



***BANGLADESH TECHNICAL EDUCATION BOARD***  
Agargoan, Dhaka-1207.

***4-YEAR DIPLOMA-IN-ENGINEERING PROGRAM***  
**SYLLABUS (PROBIDHAN-2016)**

**ARCHITECTURE AND INTERIOR DESIGN**  
TECHNOLOGY CODE: 687

**3rd SEMESTER**

DIPLOMA IN ENGINEERING  
PROBIDHAN-2016

## ARCHITECTURE AND INTERIOR DESIGN (687)

### 3<sup>rd</sup> SEMESTER

Sl. No	Subject Code	Name of the subject	T	P	C	Marks				Total
						Theory		Practical		
						Cont. assess	Final exam	Cont. assess	Final exam	
1	65931	Mathmetics-3	3	3	4	60	90	50	0	200
2	65922	Physics -2	3	3	4	60	90	25	25	200
3	65722	Communicative English	1	3	2	20	30	50	0	100
4	66435	Fundamental Surveying	3	3	4	60	90	25	25	200
5	68731	Interior Design -1	2	3	3	40	60	25	25	150
6	68732	Interior Graphics	1	3	2	20	30	25	25	100
7	66611	Computer Application	0	6	2	0	0	50	50	100
<b>Total</b>			<b>13</b>	<b>24</b>	<b>21</b>	<b>260</b>	<b>390</b>	<b>250</b>	<b>150</b>	<b>1050</b>

## AIMS

- To enable to calculate the areas of regular polygons, hexagons, octagon, hydraulic mean depth (HMD) of a channel, area occupied by water of circular culvert. Excavation work.
- To provide the ability to calculate volume of regular solids like pyramid frustum of pyramid, prismoid, wedge and area of curved surfaces.
- To enable to use the knowledge of gradient of a straight line in finding speed, acceleration etc.
- To enable to use the knowledge of conic in finding the girder of a railway bridge, cable of a suspension bridge and maximum height of an arch.
- To make understand the basic concept and techniques of composition and resolution of vectors and computing the resultant of vectors.

- **SHORT DESCRIPTION**

**Menstruation :** Area of rectangles, squares, triangles, quadrilaterals, parallelograms, rhombus, trapezium, circle, sector, segment; Volume of rectangular solids, prism, parallelepiped, pyramids, cones, spheres, frustum of pyramid and cone; Area of curved surface of prism, Cylinder cone, pyramid and frustum of cone.

**Co-ordinate Geometry:** Co-ordinates of a point, locus and its equation, straight lines, circles and conic.

**Vector:** Addition and subtraction, dot and cross product.

**DETAIL DESCRIPTION****MENSURATION:****1 Apply the concept of area of triangle.**

1.1 Find the area of triangle in the form,

i)  $A = \frac{\sqrt{3}}{4} a^2$ , a = length of a side of equilateral triangle.

ii)  $A = \frac{c}{4} \sqrt{4a^2 - c^2}$ , where a = length of equal sides, c = third side.

iii)  $A = \sqrt{s(s-a)(s-b)(s-c)}$ , where a, b, c = length of the sides of a triangle and 2s is the perimeter of the triangle.

1.2 Use formula in 1.1 to solve problems.

**2 Apply the concept of finding areas of quadrilateral & Parallelogram & finding areas of rhombus & trapezium.**

2.1 Define quadrilateral & Parallelogram.

2.2 Find the areas of quadrilateral when off sets are given.

2.3 Find the areas of a parallelogram.

2.4 Solve problems using above formulae.

2.5 Define rhombus & trapezium.

2.6 Find the areas of rhombus when the diagonals are given.

2.7 Find the areas of trapezium in terms of its parallel sides and the perpendicular distance between them.

2.8 Solve problems related to rhombus & trapezium.

**3 Apply the concept of finding areas of regular polygon.**

3.1 Define a regular polygon.

3.2 Find the area of a regular polygon of n sides, when

i) The length of one side and the radius of inscribed circle are given.

ii) The length of one side and the radius of circumscribed circle are given.

3.3 Find the area of a regular.

- a) Hexagon
  - b) Octagon when length of side is given.
- 3.4 Solve problems of the followings types:  
A hexagonal polygon 6 m length of each side has a 20 cm width road surrounded the polygon. Find the area of the road.

**4 Understand areas of circle, sector and segment.**

- 4.1 Define circle, circumference, sector and segment.
- 4.2 Find the circumference and area of a circle when its radius is given.
- 4.3 Find the area of sector and segment of a circle.
- 4.4 Solve problems related to the above formulae.

**5 Apply the concept of volume of a rectangular solid.**

- 5.1 Define rectangular solid and a cube.
- 5.2 Find geometrically the volume of a rectangular solid when its length, breadth and height are given.
- 5.3 Find the volume and diagonal of a cube when side is given.
- 5.4 Solve problems with the help of 6.2 & 6.3.

**6 Apply the concept of surface area, volume of a prism, parallelepiped and cylinder.**

- 6.1 Define a prism, parallelepiped and a cylinder.
- 6.2 Explain the formulae for areas of curved surfaces of prism, parallelepiped and cylinder.
- 6.3 Explain the formulae for volume of prism, parallelepiped and cylinder when base and height are given.
- 6.4 Solve problems related to 7.2, 7.3.

**7 Apply the concept of the surface area, volume of pyramid, cone and sphere.**

- 7.1 Define pyramid, cone and sphere.
- 7.2 Explain the formula for areas of curved surfaces of pyramid, cone and sphere.
- 7.3 Explain the formula for volumes of pyramid, cone and sphere.
- 7.4 Solve problems related to 8.2, 8.3.

**CO-ORDINATE GEOMETRY**

**8 Apply the concept of co-ordinates to find lengths and areas.**

- 8.1 Explain the co-ordinates of a point.
- 8.2 State different types of co-ordinates of a point.
- 8.3 Find the distance between two points  $(x_1, y_1)$  and  $(x_2, y_2)$ .
- 8.4 Find the co-ordinates of a point which divides the straight line joining two points in certain ratio.
- 8.5 Find the area of a triangle whose vertices are given.
- 8.6 Solve problems related to co-ordinates of points and distance formula.

