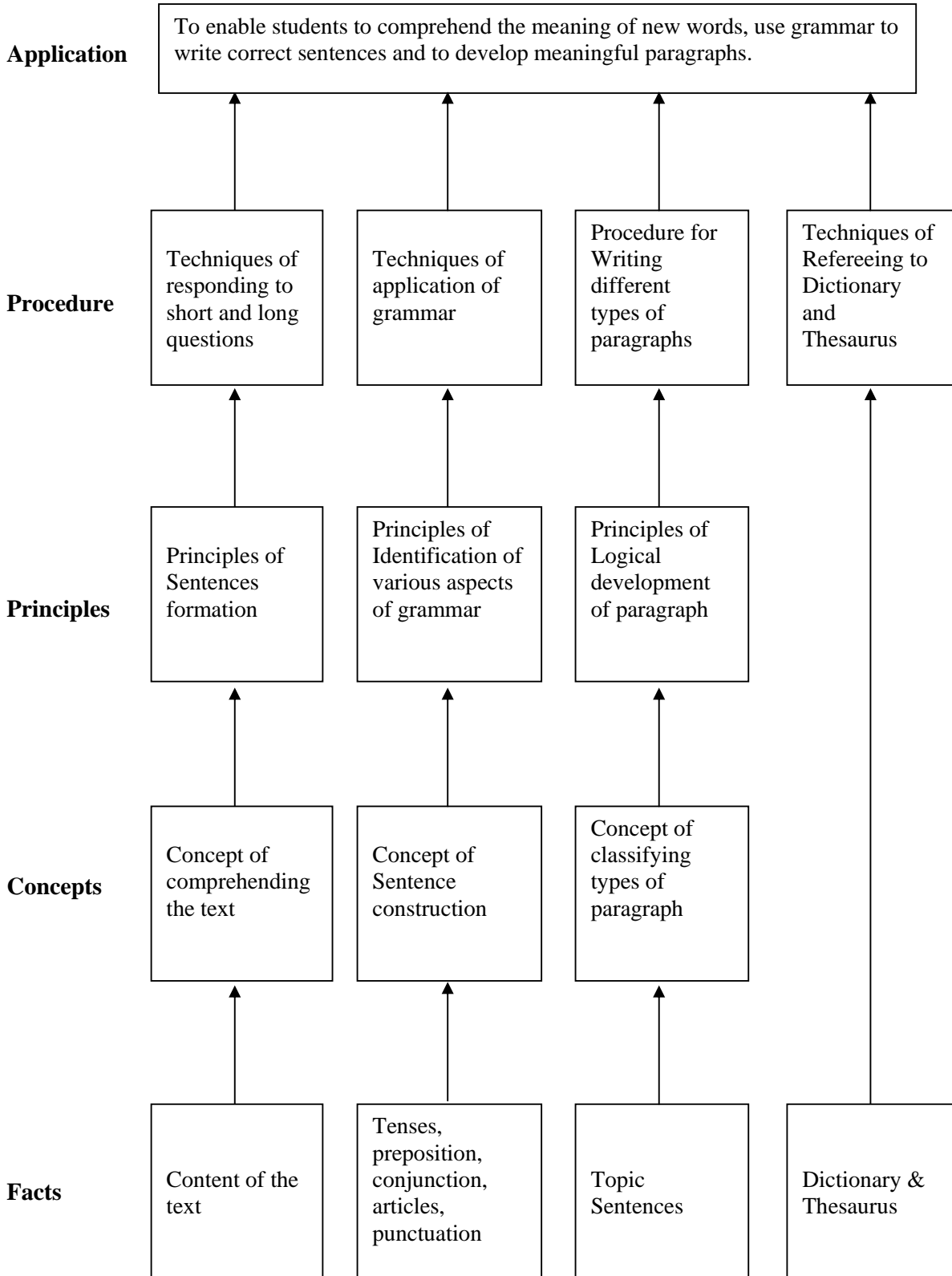
The most commonly used medium to express oneself is language. English, being a global language, is used in all the spheres of human life i.e., personal, professional and social. A diploma student is expected to be proficient in English language and pursue the existing course of study to handle the future jobs. The content of the text includes the aspects related to language skills.

**General Objectives:**

**Students will be able to;**

1. Develop vocabulary.
2. Apply the rules of grammar.
3. Comprehend the given unseen passage.

**Learning Structure:**



**Contents: Theory**

<b>Topic and Contents</b>	<b>Hours</b>	<b>Marks</b>
<p><b>PART I - Application of Grammar</b></p> <p><b>Specific Objective:</b></p> <ul style="list-style-type: none"> <li>➤ Apply grammatical rules to form correct sentences.</li> </ul> <p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>▪ <b>Articles:</b> Appropriate use of definite and indefinite Articles</li> <li>▪ <b>Prepositions:</b> To use correct Prepositions as per context</li> <li>▪ <b>Conjunctions:</b> Co-ordinating and sub-ordinating Conjunctions</li> <li>▪ <b>Tenses:</b> Correct usages of past, present and future tenses</li> <li>▪ <b>Active and Passive voice:</b> Use of Active and Passive voice</li> <li>▪ <b>Direct and Indirect sentences:</b> Conversion of direct into indirect sentence and vice versa</li> </ul>	12	24
<p><b>PART II – Text</b></p> <p><b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ Answer the questions based on the articles</li> <li>➤ State the meanings of the given words from the articles</li> </ul> <p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>▪ Articles</li> </ul>	20	32
<p><b>PART III - Paragraph Writing</b></p> <p><b>Specific Objective:</b></p> <ul style="list-style-type: none"> <li>➤ Write a paragraph on a given topic</li> </ul> <p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>▪ <b>Paragraph Writing:</b> Elaborate and expand the ideas with cohesion, coherence and use of correct punctuation marks</li> <li>▪ <b>Types of Paragraph:</b> Narrative, Descriptive, Technical, Comparison and Contrast</li> <li>▪ <b>Dialogue Writing:</b> Based on various situations</li> <li>▪ <b>Speech Writing based on situations:</b> Welcome Speech, Farewell Speech, Vote of Thanks and Introducing a Guest</li> </ul>	06	16
<p><b>PART IV – Comprehension</b></p> <p><b>Specific Objective:</b></p> <ul style="list-style-type: none"> <li>➤ Comprehend and provide the answers on given passages</li> </ul> <p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>▪ <b>Comprehension of Passage:</b> Comprehending questions and writing the answers on unseen passages</li> </ul>	04	12
<p><b>PART V- Vocabulary Building</b></p> <p><b>Specific Objective:</b></p> <ul style="list-style-type: none"> <li>➤ Use correct words in given situations</li> </ul> <p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>▪ Words Often Confused</li> </ul>	06	16

<ul style="list-style-type: none"> <li>▪ Collocation</li> <li>▪ Prefix and Suffix</li> <li>▪ Synonyms and Antonyms</li> </ul>		
<b>Total</b>	<b>48</b>	<b>100</b>

**Skills to be developed in practicals:****Intellectual Skills:**

1. Select appropriate words/verbs and formulate correct sentences
2. Develop ability of correct pronunciation
3. Report writing skills

**Assignments:**

Journal consists of the following assignments:-

1. Punctuate 25 sentences given by the teacher.
2. Rewrite the passage/passages with correct form of verbs. [Teacher is expected to give passage /passages of verbs used wrongly [at least 25 verbs.]
3. Write 15 synonyms and 15 antonyms with the help of the thesaurus.
4. Write a paragraph each on descriptive, narrative, comparison, contrast and technical type in 75 to 100 words.
5. Write 10 words of prefixes and 10 words of suffixes and use them in sentences.
6. Select one news from any English newspaper. The news may be from any one of the following areas – Social, environmental, financial, economics, sports, etc. Prepare a summary of the news and make it presentable by using relevant photographs/graphics.
7. Students will be given ten collocations, develop three sentences for each collocation.

**NOTE: The following assignment should be performed in the Language Laboratory/with the help of interactive media.**

8. Listen and practice the dialogues with the help of interactive media/ interactive software.

**Learning Resources:**

Sr. No.	Title	Author	Publisher
1	MSBTE TEXTBOOK	-----	MSBTE
2	ESSENTIAL ENGLISH GRAMMAR	RAYMOND MURPHY	CAMBRIDGE
3	HIGH SCHOOL ENGLISH GRAMMAR AND COMPOSITION	WREN AND MARTIN	S CHAND & CO.

**Course Name : All Branches of Diploma in Engineering and Technology.**

**Course Code : AE/CE/CH/CM/CO/CR/CS/CW/DE/EE/EP/IF/EJ/EN/ET/EV/EX/IC/IE/IS/  
ME/MU/PG/PT/PS/CD/CV/ED/EI/FE/IU/MH/MI/FG/FC/AA**

**Semester : First**

**Subject Title : Basic Mathematics**

**Subject Code : 17104**

**Teaching and Examination Scheme:**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
04	01	--	03	100	--	--	--	100

**Notes:**

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

Mathematics is the foundation of science and technology. The study of basic mathematics is helpful to understand concepts of Engineering. This subject enhances logical thinking capability. It also improves the systematic approach in solving engineering problem.

Algebra provides the language and abstract symbols of mathematics. It also helps to use that Language in real-life applications.

Matrix and Determinant topics are helpful for finding optimum solution of system of simultaneous equations which are formed in the various branches of engineering using different parameters.

Trigonometry is the study of triangles and angles.

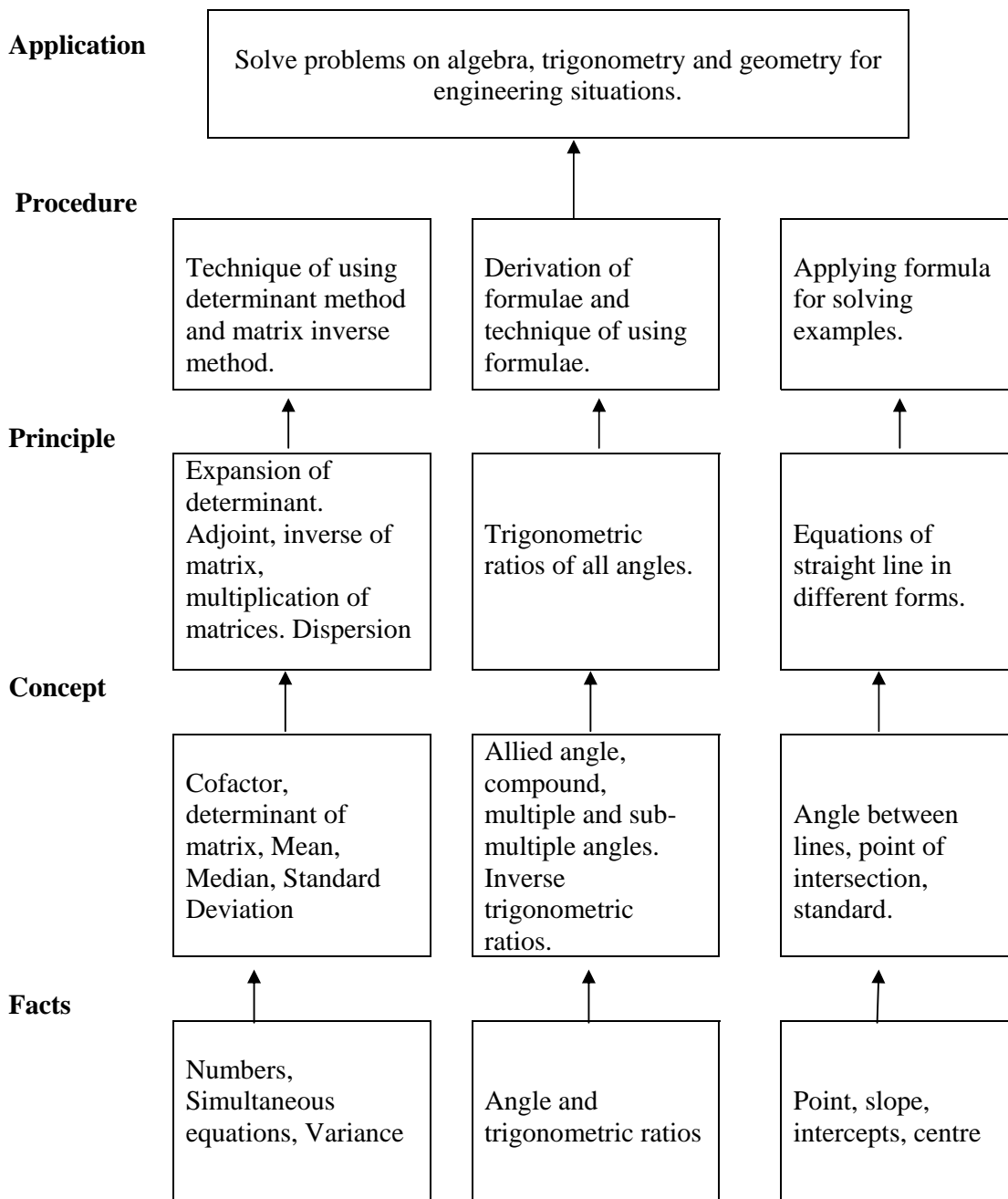
Geometry gives emphasis on understanding the deductive reasoning process. It includes writing derivations of theorems and giving geometric relationships by reasoning. Co-ordinate geometry plays an important role in Animation, AutoCAD, Computer graphics etc. Contents of this subject will form foundation for further study in mathematics.

**General Objectives:**

Student will be able to:

1. Apply Cramer's rule and matrix method to solve simultaneous equations in three variables.
2. Use concept of allied angle, compound angle, multiple and sub-multiple angles to solve engineering problems.
3. Use factorization and de-factorization formulae to solve examples.
4. Understand the relationship of two variables.

**Learning Structure:**





## Theory

Topic and Contents	Hours	Marks
<b>Topic - I Algebra</b>		
<b>1.1 -Determinant</b> ----- <b>04</b> <b>Specific objectives:</b> <ul style="list-style-type: none"> <li>➤ Solve simultaneous equations in three variables using Cramer's rule . <ul style="list-style-type: none"> <li>• Definition and expansion of determinant of order 3 .</li> <li>• Cramer's rule to solve simultaneous equations in three variables.</li> </ul> </li> </ul>	<b>04</b>	<b>32</b>
<b>1.2 - Matrices</b> ----- <b>16</b> <b>Specific objectives :</b> <ul style="list-style-type: none"> <li>➤ Perform all algebraic operations on matrices.</li> <li>➤ Solve simultaneous equations in three variables. <ul style="list-style-type: none"> <li>• Definition of a matrix of order m x n and types of matrices.</li> <li>• Algebra of matrices with properties and examples.</li> <li>• Transpose of a matrix with properties.</li> <li>• Cofactor of an element of a matrix.</li> <li>• Adjoint of matrix and inverse of matrix by adjoint method.</li> <li>• Solution of simultaneous equations containing two and three unknowns by matrix inversion method.</li> </ul> </li> </ul>	<b>10</b>	
<b>1.3 -Partial Fraction</b> ----- <b>12</b> <b>Specific objectives:</b> <ul style="list-style-type: none"> <li>➤ Find partial fraction of proper and improper fraction. <ul style="list-style-type: none"> <li>• Definition of fraction, proper, improper fraction and partial fraction.</li> <li>• Resolve proper fractions into partial fraction with denominator containing <ul style="list-style-type: none"> <li>i) non repeated linear factors,</li> <li>ii) repeated linear factors,</li> <li>iii) non repeated quadratic irreducible factors.</li> </ul> </li> <li>• To resolve improper fraction in to partial fraction.</li> </ul> </li> </ul>	<b>08</b>	

<b>Topic 2- Trigonometry</b>		
<b>2.1 Trigonometric Ratios of Allied, Compound, Multiple and Sub-Multiple Angles</b> ----- 16  <b>Specific objectives:</b> <ul style="list-style-type: none"> <li>➤ Solve examples of allied angle, compound angle, multiple and sub-multiple angles.</li> <li>• Trigonometric ratios of any angle.</li> <li>• Definition of allied angle, compound, multiple and sub-multiple angles.</li> <li>• Trigonometric ratios of above angles with proofs. Simple examples</li> </ul>	<b>10</b>	<b>40</b>
<b>2.2 Factorization and De-factorization Formulae</b> ----- 12 <b>Specific objectives:</b> <ul style="list-style-type: none"> <li>➤ Derive factorization and de-factorization formulae to solve examples.</li> <li>• Formulae for factorization and de-factorization with proof and examples.</li> </ul>	<b>08</b>	
<b>2.3 Inverse Trigonometric Ratios</b> ----- 12 <b>Specific objectives:</b> <ul style="list-style-type: none"> <li>➤ Solve examples of inverse trigonometric ratios.</li> <li>• Definition of inverse trigonometric ratios.</li> <li>• Principal value of inverse trigonometric ratios.</li> <li>• Relation between inverse trigonometric ratios with proof and examples.</li> </ul>	<b>08</b>	
<b>Topic 3- Co –Ordinate Geometry</b>		
<b>3.1 Straight Line</b> ----- 16 <b>Specific objectives:</b> <ul style="list-style-type: none"> <li>➤ Solve problems with given condition.</li> <li>• Angle between two lines with proof. Examples.</li> <li>• Condition of parallel and perpendicular lines.</li> <li>• Point of intersection of two lines, equation of line passing through point of intersection with given condition.</li> <li>• Perpendicular distance between point and line with proof and examples.</li> <li>• Distance between two parallel line with proof and examples.</li> </ul>	<b>10</b>	<b>16</b>
<b>Topic 4 - Statistics</b>		
<b>4.1 Measures of Dispersion</b> ----- 12 <b>Specific objectives :</b> <ul style="list-style-type: none"> <li>➤ Find the range, mean deviation, standard deviation and consistency of any data.</li> <li>• Measures of dispersion - range, mean deviation from mean and median, and standard deviation.</li> <li>• Variance and its coefficient.</li> <li>• Comparisons of two sets of observations.</li> </ul>	<b>06</b>	<b>12</b>
<b>Total</b>	<b>64</b>	<b>100</b>

**Tutorials:**

Note: 1) Tutorials are to be used to get enough practice.