**9 Apply the concept of locus & the equation of straight lines in calculating various Parameter.**

- 9.1 Define locus of a point.
- 9.2 Find the locus of a point.
- 9.3 Solve problems for finding locus of a point under certain conditions.
- 9.4 Describe the Equation  $x=a$  and  $y=b$  and slope of a straight line.
- 9.5 Find the slope of a straight line passing through two point  $(x_1, y_1)$  and  $(x_2, y_2)$ .
- 9.6 Find the equation of straight lines:
  - (i) Point slope form.
  - (ii) Slope Intercept form.
  - (iii) Two points form.
  - (iv) Intercept form.
  - (v) Perpendicular form.
- 9.7 Find the point of intersection of two given straight lines.
- 9.8 Find the angle between two given straight lines.
- 9.9 Find the condition of parallelism and perpendicularity of two given straight lines.
- 9.10 Find the distances of a point from a line.

**10 Apply the equations of circle, tangent and normal in solving problems.**

- 10.1 Define circle, center and radius.  
 10.2 Find the equation of a circle in the form:  
 (i)  $x^2 + y^2 = a^2$   
 (ii)  $(x - h)^2 + (y - k)^2 = a^2$   
 (iii)  $x^2 + y^2 + 2gx + 2fy + c = 0$   
 10.3 Find the equation of a circle described on the line joining  $(x_1, y_1)$  and  $(x_2, y_2)$ .  
 10.4 Define tangent and normal.  
 10.5 Find the condition that a straight line may touch a circle.  
 10.6 Find the equations of tangent and normal to a circle at any point.  
 10.7 Solve the problems related to equations of circle, tangent and normal.

**11 Understand conic or conic sections.**

- 11.1 Define conic, focus, Directorx and Eccentricity.  
 11.2 Find the equations of parabola, ellipse and hyperbola.  
 11.3 Solve problems related to parabola, ellipse and hyperbola.

**VECTOR :****12 Apply the theorems of vector algebra.**

- 12.1 Define scalar and vector.  
 12.2 Explain null vector, free vector, like vector, equal vector, collinear vector, unit vector, position vector, addition and subtraction of vectors, linear combination, direction cosines and direction ratios, dependent and independent vectors, scalar fields and vector field.  
 12.3 Prove the laws of vector algebra.  
 12.4 Resolve a vector in space along three mutually perpendicular directions  
 12.5 Solve problems involving addition and subtraction of vectors.

**13 Apply the concept of dot product and cross product of vectors.**

- 13.1 Define dot product and cross product of vectors.  
 13.2 Interpret dot product and cross product of vector geometrically.  
 13.3 Deduce the condition of parallelism and perpendicularity of two vectors.  
 13.4 Prove the distributive law of dot product and cross product of vector.  
 13.5 Explain the scalar triple product and vector triple product.  
 13.6 Solve problems involving dot product and cross product.

**Reference**

SL No	Athour	Title	Publication
01	G. V. Kumbhojkar	Companion to basic Maths	Phadke Prakashan
02	Murary R Spigel	Vector & Tensor Analysis	Schaum's Outline Series
03	Md. Abu Yousuf	Vector & Tensor Analysis	Mamun Brothers
04	Rahman & Bhattacharjee	Co-ordinate Geometry & Vector Analysis	H.L. Bhattacharjee
05	Md. Nurul Islam	Higher Mathematics	Akkhar Patra Prakashani

**OBJECTIVES**

- To develop a foundation in scientific principles and processes for the understanding and application of technology.
- To develop an understanding of fundamental scientific concepts through investigation and experimentation.
- To provide a common base for further studies in technology and science.
- To develop the basic knowledge of modern physics.

**SHORT DESCRIPTION**

Thermometry and Heat Capacity; Expansion of materials (effect of heat); Heat transfer; Humidity; Nature of heat and Thermodynamics; Photometry; Reflection of light; Refraction of light; Electron , photon and Radio activity; Theory of Relativity.

**DETAIL DESCRIPTION****THEORY****1. THERMOMETRY AND HEAT CAPACITY**

- 1.1 Define heat and temperature.
- 1.2 Mention the units of measurement of heat and temperature.
- 1.3 Distinguish between heat and temperature.
- 1.4 Identify the range of the Celsius scale determined by the boiling point and melting point of water
- 1.5 State the construction and graduation of a mercury thermometer.
- 1.6 Define specific heat capacity, thermal capacity and water equivalent with their units.
- 1.7 Prove the total heat gained by an object is equal to the sum of the heat lost by all the surrounding objects.
- 1.8 Explain the principle of calorimetry.
- 1.9 Define various kinds of specific latent heat.
- 1.10 Determine the latent heat of fusion of ice and latent heat of vaporization of water.
- 1.11 Determine the specific heat of a solid by calorimeter.

**2. EFFECT OF HEAT ON DIMENSION OF MATERIALS**

- 2.1 Show that different materials change in size at different amounts with the same heat source.
- 2.2 Explain the meaning of differential expansion in bimetallic strip, thermostats, compensated pendulum etc.
- 2.3 Explain the methods of overcoming problems caused by the expansion of materials in buildings, machinery, railway lines and bridges.
- 2.4 Mention the units co-efficient of linear, superficial and cubical expansion of solids.
- 2.5 Define the co-efficient of linear, superficial and cubical expansion of solids.
- 2.6 Relation between the co-efficient of linear, superficial and cubical expansion of solids.

- 2.7 Define real and apparent expansion of liquid.
- 2.8 Relation between the real and apparent expansion of liquid.

### 3. HEAT TRANSFER

- 3.1 Identify the phenomena of heat transferring from hot bodies to cold bodies.
- 3.2 Explain the methods of heat transfer by conduction, convection and radiation with examples of each type of transfer.
- 3.3 Define thermal conductivity (K) and Co-efficient of thermal conductivity.
- 3.4 Find the unit and dimension of Co-efficient of thermal conductivity.
- 3.5 List the factors which determine the quantity of heat (Q) flowing through a material.
- 3.6 Show that the quantity of heat flowing through a material can be found from
 
$$Q = \frac{KA (\theta_H - \theta_C)t}{d}$$
- 3.7 State Stefan-Boltzman Law and wien's law.
- 3.8 State Newton's law of cooling.
- 3.9 Explain Green house effect.

### 4. HUMIDITY

- 4.1 Define Standard Temperature and Pressure.
- 4.2 Define Humidity, Absolute Humidity, Relative Humidity and Dewpoint.
- 4.3 Relation between vapour pressure and air pressure.
- 4.4 Determine Humidity by wet and dry bulb hygrometer.
- 4.5 Explain few phenomena related to hygrometry.

### 5. NATURE OF HEAT AND THERMODYNAMICS

- 5.1 Describe the caloric theory and kinetic theory of heat.
- 5.2 Explain the mechanical equivalent of heat.
- 5.3 State and Explain the first law of thermodynamics .
- 5.4 Explain Isothermal and adiabatic change.
- 5.5 Explain Specific heat of a gas, Molar specific heat or molar heat capacity.
- 5.6 Relate between pressure and volume of a gas in adiabatic Change i, e;  $PV^\gamma = \text{const.}$
- 5.7 State and Explain Reversible process and irreversible process.
- 5.8 State & explain 2<sup>nd</sup> law of thermodynamics
- 5.9 Entropy: Definition, unit and significant.
- 5.10 Explain Change of entropy in a reversible and irreversible process.
- 5.11 Give an example of increase of entropy in irreversible process.

### 6. PHOTOMETRY

- 6.1 Define light, medium (transparent, translucent, opaque), luminous & non-luminous bodies, parallel, convergent & divergent of rays.
- 6.2 Show the travel of light in straight line.
- 6.3 Define photometry, luminous intensity, luminous flux, brightness and illuminating power.
- 6.4 Mention relation between luminous intensity & illuminating power.
- 6.5 Explain inverse square law of light.
- 6.6 Describe the practical uses of light waves in engineering.

## 7. REFLECTION OF LIGHT

- 7.1 Define mirror (plane & spherical), image (real & virtual) and magnification of images.
- 7.2 Describe the reflection of light.
- 7.3 State the laws of reflection of light.
- 7.4 Express the verification of laws of reflection.
- 7.5 Define pole, principal axis, center of curvature, radius of curvature, principal focus in case of concave & convex mirrors.
- 7.6 Find the relation between focal length & radius of curvature of a concave & convex mirror.
- 7.7 Express the general equation of concave and convex mirror.

## 8. REFRACTION OF LIGHT

- 8.1 Define refraction of light Give examples of refraction of light
- 8.2 State the laws of refraction and Express the verification of laws of refraction
- 8.3 Define absolute and relative refractive index and Relate absolute and relative refractive index
- 8.4 Explain the meaning of total internal reflection and critical angle and Relate total internal reflection and critical angle.
- 8.5 Give examples of total internal reflection.
- 8.6 Describe refraction of light through a prism.
- 8.7 Express the deduction of the relation between refractive index, minimum deviation and angle of the prism.
- 8.8 Define lens and mention the kinds of lens.
- 8.9 Identify and List uses of lens.
- 8.10 Express the deduction of the general equation of lens (Concave & convex).

## 9. ELECTRON, PHOTON AND RADIO-ACTIVITY

- 9.1 Describe Electrical conductivity of gases.
- 9.2 Describe Discharge tube.
- 9.3 Cathode ray : Definition and its properties
- 9.4 X-ray : Definition, properties & uses
- 9.5 Discuss Photo electric effect .
- 9.6 Derive Einstein's photo electric equation
- 9.7 Define and explain radio-activity.
- 9.8 Describe radio-active decay law.
- 9.9 Define half-life and mean-life of radio-active atoms.
- 9.10 Define nuclear fission and fusion.

## 10. THEORY OF RELATIVITY

- 10.1 Define Space, time and Mass.
- 10.2 Define rest mass.
- 10.3 Express the theory of relativity.
- 10.4 Explain special theory of relativity and its fundamental postulate.
- 10.5 Mention different Kinds of theory of relativity.
- 10.6 The Relativity of Length - Length contraction.
- 10.7 The Relativity of Time – Time dilation.
- 10.8 Deduce Einstein's mass -energy relation

## PRACTICAL

1. Compare the operation of common thermometers.
2. Determine the co-efficient of linear expansion of a solid by Pullinger's apparatus.
3. Measure the specific heat capacity of various substances.(Brass, steel).
4. Determine the latent heat of fusion of ice.
5. Determine the water equivalent by calorimeter.
6. Compare the luminous intensity of two different light sources.
7. Verify the laws of reflection.
8. Find out the focal length of a concave mirror.
9. Determine the refractive index of a glass Slab.
10. Determine the angle of Minimum deviation and refractive index of a glass prism by using I-D graph.

## REFERENCE BOOKS:

- |   |                                   |
|---|-----------------------------------|
| 1. Higher Secondary Physics – Second Part | - by Dr. Shahjahan Tapan          |
| 2. A Text Book of Heat and Thermodynamics | - by N Subrahmanyam and Brij Lal  |
| 3. A Text Book of Optics                  | - by N Subrahmanyam and Brij Lal  |
| 4. Higher Secondary Physics -Second Part  | - by Prof. Golam Hossain Pramanik |
| 5. Higher Secondary Physics -Second Part  | - by Ishak Nurfungnabi            |
| 6. Thermodynamics                         | - by K K Ramalingam               |

**Full Marks: 100 (Practical-50.Theoretical-50)**

### **Introduction**

This Course Will Provide A Unique Foundation In The Basic Level For Developing Listening, Speaking, Reading And Writing Skills Into Some Of More Specialized And Advanced Capabilities Of Basic Operation In Communication.

### **Theory Part**

Total Mark:	: 50
Continuous Assessment	: 20
Final Exam	: 30

### **Objectives:**

After The Completion of the Module, Learners Will Be Able To Develop-

- # Creative Writing Ability
- # Transferring Information, Ideas And Knowledge
- #Communicative Competence Effectively In The Workplace Situation.

### **1.Comprehension For Reading Task (Mark:10)**

(Text May Be Taken From Contemporary Journals, Editorial of News Papers Or From Online Resources)

### **Test Items:**

1. MCQ (Guessing Meaning from Context)
2. Rearranging
3. Gap-Filling (With Clues or Without Clues)
4. Answering Questions
5. Summarizing

### **2. Composition (Mark: 20)**

### **The Following Are The Topic Title Introduced For Writing Task:**

1. Introduce Formal/Informal Greeting &Farewell
2. Describe The Idea Of Communication & Presentation Skills
3. Write Paragraph On The Basis Of Comparison and Contrast
4. Narrate Process, Stories And Interpreted Charts, Graphs.
5. Write Letters to the Print and Electronic Media
6. Write Letters of Advice, Complaints, Inquiry, Order and Cancellation
6. Prepare Seven Days Weather Report.
7. Make An Attractive Poster For The People Giving Advice To Protect The Environment.
8. Prepare A Series Of Questions About Personal Information, Place Of Interest, Foods, Hobby And Employment Opportunity.
9. Write Dialogue On The Following Situations
  - # About Exchanging Views With A Person And Introducing One Narrating Daily Activities
  - # Meeting At The Train Station & Asking Question About The Departure And Arrival Of The Train To The Station Manager
  - # Meeting at The Airport And Asking The Flight Schedule
  - # Getting To The Hotel And Asking For A Reservation
  - # Social Language for Telephonic Conversation
  - # Talking About the Weather, Trips & Sight Seeing
  - # Asking Permission and Making Request.
  - # Talking About Office and Office Manner
  - # Talking About Etiquette and Manner
10. Prepare Job Application With A Complete CV For Job Suitable For You.