1) Make group of 20 students and for each group minimum 10 problems are to be given.

**List of tutorial:**

<b>Sr. No.</b>	<b>Topic for tutorial</b>
1	Determinant.
2	Matrices (Algebra of matrices)
3	Matrices (Adjoint , inverse and solution of equations using matrix inversion method )
4	Partial fraction.
5	Trigonometric ratio of allied, compound, multiple and sub-multiple angles.
6	Factorization and de- factorization formulae.
7	Inverse trigonometric ratios.
8	Straight line.
9	Statistics( Measure of Dispersion)

**Learning Resources:****1) Books :**

<b>Sr. No</b>	<b>Title</b>	<b>Authors</b>	<b>Publication</b>
1	Mathematics for Polytechnic	S.P. Deshpande	Pune Vidyarthi Griha.
2	Trigonometry	S. L. Loney	S. Chand Publication
3	Matrices	Ayres	Schuam series McGraw Hill
4	Higher Engineering Mathematics	B. S. Grewal	Khanna publication
5	Engineering Mathematics	S. S. Sastry	Prentice Hall of India

**2) Websites :**

[www.khan Academy](http://www.khan Academy)

**COURSE NAME : DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP****COURSE CODE : AA****SEMESTER : FIRST****SUBJECT TITLE : BUILDING MATERIALS & CONSTRUCTION****SUBJECT CODE : 19102****Teaching & Examination Scheme:**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS.	TH	PR	OR	TW	TOTAL
02	--	03	03	50	--	--	25@	75

**NOTE:**

- Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.
- 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 is core technology subject. It will help the students to secure knowledge about the properties & uses of different building materials. It will also help in learning further aspects of building construction.

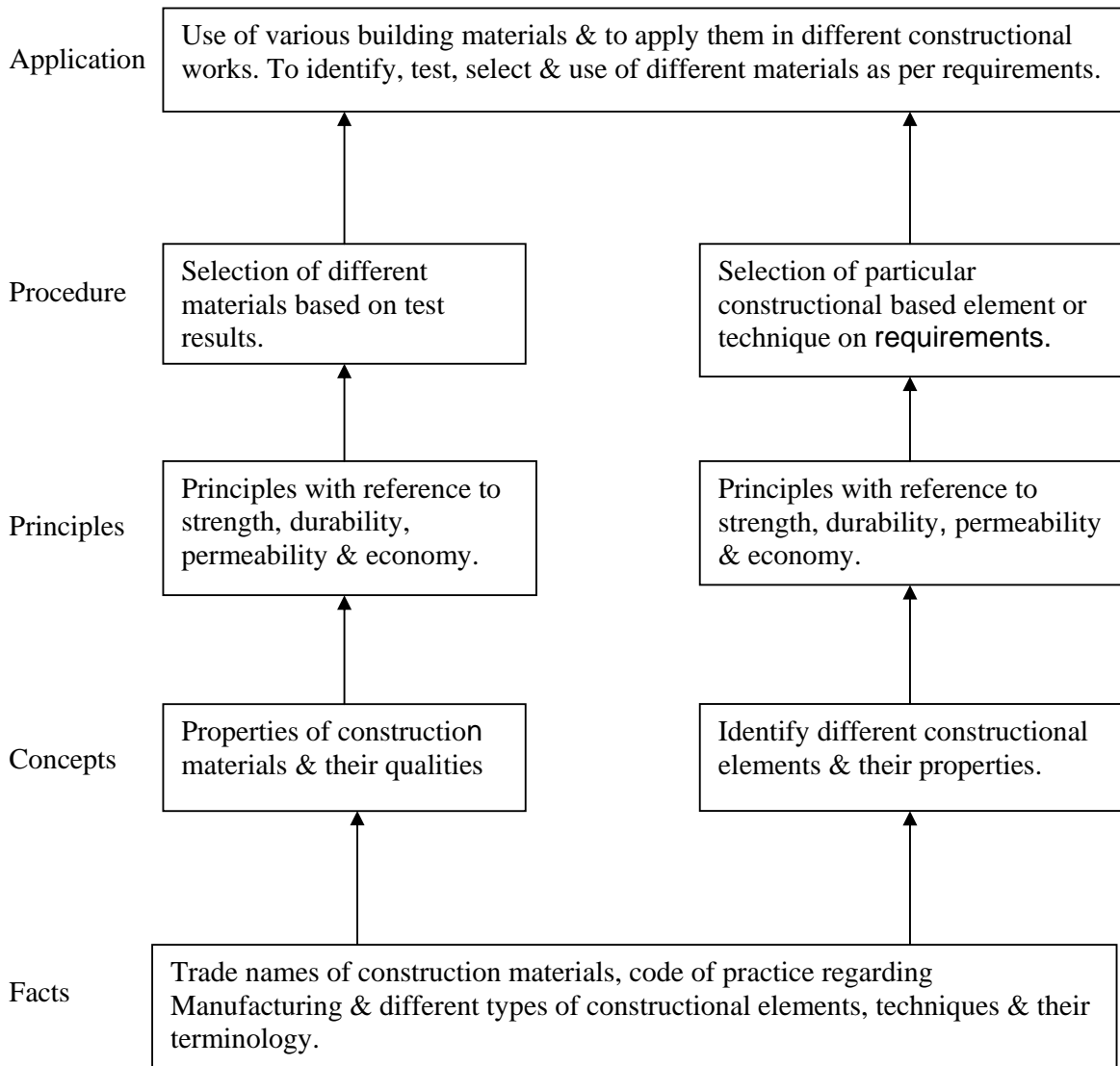
This subject also provides knowledge about different constructional elements & techniques. This helps the student to understand the application of different construction materials as per construction standards.

**General Objectives:**

The students will be able to:

- Identify, select & test different construction materials.
- Make use of the different construction materials.
- Understand the application of these materials in construction.
- Understand the different standard constructional elements & techniques with their applications.

**Learning Structure:**



**Contents: Theory**

<b>Topic &amp; Contents</b>	<b>Hours</b>	<b>Marks</b>
<p><b>Topic 1: Sand, Cement, Lime</b></p> <p><b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ State the uses of sand, cement &amp; lime in construction work.</li> <li>➤ Enlist types &amp; properties of these materials.</li> </ul> <p><b>Content</b></p> <p>1.1 Sand..... (04 Marks)</p> <ul style="list-style-type: none"> <li>• Properties &amp; uses of sand</li> <li>• Bulking of sand, sieve analysis.</li> </ul> <p>1.2 Cement..... (06 Marks)</p> <ul style="list-style-type: none"> <li>• Types of cement with their properties &amp; uses Portland cement, White cement, Coloured cement, Rapid hardening cement, Sulphate resisting cement, High alumina cement, Blast furnace slag cement</li> <li>• Field tests for cement Manufacturing of cement with flow diagrams</li> </ul> <p>1.3 Lime..... (04 Marks)</p> <ul style="list-style-type: none"> <li>• Classification of lime with properties &amp; uses</li> <li>• Field tests for lime</li> <li>• Conversion of fat lime in to Hydraulic lime</li> </ul>	10	14
<p><b>Topic 2: Brick &amp; Stone</b></p> <p><b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ State the uses of brick &amp; stone in construction.</li> <li>➤ Conducts various tests of bricks and stones</li> </ul> <p><b>Content</b></p> <p>2.1 Brick.....(04 Marks)</p> <ul style="list-style-type: none"> <li>• Characteristics of good bricks,</li> <li>• Tests for crushing, hardness, soundness, presence of soluble salts &amp; water – absorption</li> <li>• Classification of bricks,</li> <li>• Size shape weight of bricks,</li> <li>• Uses of bricks</li> </ul> <p>2.2 Stone.....(04 Marks)</p> <ul style="list-style-type: none"> <li>• Characteristics of stone</li> <li>• Uses of stone.</li> <li>• Tests for crushing strength &amp; water absorption</li> </ul>	04	08
<p><b>Topic 3: Mortar &amp; Concrete</b></p> <p><b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ State the uses of mortar &amp; concrete in construction.</li> <li>➤ State the Properties &amp; their uses.</li> <li>➤ Describe the process of making mortar &amp; concrete workable.</li> </ul> <p><b>Content</b></p> <ul style="list-style-type: none"> <li>• Properties and uses of Mortar</li> <li>• Types of Mortar -</li> <li>• Lime, cement, sand, lime – Surkhi mortar</li> <li>• Course aggregate in concrete.</li> <li>• Water cement ratio,</li> <li>• Workability of Concrete.</li> <li>• Lime concrete</li> </ul>	04	04

<p><b>Topic 4: Timber</b>  <b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ Describe the use of timber in construction.</li> <li>➤ Write Properties and uses of timber and wood .</li> </ul> <p><b>Content</b></p> <ul style="list-style-type: none"> <li>• Properties of good timber,</li> <li>• Uses of Timber</li> <li>• Woods – Plywood, Agrowood, Particle board, Fiber Board, Block Board - Properties and uses</li> </ul>	02	04
<p><b>Topic 5: Simple Foundations &amp; Footings</b>  <b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ State Purpose of foundation in any kind of construction work.</li> <li>➤ List the types of foundations.</li> </ul> <p><b>Content</b></p> <ul style="list-style-type: none"> <li>• Wall Footings</li> <li>• R.C.C. Column Footing.</li> <li>• Inverted Arch Footing</li> </ul>	02	06
<p><b>Topic 6: Brick &amp; Stone Masonry</b>  <b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ Write the use of bricks &amp; stone to construct wall with different types of bonds &amp; arrangements.</li> <li>➤ State the basic terms &amp; types of masonry.</li> </ul> <p><b>Content</b></p> <p>6.1 Brick Masonry.....(06 Marks)</p> <ul style="list-style-type: none"> <li>• Size of Bricks, Different types of Bricks</li> <li>• Technical terms used in Brickwork</li> <li>• Different types of Bonds.</li> <li>• Bonding old work with new work.</li> <li>• Racking</li> </ul> <p>6.2 Stone Masonry.....(04Marks)</p> <ul style="list-style-type: none"> <li>• Technical terms in Stone Masonry</li> <li>• Types of Stone Masonry- Rubble, Coursed &amp; Ashlar</li> <li>• Joints &amp; Dressing of stone.</li> </ul>	08	10
<p><b>Topic 7: Carpentry Joints</b>  <b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ Describe purpose of carpentry joints.</li> <li>➤ Enlist the different types of carpentry joints.</li> </ul> <p><b>Content</b></p> <ul style="list-style-type: none"> <li>• Different types of Joints used in Carpentry work with their uses for building works</li> </ul>	02	04
<b>Total</b>	<b>32</b>	<b>50</b>

**Practical:****Skills to be developed:****Intellectual Skills:**

- Understand the different properties and uses of different materials.
- Understand the working of foundations while site visit.
- Understand the working of carpentry joints while site visit.
- Understand the working of masonry while site visit.

**Motor Skills:**

- Do market survey so that appropriate material is selected for construction.
- Write various observation during visit to the construction sites.

**List of Assignments:**

- 1) The students should do the market survey of materials and submit the report of the same for all topics
- 2) One full imperial sheet on sketches of wall footing & inverted arch footings.
- 3) One full imperial sheet on R.C.C. column footing (simple & combined) with plan, elevation & constructional details.
- 4) One full imperial sheet on terminology of brick masonry.
- 5) One full imperial sheet on stretcher & English bond in brick masonry.
- 6) One full imperial sheet on flemish bond in brick masonry.
- 7) Two full imperial sheet on types of stone masonry & joints.
- 8) One full imperial sheet on various carpentry joints.

**Note:**

- 1) Practical hours shall be used for market survey & site visits for each material & constructional elements & students should submit report of the visit.
- 2) The subject teacher will provide guidelines for market survey & site visits.

**Learning Resources:****Books:**

Sr. No.	Author	Title	Edition	Year of Publication	Publisher & Address
01	P. N. Khanna	Civil Engineers Hand Book	9 <sup>th</sup>	1984	Engineers Publisher, Delhi
02	Rangwala S. C.	Building Material	14 <sup>th</sup>	1990	Charotar Publishing House, Anand
03	Sushilkumar	Building Construction	10 <sup>th</sup>	1984	Dehli-standard Publishers, Distributors
04	Mitchell	Mitchell's Elementary Building Construction	15 <sup>th</sup>	1976	Bombay Allied Publishers
05	Rangwala S. C.	Building Construction	10 <sup>th</sup>	1985	Charotar Publishing House, Anand



**COURSE NAME : DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP**  
**COURSE CODE : AA**  
**SEMESTER : FIRST**  
**SUBJECT TITLE : ARCHITECTURAL GRAPHICS-I**  
**SUBJECT CODE : 19103**

**Teaching and Examination Scheme:**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS.	TH	PR	OR	TW	TOTAL
02	--	03	04	100	--	--	50	150

**NOTE:**

- Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.
- Total of tests marks for all theory subjects are to be converted out of 100 and to be entered in mark sheet under the head Sessional Work (SW).