### Practical Part:

#### Objectives:

1. Communicate The Areas That Learners Encounter In Real Life Situation.
2. Reinforce The Basic Language Skills Of Listening And Speaking.
3. Integrate ICT As Tools In Learning Language.

#### Course Content

Unit	Lesson	Title
1. Use Of Dictionary	Define Dictionary	1.1 Know How To Use A Dictionary 1.2 Learn At Least 10 Words In A Day With Correct Pronunciation (Follow The Link : <a href="http://Www.Marriunm-Englishdictionary.Com">Www.Marriunm-Englishdictionary.Com</a> )
2. Basic Vocabulary Practice	Basic Words For Communication By ODGENS	2.1 Use 10 Most Common Formulas (Structure) To Write Correct Sentence. (Follow The Link: <a href="http://Www.Odgenbasicvocabulary.Com">Www.Odgenbasicvocabulary.Com</a> <a href="http://Www.Grammarly.Com">Www.Grammarly.Com</a> )
3. Listening Skill Practice	Listen To The Audio Video Presentation On Current Real Life Situation	3.1 Practice Audio Video Conferencing Activities. 3.2. Communicate With The English Speaking People Online (Link: <a href="http://Www.Speaking24.Com">Www.Speaking24.Com</a> )
4. Speaking Skill Practice (Self Interpretation)	Introduce Yourself With The Vocabulary Prescribed By ODGENS	4.1 Browse Vocabulary Related Phrases To Introduce You. (Link : <a href="http://Www.Youtube.Com/Let Me Introduce Myself">Www.Youtube.Com/Let Me Introduce Myself</a> )
5. Listening Skill Practice	Listen To The Weather Reports, Sports Commentary In The English TV Channels.	5.1 Prepare Seven Days Weather Report For The Place You Are Staying. 5.2. Make Some Attractive Poster To Protect The Environment.
6. Speaking Skill Practice	Identify Formal And Informal Social Language	6. 1 Practice Conversation Emphasizing On Greetings & Farewell (Link- <a href="http://Www.Esl.Guide@About.Com">Www.Esl.Guide@About.Com</a> ) 6.2 Take Part In Audio Video Conferencing Activities 6.3 Ask Questions About Personal Information, Place Of Interest, Food, Hobby, Employment Opportunity With Foreign Friends Using Social Media.
7. Writing Skill Practice	Develop Paragraph	7.1 Develop Paragraph On The Basis Of Comparison, Contrast And Analysis. Check Plagiarism Wordiness By The Correction Software ( <a href="http://Www.Grammarly.Com">Www.Grammarly.Com</a> ) 7.2. Write E-Mail, Send And Reply E-Mail

8. Listening Skill Practice	Watch Short Films, Documentary And Listen To The English Music(With Lyric) To Practice In A Group	8.1 Listen To Hard Talk, Interview 8.2. Prepare A Series Of Questions To Interview A Celebrity 8.3. Down Load Documentary From <a href="http://Www.Youtube.Com/Education">Www.Youtube.Com/Education</a>
9. Presentation	Define Presentation	9.1 Edutain/Entertain Yourself Preparing A Documentary In A Group With The Activities Done During The Period Of Class Hours In The Lab For

	Communicative English.
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Evaluation:

Students Can Be Evaluated Individually Or In A Group On The Basis Of Performance Done In The Lab. Furthermore, They May Be Given Online Test Using Authenticated Websites Like [www.Britishcouncil.Org/Education/Blog/Podcast/News/Weather](http://www.Britishcouncil.Org/Education/Blog/Podcast/News/Weather), [www.Englishteststore.Com](http://www.Englishteststore.Com), [www.Ieltsexam.Com](http://www.Ieltsexam.Com)

Lab-Facilitator, 30 Students In A Group:

Physical Facility	Size (In Ft)	Area (In Sq Ft)
Class Room Cum Laboratory	15 × 20	300
Library	15 × 20	300
Wash Room	4 × 7	28

Lists Of Equipments And Resources For 30 Learners:

Personal Computers With Accessories	15
Projector Multimedia	01
Printer	01
Scanner	01
Modem	01
Essential Software	01 Set
Internet Connection For Each Computer	Broad Band/Dial Up
Camera (Digital)	01
Video Conferencing Equipments	01 Set
TV Card	01
Satellite Cable Connection	01
Head Phone	15
Related Books And Journals	01
First Aid Box	01

Reference:

[www.Britishcouncil.Org](http://www.Britishcouncil.Org), [www.Marium-Websters.Com](http://www.Marium-Websters.Com), [www.Compellingconversation.Com](http://www.Compellingconversation.Com), [www.Esl.Guide@About.Com](http://www.Esl.Guide@About.Com), [www.Bbc.Com/News](http://www.Bbc.Com/News), [www.Speaking24.Com](http://www.Speaking24.Com), [www.Itutor.Com](http://www.Itutor.Com), [www.Ieltsexam.Com](http://www.Ieltsexam.Com), [www.Englishteststore.Com](http://www.Englishteststore.Com), [www.Ginger.Com](http://www.Ginger.Com), [www.Grammarly.Com](http://www.Grammarly.Com)

(Note: This Course May Be Introduced After Fourth Semester Coz It Needs Some Maturity Of The Students To Adopt With The Course Materials And The Contents. These Themes Are Suggestive Not Prescriptive.)

### AIMS

To provide the students with an opportunity to acquire knowledge and skills to:

- Survey work with chain, compass and total station.
- Conduct cadastral survey.
- Conduct leveling and contouring
- Calculation of the area by using different instrument.

### SHORT DESCRIPTION

Concept of Surveying; Chain surveying; Compass surveying; Cadastral surveying; Leveling and Contouring; Surveying with total station; GPS .

### DETAIL DESCRIPTION

#### **Theory:**

#### **1 Understand the concept of surveying**

- 1.1 Define surveying.
- 1.2 State the purpose of surveying.
- 1.3 Discuss the classification of surveying based on shape of the earth, nature of field, objective of surveying and instrument employed.
- 1.4 Explain field work.
- 1.5 Explain office work.
- 1.6 Identify survey instruments with their care and adjustment.
- 1.7 Differentiate between plane survey and geodetic survey.

#### **2 Understand the basic principle of chain surveying.**

- 2.1 Define the meaning of chain surveying.
- 2.2 Explain chain line, base line, tie line, check line and station points ill-conditioned and well conditioned triangle.
- 2.3 List the equipment and accessories used in chain surveying.
- 2.4 Mention the use of arrows, ranging rod, offset rod & optical square.
- 2.5 Explain the construction and use of optical square.
- 2.6 Define direct and indirect ranging.
- 2.7 Describe the procedure of indirect ranging (reciprocal ranging) on sloping ground.
- 2.8 Describe the procedure of measuring linear distances with the help of chain and tape.
- 2.9 Define double line field book.
- 2.10 Describe the procedure of booking in a double line field book.

#### **3 Understand the preparation of a chain survey map**

- 3.1 List the instruments and materials required for plotting a survey map.
- 3.2 Identify suitable scale for plotting a map.
- 3.3 Describes the procedure of plotting a survey map from field book.
- 3.4 Identify conventional symbols used in plotting maps.

#### **4 Understand the basic terms used in compass surveying**

- 4.1 List the instrument and accessories required for compass survey.
- 4.2 Define the terms: meridian, true meridian, magnetic meridian, bearing, true bearing, magnetic bearing, magnetic declination, dip of the needle, deflected angle, exterior angle, interior angle.
- 4.3 Define fore bearing and back bearing.

- 4.4 Find back bearing from fore bearing and fore bearing from back bearing.
- 4.5 Convert whole circle bearing to reduced bearing and reduced bearing to whole circle bearing.
- 4.6 Describe between prismatic compass.
- 4.7 Define local attraction.
- 4.8 Identify local attraction and correct the observed bearings.

## **5 Understand the basic concept of cadastral survey.**

- 5.1 Define cadastral survey.
- 5.2 Identify scale used in cadastral survey.
- 5.3 List the equipment and accessories used in cadastral survey.
- 5.4 Define the terms:- Quadrilaterals, intersections, shikmi, chanda, check line, field, khaka.
- 5.5 Describe the procedure of cadastral survey.
- 5.6 Explain the procedure of preparing a cadastral survey map.

## **6 Understand the concept of leveling and bench mark .**

- 6.1 Describe the purpose of leveling.
- 6.2 Explain the following terms in leveling :
  - a) Level surface; b) Level line; c) Horizontal surface; d) Horizontal line; e) Vertical plane;
  - f) Vertical line; g) Datum surface; h) Datum; i) Reduced level; j) Formation level
- 6.3 State the meaning of bench mark.
- 6.4 Compare GTS, permanent, arbitrary and temporary bench mark.
- 6.5 Identify different types of level.
- 6.6 Explain the following terms related to leveling:
  - a) Line of collimation; b) Axis of telescope; c) Axis of bubble tube; d) Vertical axis;
  - e) Height of instrument; f) Plane of collimation; g) Focusing; h) Parallax
- 6.7 Identify different types of leveling staff.

## **7 Understand the temporary and permanent adjustment of leveling Instrument.**

- 7.1 Mention different kinds of adjustments of level.
- 7.2 Mention different steps of temporary adjustment.
- 7.3 Identify the fundamental lines of leveling instrument.
- 7.4 Mention the procedure of adjustments

## **8 Understand the various aspects of leveling.**

- 8.1 Explain the meaning of following terms as used in leveling:
  - a) Back sight, foresight and intermediate sight reading; b) Change point; c) Station.
- 8.2 Mention the procedure of holding a leveling staff.
- 8.3 Mention the procedure of leveling work.
- 8.4 Mention the necessity of level book or field book.
- 8.5 Identify different kinds of level book or field book.
- 8.6 Describe the term reduction of leveling.
- 8.7 Mention the procedure of booking of staff reading into level book.
- 8.8 Solve problems on reduction of leveling.
- 8.9 Solve problems on calculation of missing data of old level book.

## **9 Understand the aspects of contouring.**

- 9.1 Explain the terms contour, contouring, horizontal equivalent and vertical interval.
- 9.2 Mention the characteristics of contour.
- 9.3 List the uses of contour.
- 9.4 Mention the different methods of contouring (direct method and indirect method).
- 9.5 State the procedure of different methods of contouring.
- 9.6 Mention the procedure of drawing contour map.
- 9.7 Draw contour maps.

## **10 Understand the digital theodolite.**

- 10.1 Define digital theodolite.
- 10.3 Describe the components of digital theodolite and its function.

- 10.5 Describe the procedure of setting digital theodolite.
- 10.6 Describe the procedure of taking horizontal angle with digital theodolite.
- 10.7 Describe the procedure of taking vertical angle with digital theodolite.

### **11 Understand the principle of operation and uses of total station.**

- 11.1. Explain the function of the total station.
- 11.2. State focusing and target point of total station.
- 11.3. Describe the procedural steps of setting total station.
- 11.5. Mention the procedure centering and leveling.

### **12. Understand the operation panel.**

- 12.1. Describe the basic key operation.
- 12.2. Describe soft key operation.
- 12.6. Explain configuration mode, measurement mode and memory mode.
- 12.7. Describe the process of selecting different options.
- 12.8. Define horizontal angel.
- 12.9. Explain the procedure of horizontal angel between two points with total station.
- 12.10. Describe the procedure of EDM setting in the total station.
- 12.11. Describe the procedure of measuring horizontal distance and slop distance with total station.
- 12.12. Describe the procedure of measuring vertical distance with total station.

### **13 Understand the principles of operation and uses of GPS receiver.**

- 13.1 Explain the meaning of global positioning system (GPS).
- 13.2 Describe the working principles of GPS receiver.
- 13.3 Mention different features of GPS receiver.
- 13.4 Describe operational process of the instruments related to GPS.
- 13.5 Describe the procedure of finding co-ordinates (latitude & longitude) of a station using GPS receiver.
- 13.6 List the works performed by GPS receiver.
- 13.7 Explain software used in GPS receiver.
- 13.8 Mention different types of software used in GPS receiver.
- 13.9 Mention the applications of different soft wares.
- 13.10 Describe the preparation of a map using mapping software and data received with GPS receiver.