**Rationale:**

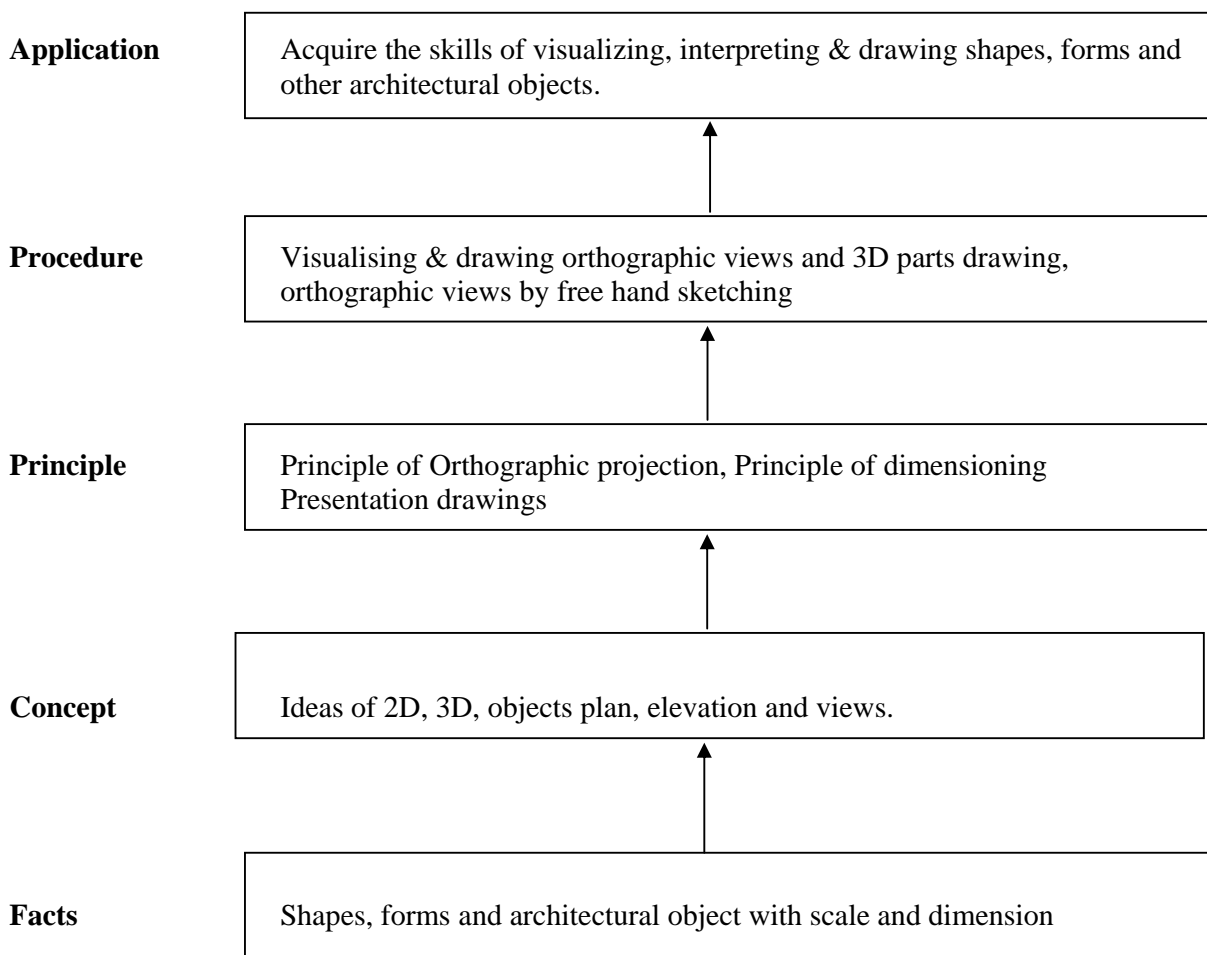
This subject is a language of communication. It is core technology subject. It helps students in learning further architectural aspects in different subjects. It describes basic facts, concepts, principles & techniques of drafting in order to visualize and express the ideas.

**General Objectives:**

The student will be able to:

- Understand uses of different drafting equipment's.
- Visualize the objects from two Dimensional drawings.
- Understand drawing of different geometrical forms & scaled drawings.

**Learning Structure:**



**Contents: Theory**

<b>Topic and Contents</b>	<b>Hours</b>	<b>Marks</b>
<b>Topic 1: Drawing Equipment's and Drafting Standards</b> <b>Specific Objectives:</b> <ul style="list-style-type: none"> <li>➤ Prepare the composition of lines</li> <li>➤ Use different ink pens to draw the lines in plan</li> </ul> <b>Content</b> <ul style="list-style-type: none"> <li>• Use of drafting equipment &amp; drafting methods</li> <li>• Use of pencil, different inks, ink pens</li> <li>• Drawing Lines in pencils and ink pens</li> <li>• Composition of lines</li> </ul>	04	04
<b>Topic 2: Geometrical Constructions</b> <b>Specific Objectives:</b> <ul style="list-style-type: none"> <li>➤ Draw geometrical construction of polygons</li> <li>➤ Divide the line into number of divisions</li> </ul> <b>Content</b> <ul style="list-style-type: none"> <li>• Definition of solids</li> <li>• Subdivision of lines &amp; polygons</li> <li>• Geometrical construction of square, rectangle, polygons</li> </ul>	08	16
<b>Topic 3: Plane and Solid Geometry (First Angle Method only)</b> <b>Specific Objectives:</b> <ul style="list-style-type: none"> <li>➤ Develop the solids</li> <li>➤ Draw the sections of the solids</li> </ul> <b>Content</b> <ul style="list-style-type: none"> <li>• Projection of points, lines and plane figures.</li> <li>• Development of solids</li> <li>• Projection of solids</li> <li>• Section by Horizontal, Vertical and inclined plane.</li> <li>• True shape of section</li> </ul>	10	40
<b>Topic 4: Scaled Drawing (First Angle method only)</b> <b>Specific Objectives:</b> <ul style="list-style-type: none"> <li>➤ Draw the plan, elevation of any furniture element</li> <li>➤ Draw the single unit plan with all the necessary dimensions and convention</li> </ul> <b>Content</b> <ul style="list-style-type: none"> <li>• Techniques of drafting, dimensioning, metric scale, construction of plain, diagonal scale and their use in practice</li> <li>• Orthographic projection, furniture measuring and drawing at different scale</li> <li>• Orthographic Sectional views</li> <li>• Conventional signs and symbols for different building materials in section &amp; door, windows in plan as per IS-962-1962</li> </ul>	10	40
<b>Total</b>	<b>32</b>	<b>100</b>

**Practical:****Skills to be developed****Intellectual Skills:**

- Attain the skill of drafting and development of different solids.

- Draft & develop different solids like prism, cube and cone.
- Understand various types of geometrical forms.
- To know the method of Orthographic projection.
- Use orthographic projection techniques.

**Motor Skills:**

- Demonstrate different pencils & ink pens wherever necessary.
- Use drafting instruments.
- Draw different projections.
- Handle measuring tape.

**List of Assignments:**

- 1) One full imperial drawing sheets on composition of lines, use of ink pens.
- 2) Two full imperial drawing sheets on geometric construction.
- 3) Four full imperial drawing sheets on plane and solid geometry.
- 4) Two full imperial drawing sheets on measure drawing.

**Note:**

Preferably the subject should be taught by an architect.

**Learning Resources:****Books:**

Sr. No.	Title	Author	Publisher
1	Engineering Drawing	Bhat N.D.	Charotar Publication House Anand
2	Building Drawing	Shah, Kale, Patki	Tat Mc-Graw Hill Co. Ltd, New Delhi
3	Code of practice for Architectural & Building Drawing I.S. -962 – 1967	B.I.S.	B.I.S. Delhi

**COURSE NAME : DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP****COURSE CODE : AA****SEMESTER : FIRST****SUBJECT TITLE : ARCHITECTURAL DRAWING – I****SUBJECT CODE : 19001****Teaching & Examination Scheme:**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS.	TH	PR	OR	TW	TOTAL
01	--	03	--	--	--	--	50@	50

**Rationale:**

Architectural drawing is basics of architecture. It prepares the student to become good architectural assistant. It helps him in learning further aspects of architectural drawings.

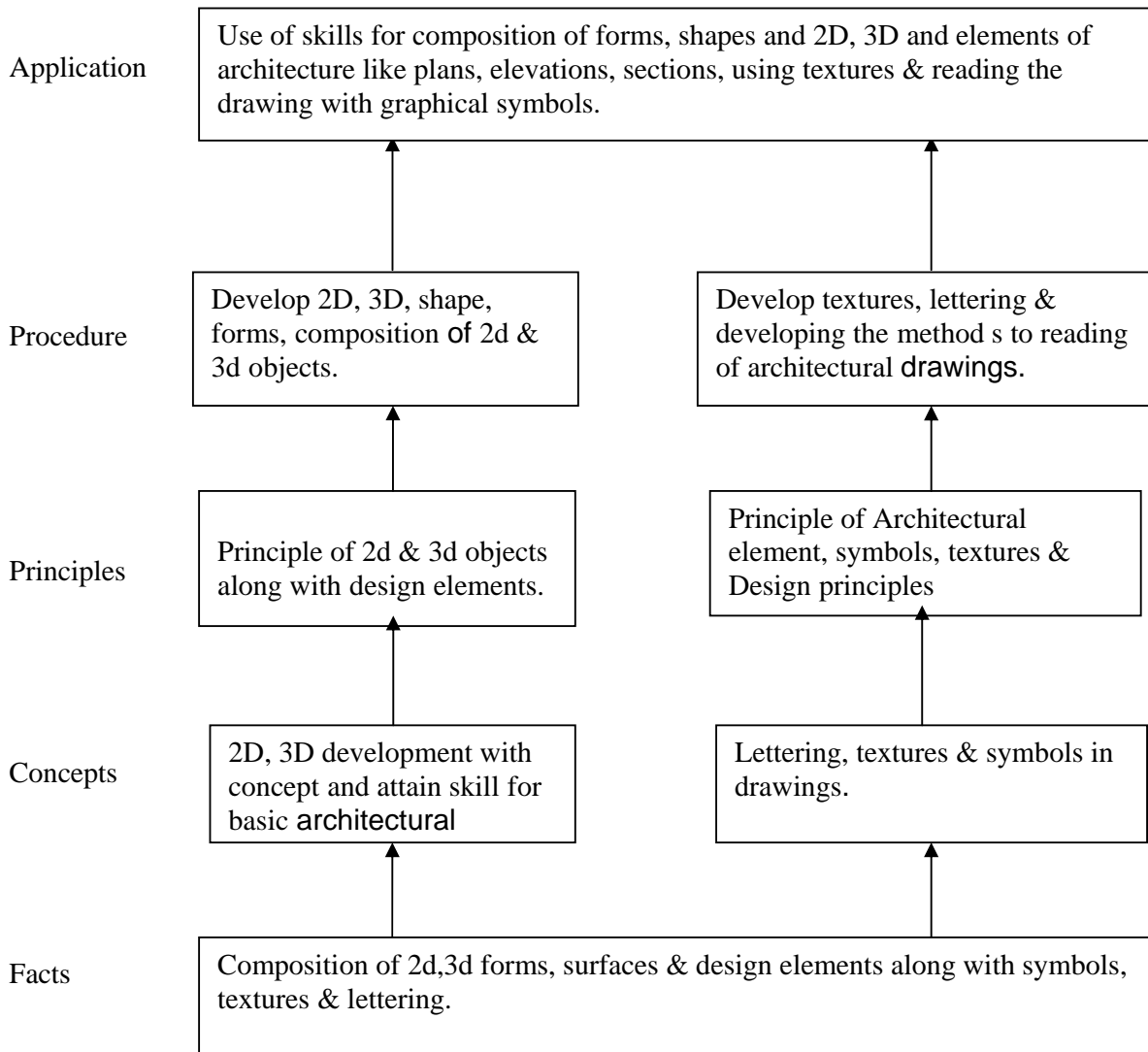
This subject helps the student to express in graphical language which is most important in architecture. This subject is the core subject regarding drawings & presentation techniques.

**General Objectives:**

The student will be able to:

- Understand architectural techniques, lettering & textures in drawings.
- Understand basics in drawing reading & symbols.
- Compose 2D & 3D drawings.
- Convert 2 dimensional views into 3 dimensional views & vice versa.

**Learning Structure:**



**Contents: Theory**

<b>Topic and Contents</b>	<b>Hours</b>
<b>Topic 1: Lettering</b>  <b>Content</b> <ul style="list-style-type: none"> <li>• Free hand lettering small/capital</li> <li>• Lettering with drafting instrument</li> <li>• Lettering with colours</li> </ul>	04
<b>Topic 2: Composition of 2D &amp; 3D</b>  <b>Content</b> <ul style="list-style-type: none"> <li>• Composition of 2D surfaces in tone, colours and textures</li> <li>• Principles of design</li> <li>• Elements of design</li> <li>• Composition of 3D surfaces</li> <li>• Problems based on principles &amp; elements of Architecture</li> </ul>	06
<b>Topic 3: Textures</b>  <b>Content</b> <ul style="list-style-type: none"> <li>• Textures of various objects &amp; textures for Showing various materials used in building. a) Brick b) Stone c) Marble, d) Plaster e) Tiles f) Timber</li> </ul>	04
<b>Topic 4: Drawing Reading &amp; Symbols</b>  <b>Content</b> <ul style="list-style-type: none"> <li>• Reading of drawing &amp; graphical language.</li> <li>• Understanding the types, meanings and uses of different lines, patterns, symbols, etc.</li> </ul>	02
<b>Total</b>	<b>16</b>

**Practical:**

Skills to be developed:

**Intellectual Skills:**

- Know about drafting equipments and their uses.
- Understand use of pencils, colours.
- Understand development of 2D to 3D or 3D to 2D views.

**Motor Skills:**

- Handle different drafting equipments.
- Make composition of different forms.
- Use different colour schemes.
- Make use of scales.

**List of Practical:**

- 1) One full imperial sheet lettering ( Capital & small) with architectural style
- 2) Two full imperial sheet on composition of 2D & 3D forms & to be rendered with various colour and texture
- 3) One full imperial sheet on different lines, line patterns & texture such as stone, brick, sand, plaster, timber

- 4) One full imperial sheet on dimension styles, building element's symbols & typical construction details of door frame to wall fixing, sliding windows with aluminum profile section, teak wood window
- 5) Student should collect and interpret set of presentation drawings and working drawings of Residential Building area 150 to 250 sq. m

**Learning Resources:****Books:**

<b>Sr. No.</b>	<b>Author</b>	<b>Title</b>	<b>Publisher &amp; Address</b>
01	V. S. Parmar	Design fundamentals in Architecture	Somaiyya Publication, Mumbai
02	Robert Gill	Rendering with Pen and Ink	Thames & Hudson, London
03	Gajanan Bhagwat & A. Desai	Visual Art and Basic Study	Somaiyya Publication, Mumbai



**COURSE NAME : DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP**  
**COURSE CODE : AA**  
**SEMESTER : FIRST**  
**SUBJECT TITLE : VISUAL ARTS**  
**SUBJECT CODE : 19002**

**Teaching & Examination Scheme:**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
01	--	02	--	--	50#	--	25@	75

**Rationale:**

The subject is considered as a medium for understanding architecture as one of the principle arts in the pantheons of human creativity. The flowering of aesthetic sensibilities and a taste for the visual and sensory appeal of physical form. This helps the students to grasp the fundamentals and the basic elements of design such as the point, line, planes, volumes and masses, colour, texture etc. through exercises.

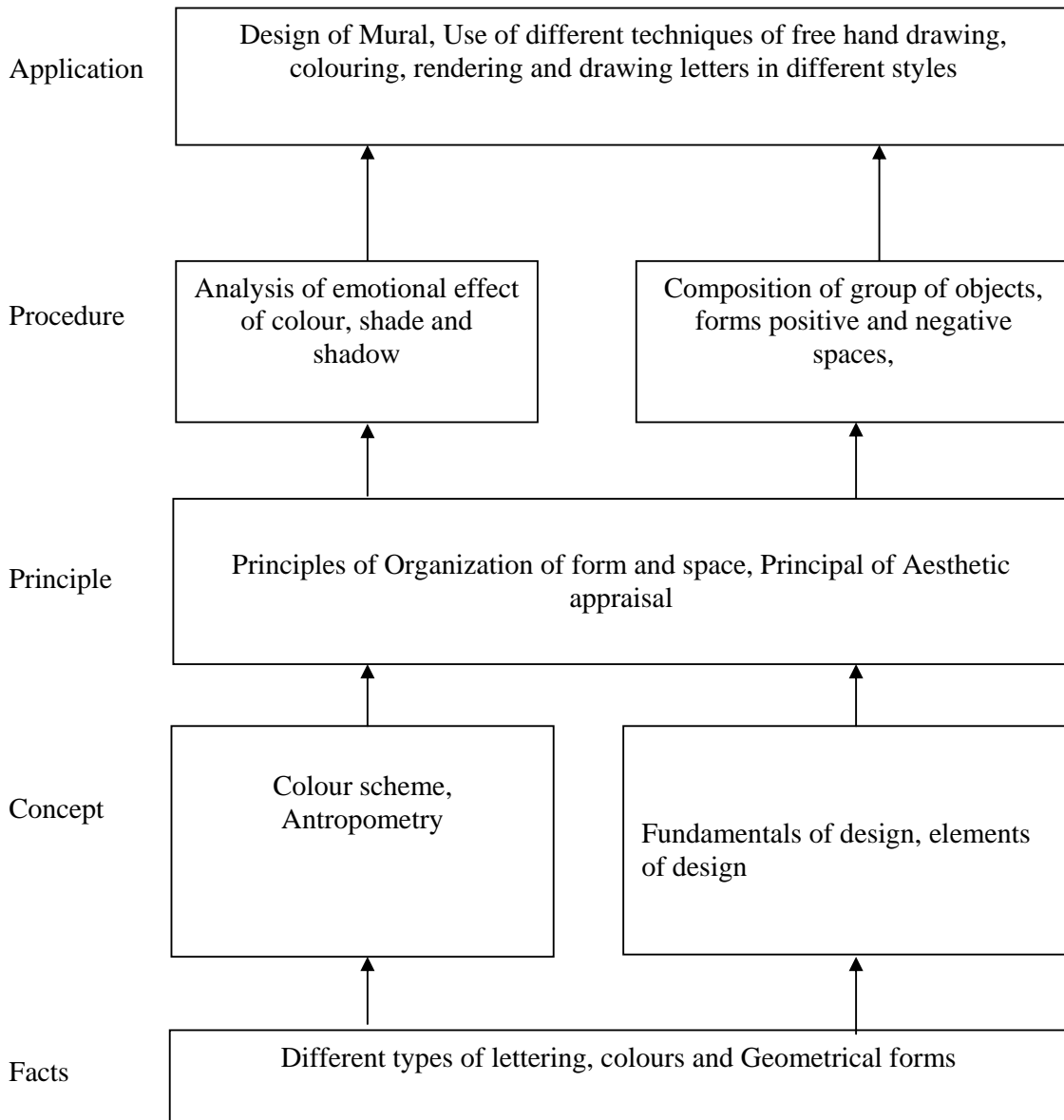
This subject will help the students to understand the graphical language of communication.