### **Practical:**

1. Measure length of line by chain and tape.
2. Set perpendiculars with the help of chain and tape.
3. Set perpendiculars with the help of optical square.
4. Measure magnetic bearing by prismatic and surveyors compass.
5. Locate the boundary line of a property with the help of chain, tape and which is already plotted on the mouza map.
6. Perform temporary adjustments of level.
7. Conduct fly leveling to establish a bench mark.
8. Conduct reciprocal leveling.
9. Conduct contouring by direct method over a low lying/elevated area, prepare contour map and calculate the quantity of earth work in filling/cutting.
10. Determine the height and distance of a tower using digital theodolite.
11. Determine height and distance of tower using total station.
12. Determine the co-ordinates of a station (within the institute) using GPS receiver.

## ***REFERENCE BOOKS***

- 1 Surveying and Leveling-** T. P. Kanatker
- 2 Surveying-** Aziz & Shahjahan
- 3 Surveying-** B. C. Punmia

**OBJECTIVES:**

Provide students the opportunity to acquire knowledge and skill

- with understanding basic terminology used by architects and interior designers
- with understanding design process of a residence.
- with understanding color, texture, materials of a residence.

**SHORT DESCRIPTIONS:**

Aspects of design process, bubble diagram, traffic pattern, different area, planning of different areas, furniture arrangement, color, texture, ventilation.

**COURSE OUTLINE****Theory:****1. Understand the needs of Residence**

- 1.1 Discuss the factors which influence the needs of residence
- 1.2 Describe the physical needs of a residence
- 1.3 Describe the psychological needs of a residence
- 1.4 Discuss how residence influences the lifestyle.
- 1.5 Describe housing and society
- 1.5 Discuss basic structural features and their purposes in housing construction

**2. Understand the design considerations**

- 2.1 Discuss the climatic consideration (such as: sun, wind, rain, moon light etc)
- 2.2 Discuss the sun path and wind flow diagram
- 2.3 Discuss the features to be considered for house planning.
- 2.4 Discuss the bubble diagram.
- 2.5 Define the importance of cross ventilation.
- 2.6 Discuss the term privacy.

**3. Understand the household furniture**

- 3.1 Define different types of furniture.
- 3.2 Difference between fixture and furniture.
- 3.3 Define the formal and informal styles
- 3.4 Discuss the historical periods and styles
- 3.5 Discuss furniture Selection Guidelines
- 3.6 Define the furniture arrangement guidelines.

**4. Understand the different working areas of a residence.**

- 4.1 Define the various areas of a residence.
- 4.2 Define living room.
- 4.3 Define dining room.
- 4.4 Define bed room.
- 4.5 Define kitchen room.
- 4.6 Define toilet / bathroom.

**5. Understand the different service area of a residence.**

- 5.1 Define the various utility areas of a residence.
- 5.2 Define circulation & traffic pattern of a residence.
- 5.3 Define parking area of a residence.

- 5.3 Define lobby.
- 5.4 Define laundry.
- 5.5 Define prayer room.
- 5.6 Define reading room.
- 5.7 Describe terrace, guard room, utility room etc.

## **6. Understand the design process of living area.**

- 6.1 Discuss the different types of living room.
- 6.2 Discuss the different types of furniture in living room.
- 6.3 Discuss the furniture arrangement of living room
- 6.4 Discuss the use of color and texture in living room
- 6.5 Discuss the lighting and ventilation of living room
- 6.6 Discuss the use of carpet and rug in living room

## **7. Understand the design process of dining space**

- 7.1 Discuss the different types of dining room.
- 7.2 Discuss the different type's furniture of dining room.
- 7.3 Discuss the furniture arrangement of dining room
- 7.4 Discuss the use of color and texture in dining room
- 7.5 Discuss the lighting and ventilation of dining room

## **8. Understand the design process of sleeping area.**

- 8.1 Discuss the different types of bed room.
- 8.2 Discuss the different type's furniture of bed room.
- 8.3 Discuss the furniture arrangement of bed room
- 8.4 Discuss the use of color and texture in bed room
- 8.5 Discuss the lighting and ventilation of bed room
- 8.6 Discuss the draperies and certain of bed room

## **PRACTICAL:**

1. Draw a bubble diagram.
2. Draw a flow diagram of a residence.
3. Free hand sketch of a residence with single line.
4. Draw a sun path and wind flow diagram. (Free hand).
5. Draw a traffic pattern of a residence. (Free hand).
6. Draw different types of parking position of a residence (scale: 1:100)
7. Draw different types of living room furniture with dimension. (scale: 1:25)
8. Draw different types of dining room furniture with dimension. (scale: 1:25)
9. Draw different types of bed room furniture with dimension. (scale: 1:25)
10. Prepare a layout plan of a living room with furniture arrangement. (scale: 1:50)
11. Prepare a layout plan of a dining room with furniture arrangement.(scale:1:50)
12. Prepare a layout plan of a bed room with furniture arrangement. (scale: 1:50)

**REFERENCE BOOKS:**

1. ARCHITECTURAL: DRAFTING AND DESIGN(5<sup>th</sup> edition)  
-written by DONAL E. HEPLER; PAUL I. WALLACH.
2. A VISUAL DICTONERY OF ARCHITECTURA  
-written by FRANCIS D.K. CHING
3. TIME SEVER STANDERD FOR INTERIOR DESIGN AND SPACE PLANING.

**AIMS:**

To be able to develop knowledge, skill and attitude in the field of the graphical representation of architectural design & drafting with special emphasis on:

- Creativity
- Elements of design.
- Principles of Design
- Proportion and scale
- Composition
- Color
- Rendering and presentation

**SHORT DESCRIPTION:**

Creativity; creative process and theories; rhythm; emphasis; proportion; appearance; unity; variety; repetition; opposition; transition; Form; shape & space; transformation of forms; balance; rule of thirds; scale and Proportion; golden section; composition; color; rendering and presentation.

**THEORY:****1. Understand the Creativity in Architecture**

- 1.1 Define Creativity.
- 1.2 Describe two stages of creation.
- 1.3 Describe three points of working definition of creativity.
- 1.4 State creative thinking theories.
- 1.5 State creative process theories.
- 1.6 Mention different creative process.
- 1.7 Explain the environment for creativity.
- 1.8 Mention the guidelines to encourage creativity.

**2. Understand the Primary elements of Design.**

- 2.1. Define Point, Line, Plane, Volume as a drawing element and its application.
- 2.2. Define Form, shape & space.
- 2.3. Describe the primary shapes i.e. circle, triangle & square and regular, irregular forms and platonic solids.
- 2.4. Describe the transformation of forms.
- 2.5. Describe the subtractive and additive forms.
- 2.6. Explain the centralized, linear, radial, clustered and grid forms.