**General Objectives:**

The Student will be able to:

- Understand Architectural aesthetics.
- Understand the elements of visual arts.
- Understand Attribute of forms and space.
- Analyse emotional effect of colours, shades and shadows.
- Understand the Design of mural.
- Understand Sketching of simple building and landscape element.

**Learning Structure:**



**Contents: Theory**

<b>Topic and Contents</b>	<b>Hours</b>
<p><b>Topic 1: Elements of Design</b>  <b>Content</b></p> <ul style="list-style-type: none"> <li>• Line and its meaning - Thick &amp; Thin line, Vertical &amp; Horizontal line, slop line, Cross line, Rhythm &amp; Circular line</li> <li>• Forms - Geometrical, Decorative, Abstract, Natural, Ornamental</li> <li>• Tone-Lights and Shades</li> <li>• Colours</li> <li>• Textures</li> <li>• Composition</li> </ul>	04
<p><b>Topic 2: Fundamentals of Art</b>  <b>Content</b></p> <ul style="list-style-type: none"> <li>• Repetition</li> <li>• Alternation</li> <li>• Radiation</li> <li>• Proportion</li> <li>• Balance</li> <li>• Rhythm</li> </ul> <p>For use in Grill design, door design &amp; Glass design</p> <ol style="list-style-type: none"> <li>i) Gate with gate pillar lanterns over</li> <li>ii) Hand rail with Balustrades, M.S. &amp; W.I.</li> <li>iii) Concrete, stone, marble Jali</li> <li>iv) Compound wall, railings, windows grill Veranda railings (Porch)</li> </ol>	04
<p><b>Topic 3: Lettering</b>  <b>Content</b></p> <ul style="list-style-type: none"> <li>• Roman</li> <li>• Gothic</li> </ul>	01
<p><b>Topic 4: Sketching</b>  <b>Content</b></p> <ul style="list-style-type: none"> <li>• Living Room</li> <li>• Kitchen</li> <li>• Bed Room, Various items of home and office – cupboards, Beds, Wardrobes, dressing tables</li> <li>• Arrangement of these furniture in Living, Kitchen, Bed room and Office rooms</li> <li>• Free hand sketching of monuments and buildings in different techniques and medium</li> </ul>	02

<b>Topic 5: Colouring and Rendering</b> <b>Content</b> <ul style="list-style-type: none"> <li>• The source of colour (Light, Eye and mind (brain))</li> <li>• Nature Law of light rainbow colours.</li> <li>• Colour Mixtures</li> <li>• Colour Circle (Wheel)</li> <li>• Colour Scheme (All colour schemes)</li> <li>• Use of colour scheme</li> <li>• Gray Scale (High, Middle, Low Key) its use</li> <li>• Colour simultaneous Contrast</li> <li>• Psychological effects of colours</li> <li>• Effect of light on colour</li> </ul>	03
<b>Topic 6: Mural Design</b> <b>Content</b> <ul style="list-style-type: none"> <li>• Mural design and collage</li> </ul>	02
<b>Total</b>	<b>16</b>

**Practical:**

Skills to be developed:

**Intellectual Skills:**

1. Apply of elements of design in Grill design, door design & glass design.
2. Prepare colour scheme and compositions, general psychological effects of colour.
3. Understand use of rendering techniques in presentation drawing.
4. Design of mural as per the concept.

**Motor Skills:**

1. Apply of colour scheme and compositions in geometrical forms.
2. Apply the different forms for designing doors, grills and glasses.
3. Label the drawings with appropriate letterings.

**List of Practical:**

- 1) Two half imperial sheets on sketching of interior elements such as table, chair, sofa, bed
- 2) Three half imperial sheets on colour wheel, gray scale & Psychological effects of colours with application
- 3) Two half imperial sheets on fundamental of art and application in grill and door design
- 4) One half imperial sheet on use of three dimensional objects in mural design
- 5) One half imperial sheet on collage

**Learning Resources:****Books:**

<b>Sr. No.</b>	<b>Author</b>	<b>Title</b>	<b>Publishers &amp; Address</b>
01	Ross F. George	Speedball text book Lettering poster design for pen & brush	Thames & Hudson, London
02	Jagtap, Telang	Rang siddhant (Marathi & English Edition)	Jagtap Publication, Pune
03	Robert Gill	Rendering (With Pen & Ink)	Thames & Hudson, London
04	Milind Mullik	Perspective	Jyotsna Prakashan
05	Milind Mullik	Opeque	Jyotsna Prakashan
06	Ching D.K.	Architecture: Form, Space & Order	Van Nostrand Reinhold ISBN-13, 9780442017927
07	Pramar V. S.	Fundamentals in Architecture	Somaiya Publications

**Course Name : All Branches of Diploma in Engineering and Technology.**

**Course Code : AE/CE/CH/CM/CO/CR/CS/CW/DE/EE/EP/IF/EJ/EN/ET/EV/EX/IC/IE/IS/  
ME/MU/PG/PT/PS/CD/CV/ED/EI/FE/IU/MH/MI/FE/IC/IE/IF/IS/IU/ME/  
MH/MI/MU/PG/PS/PT/AA**

**Semester : First**

**Subject Title : Computer Fundamentals**

**Subject Code : 17002**

**Teaching and Examination Scheme:**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
01	--	04	--	--	50* #	--	25@	75

**\* On Line Examination**

**Rationale:**

Since early 21<sup>st</sup> Century the use of Computer has been so rapidly that it is difficult to think of an area where computers are not being used. It is very desirable that everyone should have good knowledge of computer.

Main purpose of this subject is how to use a computer for basic needs. This subject covers application softwares like MS-Word, MS-Excel, MS- PowerPoint.

It is a gateway to wonderful world of information and part of various applications like business, academic, hospitals, construction, designing, chemical fields and many more.

**Intellectual Skills:**

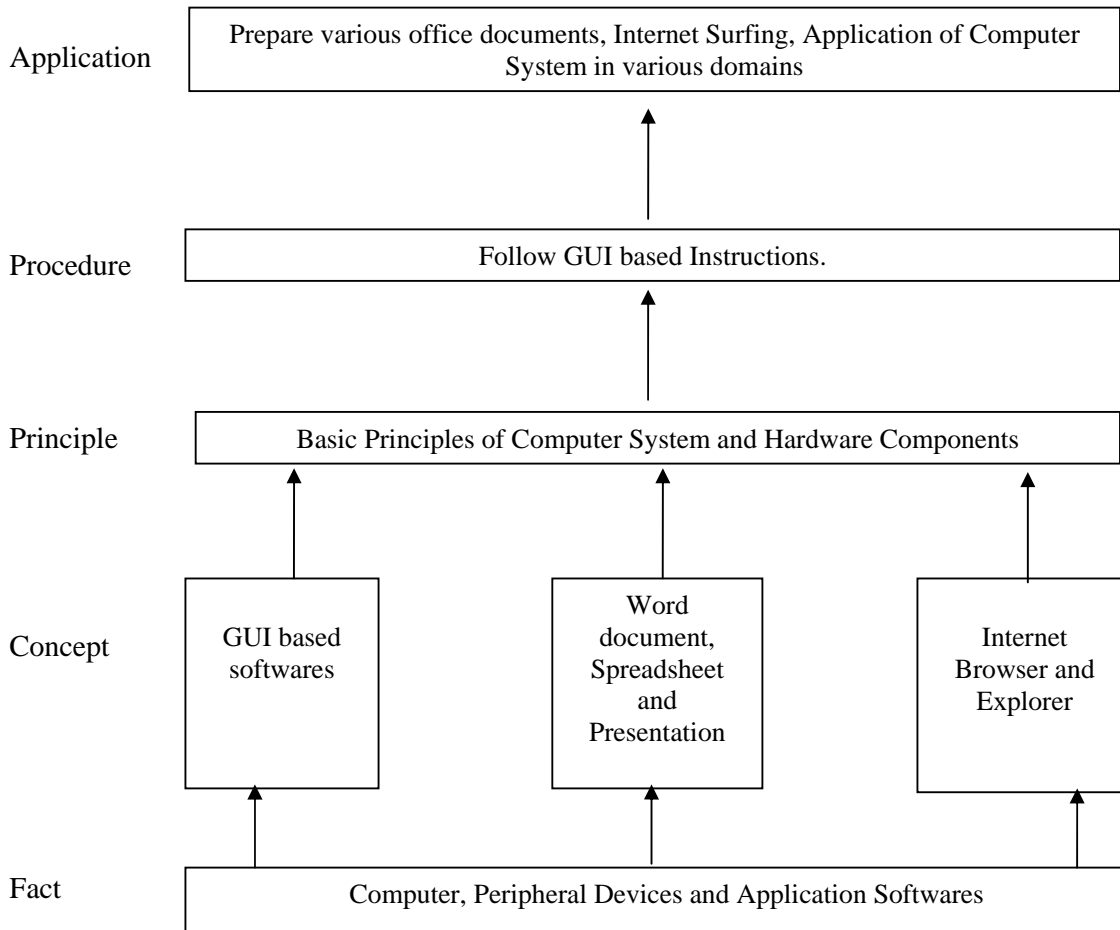
Students should be able to:

1. Use of Operating System.
2. Use MS- Word, MS-Excel, MS- PowerPoint, efficiently for documentation.
3. Use browser for accessing Internet.

**Motor Skills:**

Handle Personal Computer System.

**Learning Structure:**



**Contents:****Note:**

1. It is suggested that the separate batch should be formed for students having less computer background.
2. Contents of theory are to be taught in practical period with the help of LCD projector.

Sr. No	Activity/Topics	Hours
1	<ul style="list-style-type: none"> <li>• <b>Algorithms</b>-Introduction, Three Basic Operations, Procedures and Programs</li> </ul>	1
2	<ul style="list-style-type: none"> <li>• <b>Data Representation</b>- Representing different symbols, minimizing errors, Representing more Symbols, Generic Formula, the ASCII code, the EBCDIC code, Rules of Decimal number System and its conversion to binary</li> <li>• <b>Multimedia</b>- Digital images, analog to digital conversions, digital audio and digital video</li> </ul>	2
3	<ul style="list-style-type: none"> <li>• <b>Binary Arithmetic</b>- binary addition, binary subtraction, multiplication and division</li> <li>• <b>Logic Gates</b>- The need for derived gates, Half adder, Full adder, Logical operations</li> </ul>	2
4	<ul style="list-style-type: none"> <li>• <b>Data Storage- memory</b>-Main Memory, Memory data transfer, MBR, Memory decoders -1x2,2x4...10x1024, MAR, Address, Data and Control Buses, Load and Store Instructions, Word and Word Length, RAM and ROM, Cache Memory</li> <li>• <b>Data Storage- Disk</b>- Memory Hierarchy, Disk basics – Cylinders, Tracks, Surfaces, Sectors, Relationship between logical and physical records, Disk Controller Architecture, Sector format, Formatting Process, Seek Time, Rotational Delay and Transmission time, The relationship between Application program, Operating System, Disk Controller and the actual disk, CDs, DVD</li> <li>• <b>VDU and Printers</b>-Human-computer interface, Keyboard, Raster Scanning, Frame Buffer, Basics of Graphics, Black and White/ Color Terminals, Text based terminals, LEDs/LCDs, Inkjet Printers, Laser Printer</li> </ul>	3
5	<ul style="list-style-type: none"> <li>• <b>Computer Architecture</b>-CPU Registers, Multiplexers, ALU, Instruction Format, Instruction Decoding, Instruction Execution Cycles</li> <li>• <b>Operating System</b>-Concepts of system calls, Multiprogramming, Concepts of Context Switch, Different Services of Operating System, Information Management , Process Management (Process states, Process State Transition, Process Scheduling), Memory Management (Fixed Partition, Variable Partition, Paging, Demand Paging)</li> </ul>	2
6	<ul style="list-style-type: none"> <li>• <b>Classification of Computers and applications</b>- Characteristics of Computers, What Computers can do, What computers can't do, Classification of Digital Computer Systems, Anatomy of a Digital Computer</li> </ul>	1
7	<ul style="list-style-type: none"> <li>• <b>Introduction to Computer</b> Usage of computer system in different domains like office, book publication, ticket reservation, banks etc. Components of PC – Mouse, keyboard, CPU, monitor, printers, scanners, modem, memory, sound cards, pen drives.</li> </ul>	1



<b>8</b>	<ul style="list-style-type: none"> <li><b>Introduction to Operating System( Windows 7)</b> Working with Windows desktop, icons, taskbar, menu bar options, My Documents, My Computer, Control Panel, Recycle bin Concept of drives, folders, files Windows accessories – Notepad, WordPad, paint, clock, calendar, calculator</li> </ul>	<b>1</b>
<b>9</b>	<ul style="list-style-type: none"> <li><b>GUI Based Software – MS – Office 2010</b> MS-Word – Opening menus, toolbars, opening and closing documents, clipboard concept MS – Excel – Working and manipulating data with excel, formulas, functions, chart and its types MS – PowerPoint – Working with PowerPoint and presentation ,Changing layout, Graphs , Auto content wizard ,Slide show, Animation effects, Normal, outline, Slide sorter, Reading view.</li> </ul>	<b>2</b>
<b>10</b>	<ul style="list-style-type: none"> <li><b>Internet</b> History of Internet, equipments required for Internet connection, browser (Internet Explorer, Mozilla and Firefox, Google Chrome)</li> </ul>	<b>1</b>
<b>Total</b>		<b>16</b>

**List of Practicals / Activities**

Sr. No	Practicals / Activities
1	<ul style="list-style-type: none"> <li>Demonstration of above peripheral devices to students</li> </ul>
2	<ul style="list-style-type: none"> <li>Moving from one window to another window</li> <li>Opening task bar buttons into a window.</li> <li>Arranging icons on the desktop and create shortcuts.</li> </ul>
3	<ul style="list-style-type: none"> <li>Creating folders and files.</li> <li>Copy, rename, delete files and folders.</li> <li>Moving folders and files from one drive to another drive.</li> </ul>
4	<ul style="list-style-type: none"> <li>Create and edit notepad document.</li> <li>Create and edit WordPad document.</li> <li>Create paint file by using different drawing tools.</li> </ul>
5	<ul style="list-style-type: none"> <li>Creating, editing, saving word document.</li> <li>Entering and formatting text.</li> <li>Paragraph formatting, use bullets and numbering.</li> <li>Page formatting – page margins, page size, orientation, page break, headers and footers.</li> <li>Create tables, insert, and delete rows and columns.</li> <li>Printer installation and printing document.</li> <li>Create and print mail merging address for envelop and letters.</li> </ul>
6	<ul style="list-style-type: none"> <li>Create, open and print worksheet with page setup and print options.</li> <li>Enter data and format cells.</li> <li>Select, insert, delete cells, rows and columns.</li> <li>Insert formulas, functions and named ranges in worksheet.</li> <li>Create chart of different types.</li> </ul>
7	<ul style="list-style-type: none"> <li>Create a simple text slide using formatting, Selecting a slide layout. And insert pictures &amp; backgrounds.</li> <li>Insert auto shapes, clip-arts and form group/un group objects from slides. Apply slide transitions and slide timings and animation effect for slide show</li> </ul>
8	<ul style="list-style-type: none"> <li>Perform Internet connection.</li> </ul>

	<ul style="list-style-type: none"> <li>• Create own e-mail id, send and receive mail with attachment.</li> <li>• Searching information using search engine (Google, MSN, bing etc.)</li> <li>• Do Internet chatting and understand the chat toolbar.</li> <li>• Organize favorite websites in different browsers.</li> </ul>
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**Learning Resources:****1. Books:**

Sr. No	Author	Title	Publisher
1	Achyut Godbole	Demystifying Computer	TMH
2	Alexis Leon	Introduction to Computers	Vikas Publishing House
3	Vikas Gupta	Comdex Computer Course Kit (Windows 7 with Office 2010 )	Dreamtech Press
4	Steve Schwartz	Microsoft Office 2010	Pearson
5	Elaine Marmel	Microsoft Project 2010 (Bible)	Wiley India
6	Preppernau Cox	Windows 7 Step by Step	PHI

**2. Links:**

1. <http://www.psexam.com>
2. <http://www.gcflernfree.org/office>
3. <http://www.softwaretrainingtutorials.com/ms-project-2010.php>
4. <http://www.7tutorials.com>

**List of Equipments/Tool:****Hardware Tools-**

1. Computer System (Pentium –IV or higher version)
2. Printer
3. Modem
4. Pen Drive

**Software Tools-**

1. Windows- 7 (Operating System)
2. MS-Office 2010
3. MS- Project 2010
4. Internet Explorer/Mozilla/Chrome/Firefox

**Guidelines for Online Exam:**

1. Total duration for online examination is an hour.
2. There will be theoretical multiple choice questions.
3. There will be certain practical performance based questions.

**Course Name : All Branches of Diploma in Engineering & Technology**

**Course Code : AE/CE/CH/CM/CO/CR/CS/CW/DE/EE/EP/IF/EJ/EN/ET/EV/EX/IC/IE/IS/  
ME/MU/PG/PT/PS/CD/CV/ED/EI/FE/IU/MH/MI/DC/TC/TX/AA**

**Semester : Second**

**Subject Title : Communication Skills**

**Subject Code : 17201**

**Teaching and Examination Scheme:**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
02	--	02	03	100	--	25#	25@	150

**NOTE:**

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

In this age of globalization, competition is tough. Hence effective communication skills are important. Communication skills play a vital and decisive role in career development. The subject of Communication Skills introduces basic concepts of communication. It also describes the verbal, non-verbal modes and techniques of oral & written communication.

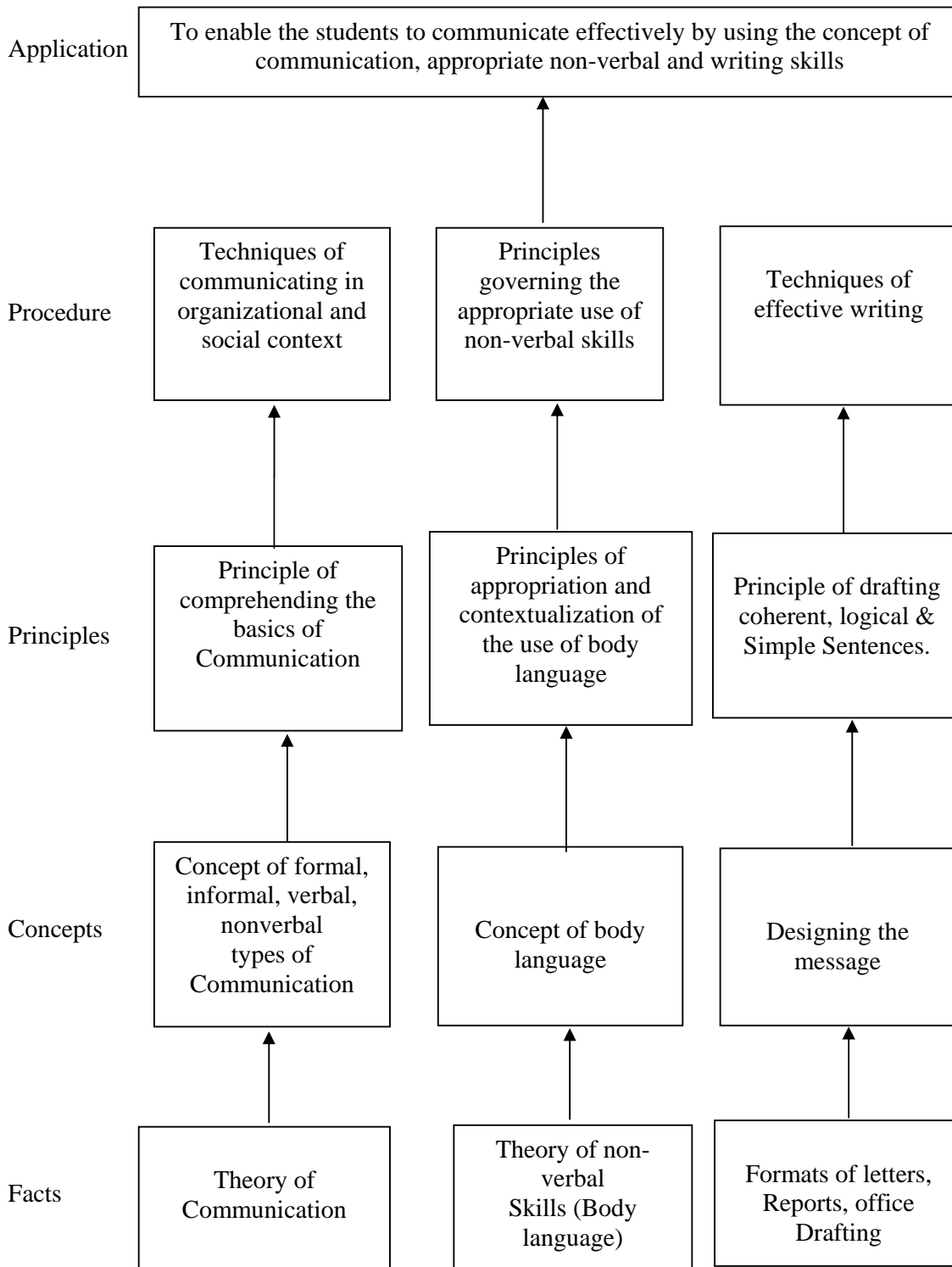
It will guide and direct to develop a good personality and improve communication skills.

**General Objectives:**

Students will be able to:

1. Utilize the skills necessary to be a competent communicator.
2. Select and apply the appropriate methods of communication in various situations.

**Learning Structure:**



**Contents: Theory**

Topic and Contents	Hours	Marks
<p><b>Topic 01 - Introduction to Communication:</b></p> <p><b>Specific Objective:</b></p> <ul style="list-style-type: none"> <li>➤ Describe the process of communication.</li> </ul> <p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>• Definition of communication</li> <li>• Process of communication</li> <li>• Types of communication -- Formal, Informal, Verbal, Nonverbal, Vertical, Horizontal, Diagonal</li> </ul>	06	16
<p><b>Topic 02 - Effective communication</b></p> <p><b>Specific Objective:</b></p> <ul style="list-style-type: none"> <li>➤ Identify the principles and barriers in the communication process</li> </ul> <p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>❖ Principles of communication.</li> <li>❖ Barriers to communication</li> <li>a. <b>Physical Barrier:</b> <ul style="list-style-type: none"> <li>❖ Environmental ( time, noise, distance &amp; surroundings),</li> <li>❖ Personal (deafness, stammering, ill-health, spastic, bad handwriting)</li> </ul> </li> <li>b. <b>Mechanical :</b> Machine oriented</li> <li>c. <b>Psychological:</b> Day dreaming, prejudice, emotions, blocked mind, generation gap, phobia, status inattentiveness, perception.</li> <li>d. <b>Language :</b> Difference in language, technical jargons, pronunciation &amp; allusions.</li> </ul>	08	20
<p><b>Topic 03 - Non verbal &amp; Graphical communication:</b></p> <p><b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ Effective use of body language &amp; nonverbal codes</li> <li>➤ View and interpret graphical information precisely.</li> </ul> <p><b>Contents:</b></p> <p>3.1 Non- verbal codes: [08 Marks]</p> <ul style="list-style-type: none"> <li>• Proxemics,</li> <li>• Chronemics</li> <li>• Artefacts</li> </ul> <p>3.2 Aspects of body language ( Kinesics) [10 Marks]</p> <ul style="list-style-type: none"> <li>• Facial expression</li> <li>• Eye contact</li> <li>• Vocalics, paralanguage</li> <li>• Gesture</li> <li>• Posture</li> <li>• Dress &amp; appearance</li> </ul>	08	28

<ul style="list-style-type: none"> <li>• Haptics</li> </ul> 3.3 Graphical communication [10 Marks] <ul style="list-style-type: none"> <li>• Advantages &amp; disadvantages of graphical communication</li> <li>• Tabulation of data &amp; its depiction in the form of bar graphs &amp; pie charts.</li> </ul>		
<b>Topic 04 - Listening</b> <b>Specific Objective:</b> <ul style="list-style-type: none"> <li>➤ Effective use of listening</li> </ul> <b>Contents:</b> <ul style="list-style-type: none"> <li>• Introduction to listening</li> <li>• Listening versus hearing</li> <li>• Merits of good listening</li> <li>• Types of listening.</li> <li>• Techniques of effective listening.</li> </ul>	02	08
<b>Topic 05 - Formal Written Communication</b> <b>Specific Objectives:</b> <ul style="list-style-type: none"> <li>➤ Use different formats of formal written skills.</li> </ul> <b>Contents:</b> <ul style="list-style-type: none"> <li>• Office Drafting: Notice , memo &amp; e-mail</li> <li>• Job application with resume.</li> <li>• Business correspondence: Enquiry letter, order letter ,complaint letter, adjustment letter.</li> <li>• Report writing: Accident report, fall in production, investigation report.</li> <li>• Describing objects &amp; giving instructions</li> </ul>	08	28
<b>Total</b>	<b>32</b>	<b>100</b>

**Skills to be developed in practical:****Intellectual Skills:**

1. Analyzing given situation.
2. Expressing thoughts in proper language.

**Motor Skills:**

1. Presentation Skills focusing on body language.
2. Interpersonal skills of communication

**Journal will consist of following assignments:**

01: Draw the diagram of communication cycle for given situation.

State the type and elements of communication involved in it.

- 02: Graphics:-
- a) Draw suitable bar-graph using the given data.
  - b) Draw suitable pie-chart using the given data.

03: Role play: Teacher should form the group of students based on no. of characters in the situation. Students should develop the conversation and act out their roles.

04: Collect five pictures depicting aspects of body language from different sources such as magazines, newspapers, internet etc. State the type and meaning of the pictures.

**NOTE: The following assignments should be performed by using Language Software.**

05 Practice conversations with the help of software.

06 Describe people/personalities with the help of software and present in front of your batch.

07 Prepare and present elocution (three minutes) on any one topic with the help of software.

08 Describe any two objects with the help of software.

**Learning Resources:**

Sr. No.	Author	Title	Publisher
01	MSBTE, Mumbai.	Text book of Communication Skills.	MSBTE, Mumbai.
02	MSBTE, Mumbai.	CD On Communication Skills	MSBTE
03	Joyeeta Bhattacharya	Communication Skills.	Reliable Series
04	Communication Skills	Sanjay Kumar, Pushpa Lata	Oxford University Press

**Web Sites for Reference:**

Sr. No	Website Address
01	Website: <a href="http://www.mindtools.com/page8.html">www.mindtools.com/page8.html</a> -99k
02	Website: <a href="http://www.khake.com/page66htm/">www.khake.com/page66htm/</a> -72k
03	Website: <a href="http://www.BMConsultantIndia.Com">www.BM Consultant India.Com</a>
04	Website: <a href="http://www.letstak.co.in">www.letstak.co.in</a>
05	Website: <a href="http://www.inc.com/guides/growth/23032.html">www.inc.com/guides/growth/23032.html</a> -45k

**COURSE NAME : DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP****COURSE CODE : AA****SEMESTER : SECOND****SUBJECT TITLE : BUILDING CONSTRUCTION****SUBJECT CODE : 19201****Teaching & Examination Scheme:**

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

**NOTE:**

- **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- **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 principles of construction work & secure sufficient knowledge about strength, stability & applications of different elements.

This subject will also help students to grasp knowledge about different finishing materials, their properties and applications to enhance the beauty of the construction work.

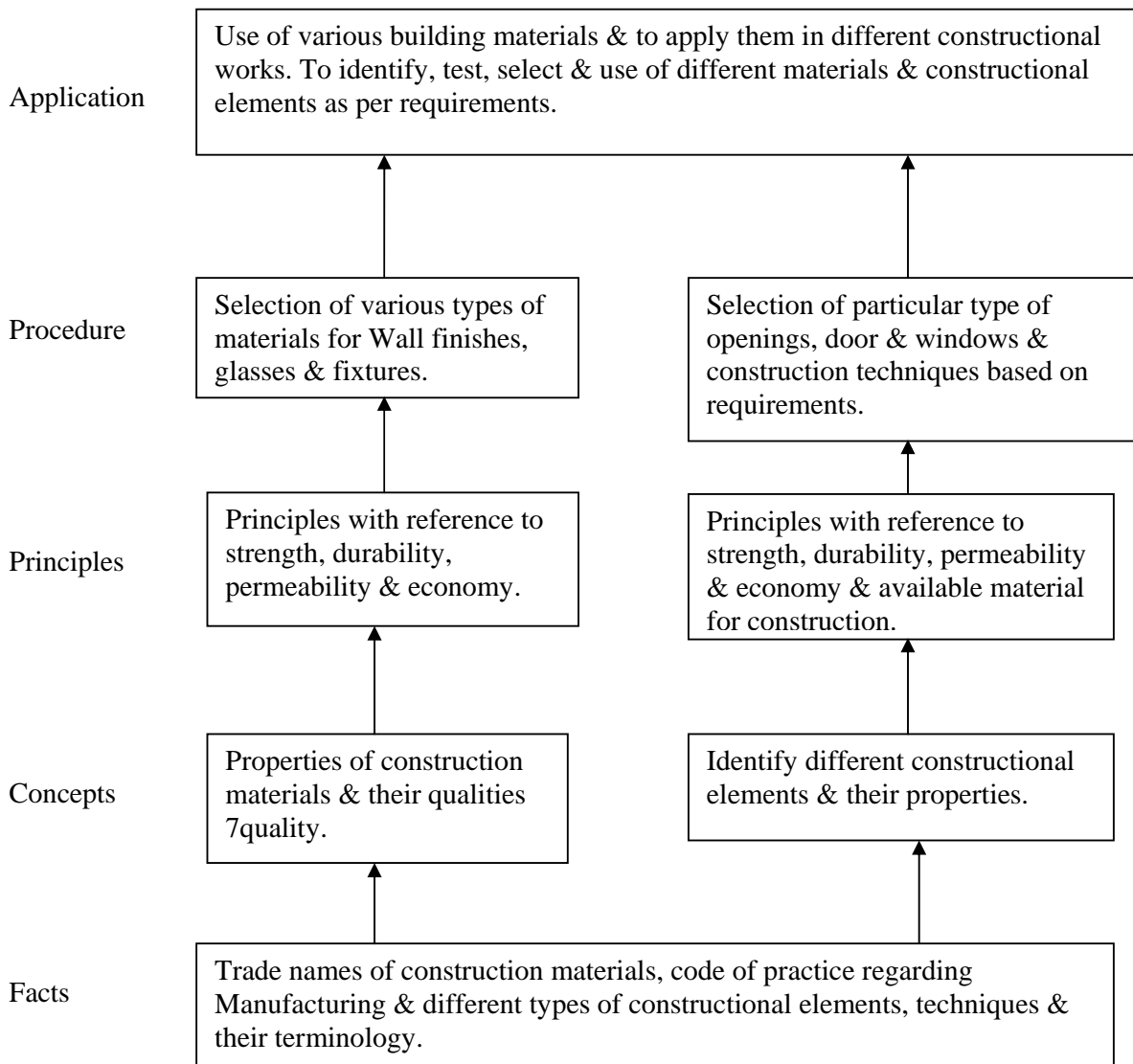
**General Objectives:**

The student will be able to:

- Know various types of materials, building hardware.
- Select appropriate wall finishes.
- Select suitable doors and windows in timbers.
- Understand sketches and scaled drawings of constructional elements.
- Understand the concept of lintels & arches.