**3. Understand the principles of Design.**

- 3.1 Explain the term rhythm, emphasis, proportion, appearance, unity, variety, repetition, opposition, transition etc.
- 3.2 Discuss the Emphasis factors in design.
- 3.3 Describe balance.
- 3.4 Discuss Rule of Thirds

**4. Understand the scale and Proportion.**

- 4.1. Define the term scale in different sector (scale in measurement, scale in weight, scale in Architecture).
- 4.2. Describe different types of Scale use in Architectural drawing.
- 4.3. Discuss scale sense in Architecture and Interior space.
- 4.4 Define Proportion.
- 4.5 Describe Proportion in composition and form.
- 4.6 Describe Golden ratio and Golden section.

## **5 Understand the necessity and importance of Composition.**

- 5.1 Describe composition.
- 5.2 Describe types of composition.
- 5.3 Distinguish between different forms and composition.
- 5.4 Explain necessity of composition in Architectural design.
- 5.5 Describe composition in different media.

## **6. Understand the necessity of Color in Architectural Design.**

- 6.1 State the Color.
- 6.2 Discuss the necessity of color use in Architectural Design.
- 6.3 List the different types of color.
- 6.4 Describe value weight and warmth of color.
- 6.5 State pigment, tone and shade in color.
- 6.6 Describe the language of color.
- 6.7 Discuss of lights and its effects in interior environment.

## **7. Understand the concept of rendering and presentation.**

- 7.1 Define rendering.
- 7.2 Describe the necessity and importance of rendering.
- 7.3 State the technique of rendering.
- 7.4 Describe the necessary material required for rendering.
- 7.4 Define shade , shadow and texture.
- 7.5 Describe the technique of shade and shadow.

## **PRACTICAL:**

### **1. Prepare Origami.**

- 1.1 Make an origami by paper.
- 1.2 Make origami by board/Transparent sheet.
- 1.3 Make origami by stick.
- 1.4 Make an origami by composite materials.

### **2. Composition with design elements.**

- 2.1 Make composition with design elements (dot,line,plane,volumn).
- 2.2 Make composition with 2-dimensional geometric elements.
- 2.3 Make composition with 3-dimensional(platonic solids) geometric elements.
- 2.4 Make composition of different objects with color.

### **3. Form Transformation.**

- 3.1 Make form transformation of block.
- 3.2 Make form transformation of cylinder.
- 3.3 Make transformation of prism.
- 3.4 Make form transformation of pyramid.

### **4. Prepare composition applying color concept.**

- 4.1 Prepare a color wheel and color charts.
- 4.2 Make composition with color tone.
- 4.3 Make composition with color shade.
- 4.4 Make composition with color grade.

### **5. Prepare render and presentation.**

- 5.1 Draw a two dimensional object and make rendering with pencil using texture.
- 5.2 Draw a three dimension step and apply shade, shadow .
- 5.3 Draw shade and shadow of a given object from different angle light source.
- 5.4 Draw free hand sketch of foliage and human figure.

**Reference Books:**

1. Architecture Form, Space & Order - Francis D.K. Ching.
2. Design in Architecture - Geoffrey Broadbent.
3. Conceptual Blockbusting - J. L. Adams.
4. Rendering with pen and ink-Robert W.Gill
5. Understanding Color: An Introduction for Designers, Fourth Edition-william stout
6. Architectural Rendering-Albert O Halse
7. Professional Architectural Graphics- C. Leslie Martin
8. LIGHT,SHADE AND SHADOW-E.L Koller

## OBJECTIVES

### SHORT DESCRIPTION

### DETAIL DESCRIPTION

#### 1. Operate a personal Computer

##### 1.1 Start up a Computer

- 1.1.1 **Peripherals** are checked and connected with system unit
- 1.1.2 Power cords / adapter are connected properly with computer and power outlets socket
- 1.1.3 Computer is switched on gently.
- 1.1.4 PC **desktop / GUI settings** are arranged and customized as per requirement.

##### 1.2 Operate Computer

- 1.2.1 Files and folders are created.
- 1.2.2 Files and folders are **manipulated** as per requirement.
- 1.2.3 Properties of files and folders are viewed and searched.
- 1.2.4 Control panel settings are practiced.
- 1.2.5 **Memory devices** are formatted as per requirement.

##### 1.3 Shutdown computer

- 1.3.1 unsaved file and folders are closed
- 1.3.2 Open software is closed and hardware devices are switched off.
- 1.3.3 Computer is switched off gently.
- 1.3.4 Power at the respective power outlets is switched off.

#### 2. Type text and documents in English and Bangla.

##### 2.1 Install the Typing Tutor software

- 2.1.1 Required **Hardware** and **software** are ready to use.
- 2.1.2 Typing tutor software are collected and selected
- 2.1.3 English Typing tutor software is installed.
- 2.1.4 Specialized Bangla Typing tutor software is installed.

##### 2.2 Practice text typing in English and Bangla

- 2.2.1 Typing tutor software is started.
- 2.2.2 English Home key drilling are practiced systematically
- 2.2.3 Intermediate level typing speed(25 cps) are achieved.
- 2.2.4 Specialized Bangla Typing tutor / software are installed.
- 2.2.5 Bangla Home key typing are practiced systematically
- 2.2.6 Text documents are typed repeatedly for increasing typing speed.

##### 2.3 Type documents

- 2.3.1 **Word processor** is started.
- 2.3.2 Text document are typed.
- 2.3.3 Intermediate level typing speed (30 cps) in English and ( 20 cps) in Bangla are achieved.

#### 3. Operate Word Processing Application

##### 3.1 Create documents:

- 3.1.1 Word-processing application are opened.
- 3.1.2 **Documents** are created.

- 3.1.3 Data are added according to information requirements.
- 3.1.4 Document templates Used as required.
- 3.1.5 Formatting tools are used when creating the document.
- 3.1.6 Documents are Saved to directory.