**Learning Structure:**



**Contents: Theory**

<b>Topic and Contents</b>	<b>Hours</b>	<b>Marks</b>
<p><b>Topic 1: Glass</b></p> <p><b>Specific Objectives</b></p> <ul style="list-style-type: none"> <li>➤ Describe manufacturing process and properties of glass.</li> <li>➤ Enlist different types of glass &amp; explain their applications.</li> </ul> <p><b>Content</b></p> <p>1.1.....(04 Marks)</p> <ul style="list-style-type: none"> <li>• Manufacturing of Glass</li> </ul> <p>1.2.....(08 Marks)</p> <ul style="list-style-type: none"> <li>• Properties and uses of Sheet glass, Plate glass, Wired glass, Coloured glass, Glass blocks, Obscured glass, Safety glass</li> </ul>	04	12
<p><b>Topic 2: Wall Finishes</b></p> <p><b>Specific Objectives</b></p> <ul style="list-style-type: none"> <li>➤ List uses of finishes in construction.</li> <li>➤ Enlist types of materials &amp; techniques used for wall finishing.</li> <li>➤ Describe the application of these materials.</li> </ul> <p><b>Content</b></p> <p>2.1..... (06 Marks)</p> <ul style="list-style-type: none"> <li>• Cement Plaster &amp; mud plaster</li> <li>• Pointing - Flush pointing, cut pointing, V- grooved pointing, keyed pointing, Tuck pointing, Beaded pointing</li> </ul> <p>2.2.....(06 Marks)</p> <ul style="list-style-type: none"> <li>• Wall board – Homogeneous fibers, laminated fibers, polystyrene wall tiles and plastic wall tiles properties and its uses.</li> <li>• Wall papers, foam rubber tiles and rolls: properties and its uses</li> </ul>	06	12
<p><b>Topic 3: Paints</b></p> <p><b>Specific Objectives</b></p> <ul style="list-style-type: none"> <li>➤ Describe use of paint in building finishes.</li> <li>➤ List properties of different types of paints along with their application methods.</li> </ul> <p><b>Content</b></p> <p>3.1.....(08 Marks)</p> <ul style="list-style-type: none"> <li>• Characteristics of good paints</li> <li>• Types of paints - Aluminum paints, Bituminous paints, cement based paints, Enamel paints, oil paints, Emulsion paints with their covering capacities</li> <li>• 11.3 Distempers - Dry &amp; oil Bound</li> </ul> <p>3.2.....(04 Marks)</p> <ul style="list-style-type: none"> <li>• Varnishes -Oil &amp; spirit Varnishes, Lacquer, French polish &amp; stains</li> </ul>	04	12
<p><b>Topic 4: Arches &amp; Lintels</b></p> <p><b>Specific Objectives</b></p> <ul style="list-style-type: none"> <li>➤ State necessity of openings in building.</li> <li>➤ Describe the techniques to build an opening in wall</li> <li>➤ Enlist the materials used to construct in openings in the wall.</li> </ul> <p><b>Content</b></p>	06	20

<p>4.1.....(12Marks)</p> <ul style="list-style-type: none"> <li>• Different terms used in sketch of Arch</li> <li>• Stone Arches- Flat stone arches, Semicircular arches.</li> <li>• Brick Arches- Rough brick arch, axed brick arch, Semicircular brick arches, Flat brick arch, Relieving arch &amp; Dutch or French arch.</li> <li>• Jack Arches.(Sketches only)</li> </ul> <p>4.2.....(08 Marks)</p> <ul style="list-style-type: none"> <li>• Lintels- Lintels in brick, timber, Concrete.</li> </ul>		
<p><b>Topic 5: Building Hardware</b>  <b>Specific Objectives</b></p> <ul style="list-style-type: none"> <li>➤ Enlist different types of fixtures &amp; fastenings used in building construction.</li> <li>➤ Describe their fixing &amp; working techniques.</li> </ul> <p><b>Content</b></p> <p>5.1 Fixture and fastenings .....(06 Marks)</p> <ul style="list-style-type: none"> <li>• Names of various fixture and fastenings, their materials, common brand</li> </ul> <p>5.2 .....(14 Marks)</p> <ul style="list-style-type: none"> <li>• Types &amp; their sizes, materials and uses as per ISI for tower bolts, hinges, door handles, hasps and staples, light catches, door springs, Latches, Floor door stopper, fan light pivots, mortise lock, door closer, lever handle barrel bolt, ventilator chains wire gauges mosquito &amp; fly proof with their sketches.</li> </ul>	04	20
<p><b>Topic 6: Door &amp; Windows</b>  <b>Specific Objectives</b></p> <ul style="list-style-type: none"> <li>➤ Enlist different types of doors &amp; windows used in building construction</li> <li>➤ Describe the fixing doors &amp; windows in openings.</li> </ul> <p><b>Content</b></p> <p>6.1 Doors .....(10 Marks)</p> <p>Types, Sketches, sizes of various members etc.</p> <ul style="list-style-type: none"> <li>• Battened, Ledged door</li> <li>• Battened, Ledged &amp; braced door</li> <li>• Battened, Ledged, braced &amp; framed door</li> <li>• Paneled door.</li> </ul> <p>6.2 Method of fixing the Door .....(04 Marks)</p> <ul style="list-style-type: none"> <li>• Built in method.</li> <li>• Prepared opening method</li> <li>• Flush Door</li> </ul> <p>6.3 Windows –Types and Operations....(10 Marks)</p> <p>Types, Sketches, sizes of various members etc.</p> <ul style="list-style-type: none"> <li>• Fixed &amp; pivoted window</li> <li>• Sash or glazed window</li> <li>• Bay window</li> <li>• Clerestory window.</li> <li>• Corner window</li> <li>• Dormer &amp; gable window</li> <li>• Sky light</li> </ul>	08	24
<b>Total</b>	<b>32</b>	<b>100</b>

**Practical:**

**Skills to be developed:****Intellectual Skills:**

- Understand different types of arches for various openings
- Understand different types carpentry joints.
- Understand different types of Doors and Windows.
- Get the knowledge about construction details.

**Motor Skills:**

- Prepare constructional details.
- Prepare site visit report along with neat sketches and actual dimension.

**List of Practical:**

- 1) One Full imperial Drawing Sheet on terminology in arches
- 2) Two Full imperial Drawing Sheets on types of arches according to material & shape.
- 3) One Full imperial Drawing Sheet on type of Lintels according to material.
- 4) Two Full imperial Drawing Sheets on types of Doors (to the scale) with plan, elevation and joint details.
- 5) Two Full imperial Drawing Sheets on Windows (to the scale) with plan , elevation and joint details

**Site Visits:**

Visits should be arranged on following works: -

- 1) Arches under construction.
- 2) Wall finishing work.
- 3) Door & window fixing work.

**Learning Resources:****Books:**

Sr. No.	Author	Title	Publisher & Address
01	S.P Arora & S.P Bindra	Building Construction	Dhanpat Rai Publications
02	Rangwala S.C.	Building Material	Charotar Publishing House, Anand
03	Sushilkumar	Building construction	Dehli-standard Publishers, Distributors
04	Mitchell	Mitchell's elementary Building construction	Bombay Allied Publishers
05	Rangwala S.C.	Building construction	Charotar Publishing House, Anand

**COURSE NAME : DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP****COURSE CODE : AA****SEMESTER : SECOND****SUBJECT TITLE : SURVEYING****SUBJECT CODE : 19202****Teaching & Examination Scheme:**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER 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 MSBTE.
- 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:**

Surveying is of special specific importance and interest to a civil engineer/Architect. Variety of surveys are required to be conducted prior to and during the planning and construction of any infrastructure development in various civil engineering and Architectural projects like Building Construction, Irrigation Engineering, Transportation Engineering, Water Supply and Sanitary Engineering Systems etc.

Surveying is the basic need for any project or constructional scheme under consideration. Details of proposed work are plotted from the field notes. The reliability of the estimation of quantities and effectiveness of design depends upon the precision and thoroughness exercised during the detailed survey.

Topic on various surveying instruments like Chain, Tape, Cross-staff, Prismatic Compass, Plane-Table and Area Calculation are useful for preparation of various preliminary, detailed and construction surveys. Contents on Planimeter are useful for measuring regular and irregular areas on plan or map which is further useful in estimating the volumes.

Knowledge and skills acquired by the students in the subject would enable them to prepare plans/maps. These plans/maps will be further used for effective planning, designing, estimating and executing Architectural and civil engineering construction work.

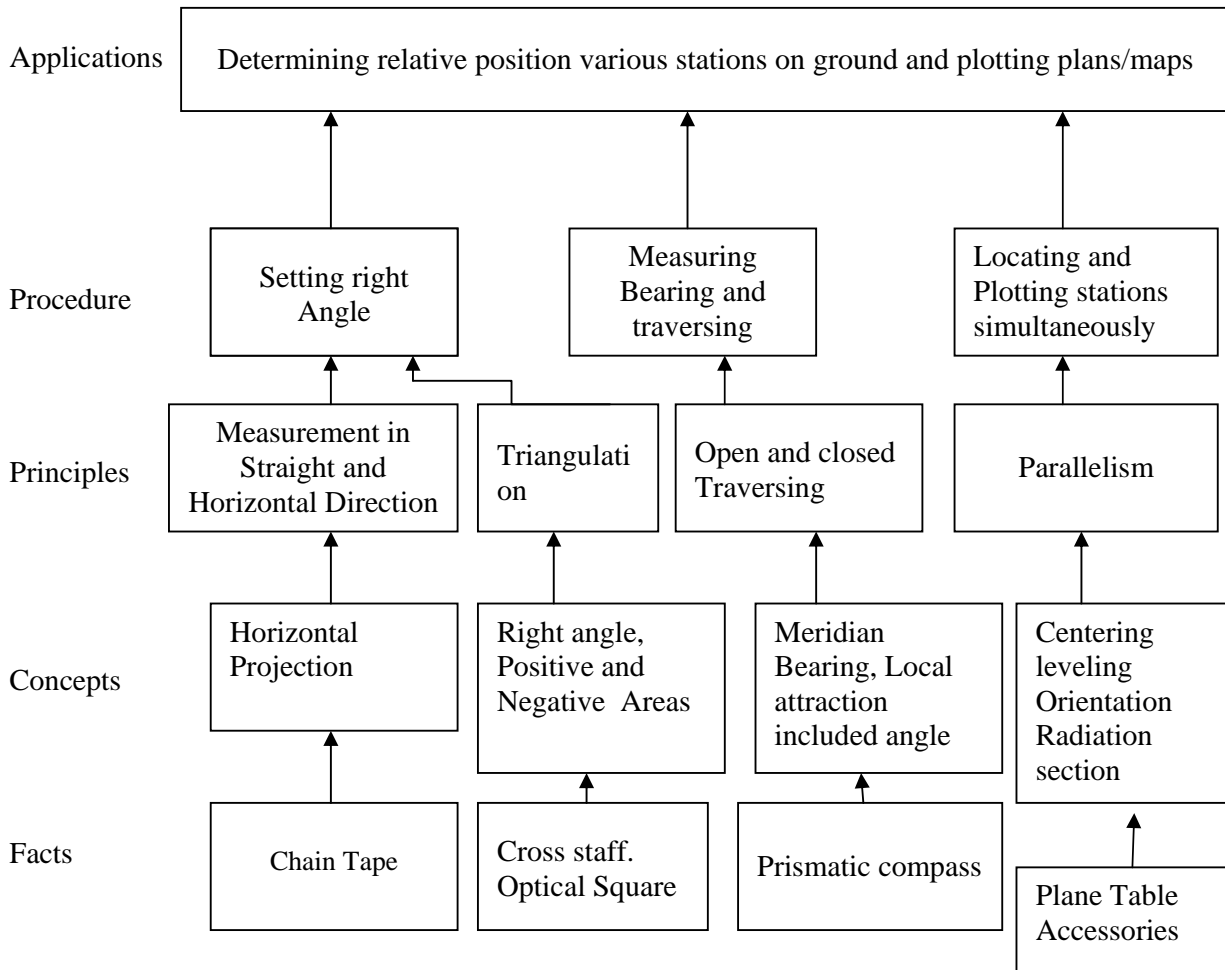
This further will lead the students as professionals in surveying.

**General Objectives:**

Student will be able to:

- Understand the need of surveying.
- Understand handling and use of different survey instruments for the field operations.
- Understand linear measurements
- Select suitable instruments and appropriate method of survey.
- Understand the preparation of plans/maps by using field observations.
- Understand and interpret survey plans/maps.

**Learning Structure:**



**Contents: Theory**

<b>Topic and Contents</b>	<b>Hours</b>	<b>Marks</b>
<p><b>Topic 1. Introduction</b>  <b>Specific objectives :</b></p> <ul style="list-style-type: none"> <li>➤ Define and state use of surveys</li> <li>➤ Classify the survey stating the basis of classification</li> </ul> <p><b>Contents</b></p> <ul style="list-style-type: none"> <li>• Definition of survey, Objects of different surveys, Uses of surveys.</li> <li>• Classification of surveys- Primary and Secondary, Primary Division- Plane and Geodetic Surveys, Secondary- Based on instruments used, Nature of field and Objective. Principles of survey.</li> <li>• Conventional symbols in survey plans/maps.</li> </ul>	04	08
<p><b>Topic 2. Chain Triangulation and cross staff survey.</b>  <b>Specific objectives :</b></p> <ul style="list-style-type: none"> <li>➤ Write construction and use of different instruments for setting offsets</li> <li>➤ Calculate the area of field</li> </ul> <p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>• Principles of chain survey-Triangulation, Survey station types and their selection, survey line, Base line, Check line, Tie line. Offset, Types of offsets- Long, Short, Perpendicular and oblique, Instrument for setting offsets- Open cross staff, optical square, Principle of optical square, Setting offset with open cross staff and optical square. Survey field book and recording entries.</li> <li>• Chain and Cross staff survey for finding area of the field. Types of obstacles in chaining and methods of overcoming them.</li> </ul>	06	10
<p><b>Topic 3. Compass Traverse Survey</b>  <b>Specific objectives :</b></p> <ul style="list-style-type: none"> <li>➤ Describe construction and state use of prismatic compass.</li> <li>➤ Describe the method of compass traversing.</li> </ul> <p><b>Contents:</b></p> <p>3.1.....(08)  Principle of compass survey- Traversing, Prismatic compass- Component parts and their functions, setting of compass,. Meridian- True meridian, magnetic meridian and arbitrary meridian. Magnetic declination, dip of needle. Bearing of a line- True bearing, Magnetic bearing and arbitrary bearing. Systems of bearing- Whole circle bearing and Quadrantal bearing, Fore and back bearing of line and their relationship.</p> <p>3.2.....(08)  Compass traversing-Open and close traverse, Local attraction and its detection. Correction for local attraction and finding corrected bearings and included angles. Simple Numerical problems. Plotting the compass traverse and its graphical adjustment by Bowditch Rule. Sources of errors in compass. survey.</p>	10	16
<p><b>Topic 4. Plane Table Survey</b>  <b>Specific objectives :</b></p> <ul style="list-style-type: none"> <li>➤ Describe different methods of orientation of Plane Tabling.</li> <li>➤ Locate and plot the stations simultaneously.</li> </ul> <p><b>Contents</b></p> <ul style="list-style-type: none"> <li>• Principle of plane table survey. Different accessories of plane table and their use. Setting of plane table, Telescopic alidade and its advantages.</li> </ul>	06	08

<ul style="list-style-type: none"> <li>Orientation of plane table- Back sighting and Magnetic meridian.</li> <li>Methods of plane table surveys- Radiation, Intersection and Traversing.</li> <li>Merits and demerits of plane table survey.</li> </ul>		
<p><b>Topic 5. Calculation of Area</b></p> <p><b>Specific objectives:</b></p> <ul style="list-style-type: none"> <li>➤ Measure the area of plans/maps.</li> <li>➤ Compute the volume</li> </ul> <p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>Instruments used for measuring the area- Polar Planimeter and digital Planimeter. Polar Planimeter- Component parts and procedure of measurement of area. Simple numerical problems.</li> <li>Digital planimeter- Component parts and procedure of measurement.</li> </ul>	06	08
<b>Total</b>	<b>32</b>	<b>50</b>

**Practical:**

Skills to be developed:

**Intellectual Skills:**

- Identify & select various types of survey instruments for specific survey work.
- Identify and know the different parts of instruments.
- Understand the procedure for setting the instruments.
- Identify the errors in the survey instruments.
- Understand Interpret of drawing (plans/maps)

**Motor skills:**

- Use of safety devices while working.
- Make the temporary adjustments of instruments.
- Take the reading on the instrument.
- Prepare Field book.

**List of Practical:**

Students shall record the observations and draw sketches of survey instrument in Field Book in the field itself.

One full day per project is required for mini project survey work.

1. Measurement of distances with chain & tape on ground with direct & indirect ranging.
2. Use Optical Square and Open Cross Staff for setting out perpendicular and running a survey line for locating details. Drafting page of field book.
3. Measurement of area of selected field by Chain and Cross Staff survey.
4. Setting Prismatic Compass and observe Fore and Back bearings.
5. Measuring Fore and Back Bearings of 5-6 side closed traverse. Identifying stations affected by local attraction and calculating corrected F.B. and B.B. & included angles. Apply arithmetic check for sum of interior angles.
6. Carry out temporary adjustments of Plane Table & locating details by Radiation Method.
7. Locating details by Intersection method.
8. Carry out the Plane Table traverse of 4-5 sides.



**Mini Projects:**

1. Chain and cross staff survey to find out the area of selected field with 8-10 points. Area statement table on A1 size imperial drawing sheet.
2. Chain and Compass survey for a closed traverse (5-6) sides and locating the details of buildings, roads and other details. Plotting of the corrected traverse on A1 size imperial drawing sheet.
3. Plane Table survey for a closed traverse (5-6) sides and locating the details of buildings, roads and other details. Use A1 size imperial drawing sheet.

**Learning Resources:****Books:**

<b>Sr. No.</b>	<b>Author</b>	<b>Title</b>	<b>Publisher &amp; Address</b>
01	Kanetkar & Kulkarni	Surveying & Levelling	Pune Vidyarthi Graha Prakashan, Pune
02	Gajare V.S.	Surveying & Levelling	Nirali Prakashan, Pune
03	Kolhapure, Mahabal & Shah	Surveying & Levelling	Jeevandeep Prakashan
04	Basak N.N.	Surveying & Levelling	Tata Mcgraw Hill, New Delhi

**COURSE NAME : DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP****COURSE CODE : AA****SEMESTER : SECOND****SUBJECT TITLE : APPLIED MECHANICS****SUBJECT CODE : 19203****Teaching & Examination Scheme**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER 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 MSBTE.
- 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:**

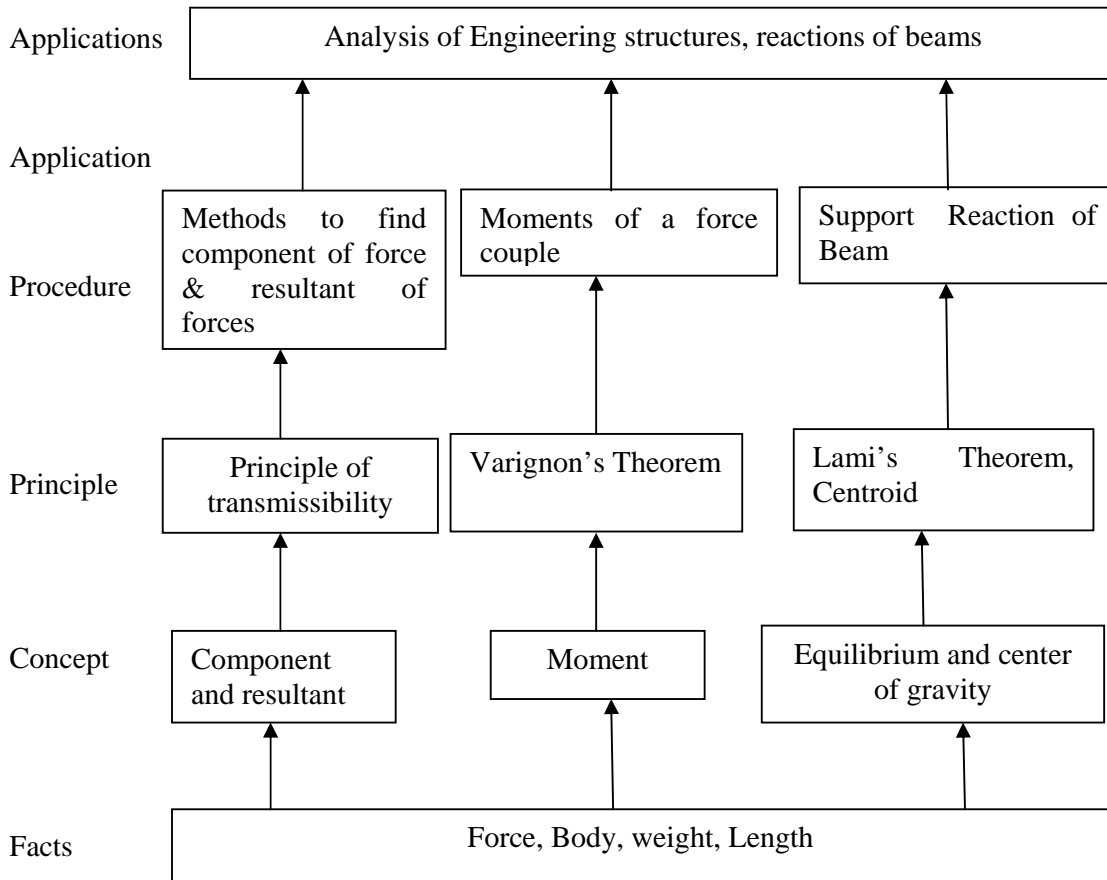
The subject is grouped under basic engineering courses, which helps the students to understand facts, concepts, principles and techniques of scientific investigation in the field of Civil Engineering. The subject describes analysis of structure and mechanisms, principles which are commonly used in Civil Engineering Structures and also used in the machines and measuring instruments.

**Objectives:**

The student will be able to:

- Understand to Resolution of the forces and finding the resultant of a given force system.ve the forces.
- Understand the calculation to find the support reactions of beam.
- Understand how to find out the center of gravity of composite solids and centroid of plane figures.

**Learning structure:**



**Contents: Theory**

Topic and Contents	Hours	Marks
<p><b>Topic 1: Fundamentals</b>  <b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ Define related terms in mechanics.</li> </ul> <p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>➤ Definitions of mechanics, statics, dynamics, body, rigid body, mass, weight, length, time, scalar and vector, fundamental units, derived units, S.I. units</li> </ul>	02	04
<p><b>Topic 2: Force Systems</b>  <b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ Calculate Components of forces.</li> <li>➤ Calculate resultant analytically for given force system.</li> <li>➤ Calculate resultant graphically.</li> </ul> <p><b>Contents:</b></p> <p>2.1 Fundamentals and Force systems: ..... (04 Marks)</p> <ul style="list-style-type: none"> <li>• Definitions of mechanics, Engineering mechanics, statics, dynamics, Kinetics, Kinematics, rigid body,</li> <li>• Classification of force system according to plane coplanar and non coplanar ,sub classification of coplanar force system collinear , concurrent, non concurrent, parallel, like parallel, unlike parallel, general etc.</li> <li>• Definition of a force, S.I. unit of a force, representation of a force by vector and by Bow's notation method. Characteristics of a force, effects of a force, principle of transmissibility.</li> </ul> <p>2.2 Resolution of a force and Moment of a force:(10Marks)</p> <ul style="list-style-type: none"> <li>• Definition, Method of resolution, along mutually perpendicular direction and along two given direction.</li> <li>• Definition of moment, S. I. unit, classification of moments, sign convention, law of moments Varignon's theorem of moment and it's use, definition of couple, S.I. unit, properties of couple with example.</li> </ul> <p>2.3 Composition of Forces</p> <ul style="list-style-type: none"> <li>• Analytical method: ..... (16 Marks)</li> </ul> <p>Definition of Resultant force, methods of composition of forces, Law Of parallelogram of forces, Algebraic method for determination of resultant for concurrent and non concurrent, parallel coplanar force system.</p> <ul style="list-style-type: none"> <li>• Graphical method: ..... (10 Marks)</li> </ul> <p>Space diagram, vector diagram, polar diagram, and funicular polygon. Resultant of concurrent and parallel force system only.</p>	20	40
<p><b>Topic 3: Equilibrium</b>  <b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ State conditions of equilibrium for given force system.</li> <li>➤ Calculate reactions of beams for different static loading.</li> </ul> <p><b>Contents:</b></p> <p>3.1 Equilibrant and Lami's Theorem: ..... (16 Marks)</p> <ul style="list-style-type: none"> <li>• Definition of equilibrant, relation between resultant and equilibrant, equilibrant of concurrent and non-concurrent force system. Analytical and graphical conditions of equilibrium for concurrent, non-concurrent and parallel force system, free body and free body diagram. Statement and explanation of Lami's theorem, Application</li> </ul>	18	32

<p>of Lami’s theorem for solving various engineering problems.</p> <p>3.2 Beams:..... (16 Marks)</p> <ul style="list-style-type: none"> <li>• Definition, Types of beams (cantilever, simply supported, overhanging, fixed, continuous), Types of end supports (simple support, hinged, roller), classification of loads, point load, inclined point load, uniformly distributed load. Analytical method to determine reactions of simply supported, cantilever and over hanging beam subjected to point loads and UDL and graphical method to determine reactions for beams subjected to vertical point loads &amp; udl only.</li> </ul>		
<p><b>Topic 4: Centroid and Centre Of Gravity:</b></p> <p><b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ Calculate centroid of composite plain figures.</li> <li>➤ Calculate centre of gravity of composite solids.</li> </ul> <p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>• Centroid..... (12 Marks)</li> </ul> <p>Definition of centroid. Moment of an area about an axis. Centroid of basic geometrical figures such as square, rectangle, triangle, circle, semicircle and quarter circle. Centroid of composite figure with not more than three geometrical figures.</p> <ul style="list-style-type: none"> <li>• Center of gravity..... (12 Marks)</li> </ul> <p>Definition, center of gravity of simple solids such as cylinder, sphere, hemisphere, cone, cube, and rectangular block. Centre of gravity of composite solids with not more than Two simple solids. (Hollow solids are not expected.)</p>	08	24
<b>Total</b>	<b>48</b>	<b>100</b>

**Practical:**

Skills to be developed:

**Intellectual Skill:**

- Understand the Calculation of the forces on given structure.
- Interpret the result.

**Motor Skill:**

- Handle the equipment carefully.
- Draw various drawing on resolution forces.

**List of Assignments:**

- 1) One assignment contains sample problem on
  - a) Resolution of Force
  - b) Resultant of different force systems by algebraic method
- 2) Half Imperial size drawing sheets containing graphical solutions for –
  - a) Concurrent force system: Two problems
  - b) Non – concurrent Force system: Two Problems
  - c) Parallel Force system: Two problems
- 3) Reactions of a Beam: Two problems
- 4) One assignment contains sample problem on
  - i) Lami’s Theorem
  - ii) Equilibrant
  - iii) Support reactions of different types of beams (Different loadings and different supports)

- 2) One assignment contains sample problem on
- i) Centroid of plane geometric figures
  - ii) Center of gravity of different composite solids

**Note:** Tutorials are to be used to get enough practice. Make group of 20 students and for each group minimum 05 types of problems are to be given

**Learning Resources:**

**Books:**

Sr. No.	Author	Title	Publisher & address
01	Beer - Johnson	Engineering Mechanics	Tata McGraw Hill, Delhi
02	Basu	Engineering Mechanics	Tata McGraw Hill, Delhi
03	Joseph F. Shelly	Vector Mechanics for Engineers Vol. I & II	Tata McGraw Hill, Delhi
04	V.K. Kumawat	Engineering Mechanics	Tech-max Publication, Pune

**COURSE NAME : DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP****COURSE CODE : AA****SEMESTER : SECOND****SUBJECT TITLE : ARCHITECTURAL DRAWING – II****SUBJECT CODE : 19204****Teaching & Examination Scheme:**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS.	TH	PR	OR	TW	TOTAL
01	--	04	04	100	50#	--	25@	175

**NOTE:**

- Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.
- 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 is the core subject regarding drawings & presentation techniques. It prepares the student to become good architectural assistant. It helps him in learning further aspects of architectural drawings.

This subject helps student to develop & design building plans along with necessary knowledge of spaces for particular design.

**General Objectives:**

The student will be able to:

- Know difference between load bearing & R.C.C. structure.
- Develop the drawings from line plan.
- Know the basic of ergonomics.
- Understand the preparation of presentation drawings.
- Understand the drawing of furniture layout.
- Know preparation of detailed measure drawing.

**Learning structure:**

Application

Use of basic procedures and skills of different drawings, for designing & detailing of building drawing.

Procedure

Preparing Working drawings from given sketch.

Preparing ergonomics drawings & presentation drawing from sketch design.

Principles

Principles of load bearing & R.C.C. structures & principles of working drawing.

Principles ergonomics & development of architectural drawing & design.

Concepts

Concept Load bearing & R.C.C structures & working drawings.

Concept of ergonomics & architectural design & space management

Facts

ergonomics., basic sketch drawings working drawings. final drawing sets.



**Contents: Theory**

Topic and Content	Hours
<b>Topic 1: Ergonomics</b> <b>Specific Objectives:</b> <ul style="list-style-type: none"> <li>➤ Describe the concept ergonomics &amp; its need</li> <li>➤ Explain the application of ergonomics in architectural design.</li> </ul> <b>Content</b> <ul style="list-style-type: none"> <li>• Basic ergonomics study. Application of ergonomics in design</li> </ul>	04
<b>Topic 2: Load bearing Structure and R.C.C. Structure</b> <b>Specific Objectives:</b> <ul style="list-style-type: none"> <li>➤ Differentiate between load bearing and R.C.C. structure</li> <li>➤ Explain the application of these structures in particular condition.</li> </ul> <b>Content</b> <ul style="list-style-type: none"> <li>• Load bearing &amp; R.C.C. structure. Difference between load bearing &amp; R.C.C. structure.</li> </ul>	02
<b>Topic 3: Design &amp; Detail Drawing of Single Unit</b> <b>Specific Objectives:</b> <ul style="list-style-type: none"> <li>➤ Develop detailed drawing with dimensions using single line sketch</li> <li>➤ Explain the concept of working drawing</li> <li>➤ Prepare working drawings.</li> </ul> <ul style="list-style-type: none"> <li>• Development of preliminary architectural drawing from given sketch. Design of single unit</li> <li>• Development of elevation, section from given plans</li> <li>• Consideration of orientation and furniture layout</li> <li>• Assembly of Group of such units under one roof with circulation consideration</li> <li>• Prepare a working drawing of a unit.</li> </ul>	10
<b>Total</b>	<b>16</b>

**Practical:**

Skills to be developed:

**Intellectual skills:**

1. Identify load bearing and R.C.C. structure
2. Understand development of preliminary Architectural Drawings from sketch drawing.
3. Apply of ergonomics in presentation drawings and detailing & working drawing.

**Motor Skills:**

1. Develop given sketch.
2. Make of use of Anthropometry in the preparation of drawing.
3. Make furniture layouts
4. Use scales for preparation of different drawing.

**List of Practical:**

1. One full imperial size drawing sheet on Ergonomics
2. One full imperial size drawing sheet showing the difference between R.C.C. Framed & Load bearing structure
3. Development of Given Sketch plan showing furniture layout of 2/3 room residential building
4. Preparing working drawing of above developed residential unit.