### **3.2 Customize basic settings to meet page layout conventions:**

- 3.2.1 Adjust page layout to meet information requirements
- 3.2.2 Open and view different toolbars
- 3.2.3 Change **font format** to suit the purpose of the document
- 3.2.4 Change alignment and line spacing according to document information requirements
- 3.2.5 Modify margins to suit the purpose of the document
- 3.2.6 Open and switch between several documents

### **3.3 Format documents**

- 3.3.1 Use formatting features and styles as required.
- 3.3.2 Highlight and copy text from another area in the document or from another active document
- 3.3.3 Insert headers and footers to incorporate necessary data
- 3.3.4 Save document in another **file format**
- 3.3.5 Save and close document to **a storage device.**

### **3.4 Create tables:**

- 3.4.1 Insert standard table into document
- 3.4.2 Change cells to meet information requirements
- 3.4.3 Insert and delete columns and rows as necessary
- 3.4.4 Use formatting tools according to style requirements

### **3.5 Add images:**

- 3.5.1 Insert appropriate **images** into document and customize as necessary
- 3.5.2 Position and resize images to meet document formatting needs

### **3.6 Print information and Shutdown computer:**

- 3.6.1 *Printer* is connected with computer and power outlet properly.
- 3.6.2 Power is switched on at both the power outlet and printer.
- 3.6.3 Printer is installed and added.
- 3.6.4 Correct printer settings are selected and document is printed.
- 3.6.5 Print from the printer spool is viewed or cancelled and
- 3.6.6 Unsaved data is saved as per requirements.
- 3.6.7 Open software is closed and computer hardware devices are shut downed.
- 3.6.8 Power at the respective power outlets is switched off.

## **4. Operate Spreadsheet application**

### **4.1 Create spreadsheets**

- 4.1.1 Open spreadsheet application,
- 4.1.2 create spreadsheet files and enter numbers, text and symbols into cells according to information requirements
- 4.1.3 Enter **simple formulas and functions** using cell referencing where required
- 4.1.4 Correct formulas when error messages occur
- 4.1.5 Use a range of common tools during spreadsheet development
- 4.1.6 Edit columns and rows within the spreadsheet
- 4.1.7 Use the auto-fill function to increment data where required
- 4.1.8 Save spreadsheet to directory or folder

### **4.2 Customize basic settings:**

- 4.2.1 Adjust page layout to meet user requirements or special needs
- 4.2.2 Open and view different toolbars
- 4.2.3 Change font settings so that they are appropriate for the purpose of the document
- 4.2.4 Change **alignment** options and line spacing according to spreadsheet **formatting features**
- 4.2.5 **Format** cell to display different styles as required
- 4.2.6 Modify margin sizes to suit the purpose of the spreadsheets
- 4.2.7 View multiple spreadsheets concurrently

#### **4.3 Format spreadsheet:**

- 4.3.1 Use formatting features as required
- 4.3.2 Copy selected formatting features from another cell in the spreadsheet or from another active spreadsheet
- 4.3.3 Use **formatting tools** as required within the spreadsheet
- 4.3.4 Align information in a selected cell as required
- 4.3.5 Insert headers and footers using formatting features
- 4.3.6 Save spreadsheet in another format
- 4.3.7 Save and close spreadsheet to **storage device**

#### **4.4 Incorporate object and chart in spreadsheet:**

- 4.4.1 Import an object into an active spreadsheet
- 4.4.2 Manipulate imported **object** by using formatting features
- 4.4.3 Create a chart using selected data in the spreadsheet
- 4.4.4 Display selected data in a different chart
- 4.4.5 Modify chart using formatting features

#### **4.5 Create worksheets and charts**

- 4.5.1 Worksheets are created as per requirement
- 4.5.2 Data are *entered*
- 4.5.3 **Functions** are used for calculating and editing logical operation
- 4.5.4 **Sheets** are formatted as per requirement.
- 4.5.5 **Charts** are created.
- 4.5.6 Charts/ Sheets are previewed.

#### **4.6 Print spreadsheet:**

- 4.6.1 Preview spreadsheet in print preview mode
- 4.6.2 Select basic printer options
- 4.6.3 Print spreadsheet or selected part of spreadsheet
- 4.6.4 Submit the spreadsheet to **appropriate person** for approval or feedback

### **5. Operate Presentation Package:**

#### **5.1 Create presentations:**

- 5.1.1 Open a presentation package application and create a simple design for a presentation according to organizational requirements
- 5.1.2 Open a blank presentation and add text and graphics
- 5.1.3 Apply existing styles within a presentation
- 5.1.4 Use presentation template and slides to create a presentation
- 5.1.5 Use various **illustrations** and **effects** in presentation
- 5.1.6 Save presentation to correct directory

#### **5.2 Customize basic settings:**

- 5.2.1 Adjust display to meet user requirements
- 5.2.2 Open and view different **toolbars** to view options
- 5.2.3 Ensure **font settings** are appropriate for the purpose of the presentation
- 5.2.4 View multiple slides at once

#### **5.3 Format presentation:**

- 5.3.1 Use and incorporate organizational charts, bulleted lists and modify as required
- 5.3.2 Add **objects** and manipulate to meet presentation purposes
- 5.3.3 Import **objects** and modify for presentation purposes
- 5.3.4 Modify slide layout, including text and colors to meet presentation requirements
- 5.3.5 Use **formatting tools** as required within the presentation
- 5.3.6 Duplicate slides within and/or across a presentation
- 5.3.7 Reorder the sequence of slides and/or delete slides for presentation purposes
- 5.3.8 Save presentation in another **format**
- 5.3.9 Save and close presentation to disk

#### **5.4 Add slide show effects:**

- 5.4.1 Incorporate preset animation and multimedia effects into presentation as required to enhance the presentation

- 5.4.2 Add slide transition effects to presentation to ensure smooth progression through the presentation
- 5.4.3 Test presentation for overall impact
- 5.4.4 Use onscreen navigation tools to start and stop slide show or move between different slides as required

**5.5 Print presentation and notes:**

- 5.5.1 Select appropriate print format for presentation
- 5.5.2 Select preferred slide orientation
- 5.5.3 Add notes and slide numbers
- 5.5.4 Preview slides and spell check before presentation
- 5.5.5 Print the selected slides and submit presentation to appropriate person for feedback

**6. Access Information using Internet and electronic mail**

6.1 Access resources from internet

- 6.1.1 Appropriate internet **browsers** are selected and installed
- 6.1.2 Internet browser is opened and web address / URL is written/selected in /from address bar to access **information**.
- 6.1.3 **Search engines** are used to access information
- 6.1.4 Video / Information are Shared /downloaded / uploaded from / to web site/**social media**.
- 6.1.5 **Web based resources** are used.
- 6.1.6 Netiquette' (or web etiquette) principles are searched and followed

**6.2 Use and manage Electronic mail**

- 6.2.1 **Email services** are identified and selected to create a new email address
- 6.2.2 Email account is created
- 6.2.3 Document is prepared, attached and sent to different types of recipient.
- 6.2.4 Email is read, forwarded, replied and deleted as per requirement.
- 6.2.5 Custom email folders are created and **manipulated**
- 6.2.6 Email message is printed