**Notes: (For Theory Paper)**

Problem should be based on sketch development on two/three room residential building. (Total marks 100 marks)

Break up as follows:

- |                               |          |
|-------------------------------|----------|
| 1) Plan with furniture layout | 45 marks |
| 2) Section                    | 25 marks |
| 3) Elevation                  | 20 marks |
| 4) Schedule of Openings       | 10 marks |

**Learning Resources:****Books:**

<b>Sr. No.</b>	<b>Author</b>	<b>Title</b>	<b>Publisher &amp; Address</b>
01	V. S. Parmar	Design fundamentals in Architecture	Somaiyya Publication, Mumbai
02	Robert Gill	Rendering with Pen and Ink	Thames & Hudson, London
03	Gajanan Bhagwat & A. Desai	Visual Art and Basic Study	Somaiyya Publication, Mumbai

**COURSE NAME : DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP****COURSE CODE : AA****SEMESTER : SECOND****SUBJECT TITLE : ARCHITECTURAL GRAPHICS -II****SUBJECT CODE : 19014****Teaching and Examination Scheme:**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS.	TH	PR	OR	TW	TOTAL
01	--	04	--	--	50#	--	25	75

**Rationale:**

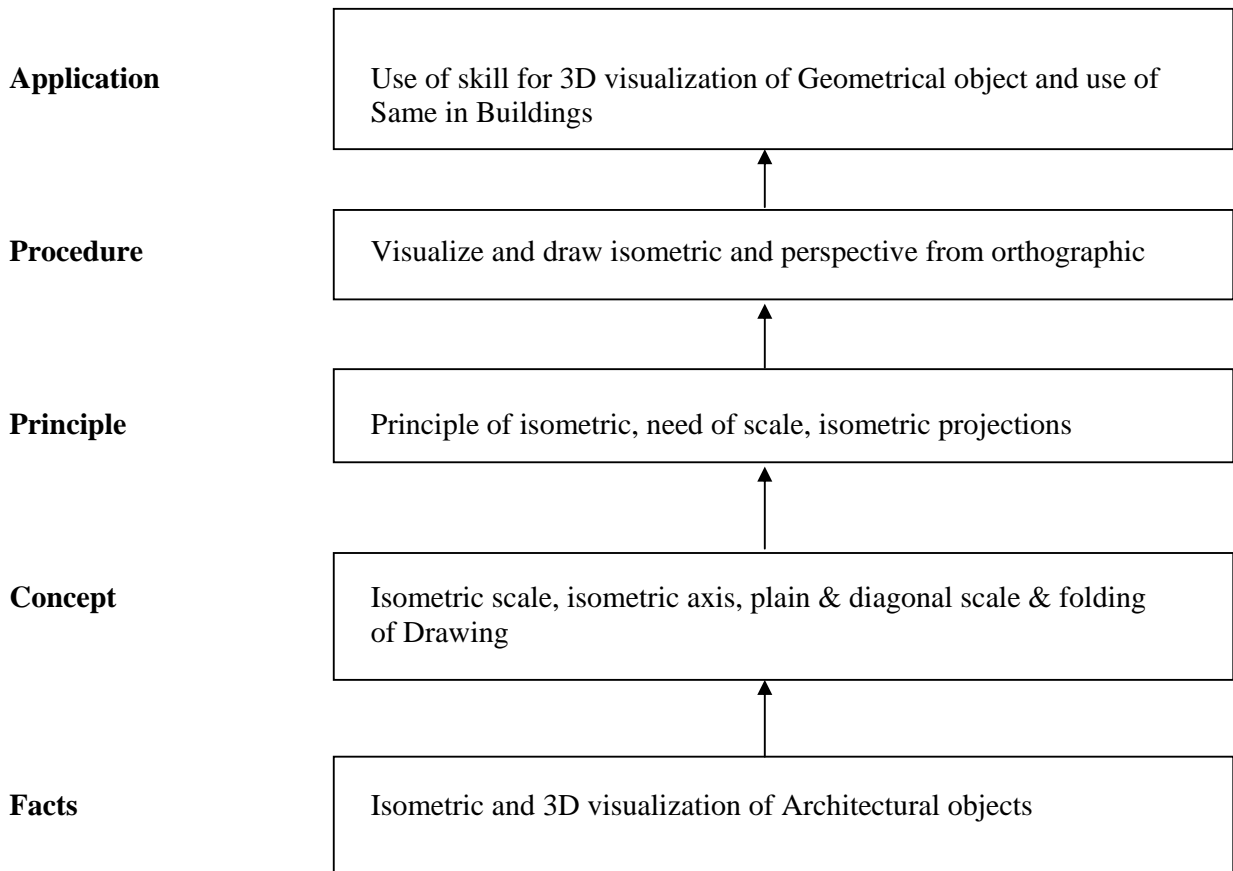
This is core technology subject. Architectural graphics is basic of architecture. It helps the students in learning further aspects of architectural drawings. It helps to understand 3D visualisation of geometrical forms and develops perspective vision

**General Objectives:**

The student will be able to:

- Increase visualization power in 2D and 3D drawings,
- Design and understand graphical structure of building in any form or shape.
- Draw the different views.
- Know reduction and enlargement of the given drawings.
- Understand the tracing of drawings.
- Understand folding of drawings.

**Learning Structure:**



**Contents: Theory**

<b>Topic and Contents</b>	<b>Hours</b>
<b>Topic 1: Isometric, Axonometric and other projections</b> <b>Content:</b> <ul style="list-style-type: none"> <li>• Isometric, Axonometric &amp; oblique projection</li> <li>• Isometric &amp; Axonometric inclined planes</li> <li>• Reduction and enlargement of drawings</li> </ul>	<b>04</b>
<b>Topic 2: Fundamental of Perspective</b> <b>Content:</b> <ul style="list-style-type: none"> <li>• Principles of perspective</li> <li>• Reality &amp; appearance</li> <li>• Basics of perspective: Cone of Vision, Visual rays, Picture plane, eye level, spectator and vanishing point</li> <li>• Basic of one point &amp; two point perspective</li> <li>• Study of Cube in perspective</li> </ul>	<b>08</b>
<b>Topic 3: Tracing of Drawings</b> <b>Content:</b> <ul style="list-style-type: none"> <li>• Practice of tracing of drawings and taking out ammonia prints &amp; methods for folding of drawings</li> </ul>	<b>04</b>
<b>Total</b>	<b>16</b>

**Practical:**

Skills to be developed:

**Intellectual Skills:**

- 1) To get knowledge about drafting skills
- 2) To attain skill of 3D visualization
- 3) To attain skill of perspective vision

**Motor Skills:**

- 1) Make use of drafting instruments
- 2) Draw different 3D views
- 3) Make use of different types of papers for Drafting

**List of Assignments:**

- 1) 02 full imperial size drawing sheets on Isometric, Axonometric & oblique projection
- 2) 02 full imperial size drawing sheets on Isometric & Axonometric inclined planes
- 3) 01 full imperial size drawing sheets on reduction and enlargement of drawings
- 4) 02 full imperial size drawing sheets on one point and two point perspective
- 5) 01 full imperial size-tracing sheet on drawing (Ammonia print of the same tracing)

**Learning Resources:****Books:**

<b>Sr. No.</b>	<b>Title</b>	<b>Author</b>	<b>Publisher</b>
1	Engineering Drawing 40 <sup>th</sup> 1999	Bhatt N. D.	Charotar Publication House Anand
2	Building Drawing 3rd 1997	Shah, Kale, Pataki	Tat Mc – Graw Hill co. Ltd, New Delhi
3	Lawson Practice Perspective Drawings 1st 1981	Lawson	Mc- Graw Hill books co. London

**Course Name : All Branches of Diploma in Engineering and Technology**

**Course Code : AE/CE/CH/CM/CO/CR/CS/CW/DE/EE/EP/IF/EJ/EN/ET/EV/EX/IC/IE/IS/  
ME/MU/PG/PT/PS/CD/CV/ED/EI/FE/IU/MH/MI/DC/TC/TX/AA**

**Semester : Second**

**Subject Title : Development of Life Skills**

**Subject Code : 17010**

**Teaching and Examination Scheme:**

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
01	--	02	--	--	--	25@	--	25

**Rationale:**

Globalization has emphasized the need for overall development of technician to survive in modern era. Soft skills development in addition to technical knowledge; plays a key role in enhancing his/her employability.

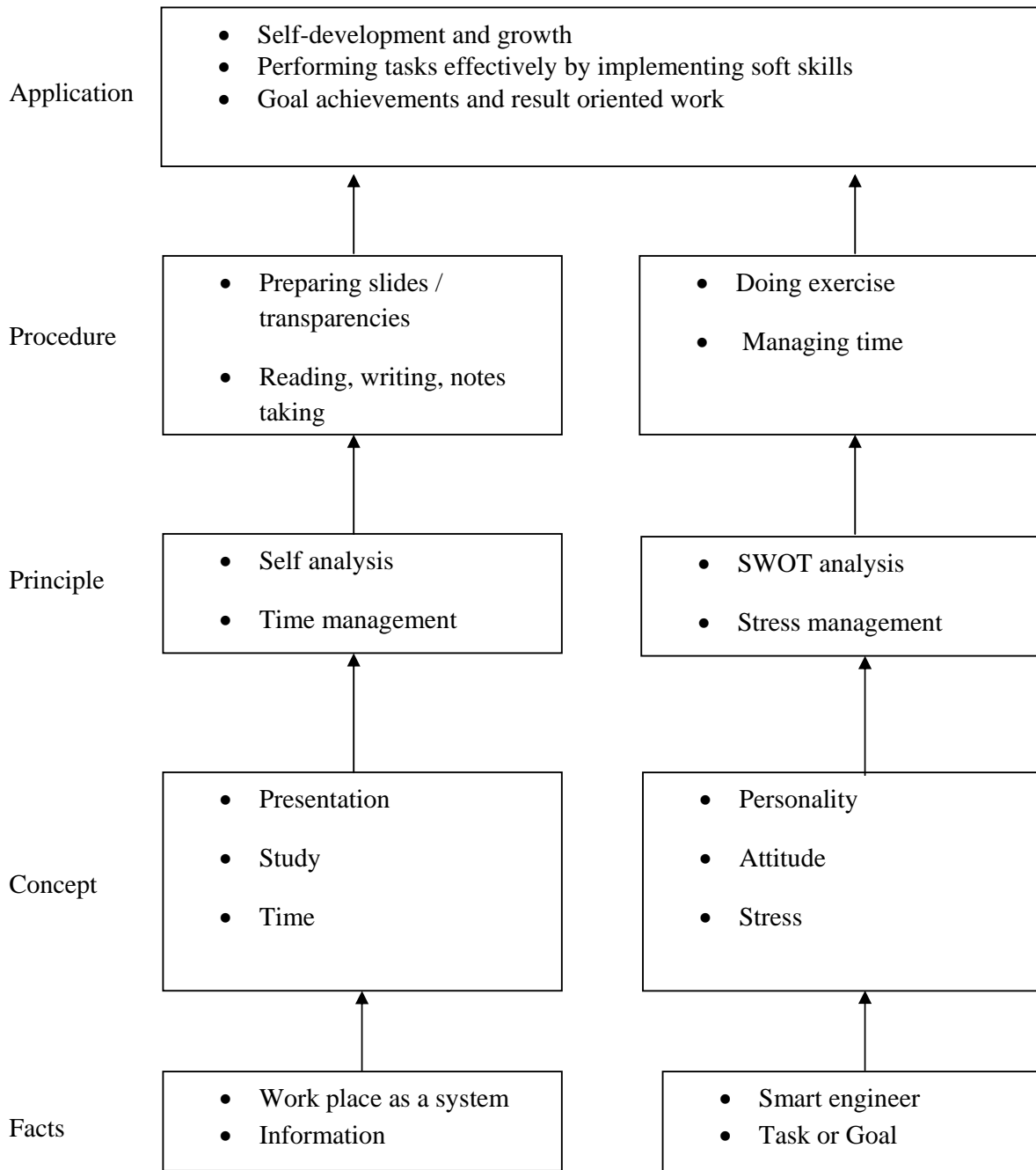
This subject aims to provide insights into various facets of developing ones personality in terms of capabilities, strengths, weakness, etc as well as to improve reading, listening and presentation skills. Also in this age fierce competition, the time and stress management techniques will immensely help the technician to live happy and purposeful life.

**General Objectives:**

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

1. Understand and appreciate importance of life skills.
2. Use self-analysis and apply techniques to develop personality.
3. Use different search techniques for gathering information and working effectively.
4. Improve the presentation skills.

**Learning Structure:**





**Contents: Theory**

<b>Topic and Contents</b>	<b>Hours</b>
<p><b>TOPIC 1: SELF ANALYSIS</b></p> <p><b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ To introduce oneself.</li> </ul> <p><b>Contents:</b></p> <p>1.1 Need of Self Analysis</p> <p>1.2 Attitude and types (positive, negative, optimistic and pessimistic)</p> <p>Guidelines for developing positive attitude.</p>	02
<p><b>TOPIC 2: STUDY TECHNIQUES</b></p> <p><b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ To identify different process and strategies.</li> <li>➤ To improve reading, listening and notes taking skills.</li> </ul> <p><b>Contents:</b></p> <p>2.1 Learning Strategies</p> <p>2.2 Learning Process</p> <p>2.3 Organization of Knowledge</p> <p>2.4 Reading Skills</p> <p>2.5 Listening Skills</p> <p>2.6 Notes Taking</p> <p>2.7 Enhancing Memory</p>	03
<p><b>TOPIC 3: INFORMATION SEARCH</b></p> <p><b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ To search information as per the need.</li> </ul> <p><b>Contents:</b></p> <p>3.1 Sources of information</p> <p>3.2 Techniques of information search (library, internet, etc)</p>	02
<p><b>TOPIC 4: SELF DEVELOPMENT</b></p> <p><b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ To set primary goals using SMART parameters.</li> <li>➤ To Priorities the work effectively.</li> <li>➤ To cope up with stress effectively.</li> </ul> <p><b>Contents:</b></p> <p>4.1 Goal setting and its importance.</p> <p>4.2 Characteristics of Goal setting (<b>SMART</b>- Specific, Measurable, Attainable, Realistic, Time bound)</p> <p>4.3 Time Management - Importance, prioritization of work, time matrix, time savers, and time wasters.</p> <p>4.4 Stress Management - Definition, types of stress, causes of stress, managing stress, and stress busters.</p>	05
<p><b>TOPIC 5: PRESENTATION TECHNIQUES</b></p> <p><b>Specific Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ To plan for presentation.</li> </ul>	02

<p>➤ To prepare contents for presentation.</p> <p><b>Contents:</b></p> <p>5.1 Importance of presentation.</p> <p>5.2 Components of effective presentation (Body language, voice culture, rehearsal, etc.)</p> <p>5.3 Preparing for presentation.</p> <p>5.4 Use of audio/video aids. (audio, video, transparency's, PowerPoint presentations, etc.)</p> <p>5.5 Performing presentation (Seminars, paper presentations, compering, etc)</p>	
<p><b>TOPIC 6: GROUP DISCUSSION</b></p> <p><b>Specific Objectives</b></p> <p>➤ To understand the concept of group discussion</p> <p>➤ To know the purpose of group discussion</p> <p><b>Contents</b></p> <p>6.1 Group discussion concept and purpose</p> <p>6.2 Method of conduction</p>	02
<b>Total</b>	<b>16</b>

**Practical:****Skills to be developed:****Intellectual Skills:****Student will be able to**

- Develop ability to find his capabilities.
- Select proper source of information.
- Follow the technique of time and stress management.
- Set the goal.

**Motor Skills:****Student will be able to**

- Follow the presentation of body language.
- Work on internet and search for information.
- Prepare slides / transparencies for presentation.

**List of Practicals/activities:**

1. Giving self introduction. Observe the demonstration of self introduction given by the teacher and prepare a write up on the following points and introduce yourself in front of your batch in 5 minutes
  - Name

- Native place
  - Background of school from where he / she passed
  - Family background
  - Hobbies / salient achievements / idols if any for self development
  - Aims of life as an Engineer
2. Provide responses to the questions based on the moral story given in the assignment.
  3. Judge your attitude by responding to the tests given in the assignment and write comments on your score.
  4. Read any chapter from the subject of Engineering Physics / Engineering Chemistry and identify facts, concepts, principles, procedures, and application from that chapter
  5. Participate in the panel discussion on techniques of effective learning and provide the responses to the questions.
  6. Access the book on Biography of Scientists/Industrialist/Social leader/Sports Person from library. Read the book and note the name of author, publication, year of publication, and summarize the highlights of the book.
  7. Prepare notes on given topic by referring to books / journals / websites.
  8. Prepare 8 to 10 power point slides based on the notes prepared on the above topic. Present the contents for 10 minutes Group wise(Group will be of 4 students)

**Note – Subject teacher shall guide the students in completing the assignments based on above practical.**

**Learning Resources:**

**Books:**

Sr. No.	Author	Name of Book	Publication
1	Richard Hale and Peter Whitlam	Target setting and goal achievement	Kogan Page
2	Andrew Bradbury	Successful Presentation Skills	The Sunday Times – Kogan
3	Ros Jay and Antony Jay	Effective Presentation	Pearson – Prentice Hall
4	Subject Experts - MSBTE	Handbook on Development of Life Skills	MSBTE
5	Nitin Bhatnagar and Mamta Bhatnagar	Effective Communication and Soft Skills	Pearson
6	D. Sudha Rani	Business Communication and Soft Skills	Pearson
7	Barak K Mitra	Personality Development and Soft Skills	Oxford University Press
8	Dr. T. Kalayani Chakravarti and Dr. Latha Chakravarti	Soft Skills for Managers	biztantra