

## LESSON PLAN

Program Name	DIPLOMA IN Civil Engineering
Course/Subject Name	Mathematics-I
Course/Subject Code	BS 101
Course/Subject Coordinator Name	Dr. Reena Kumari

### Evaluation scheme

S.No.	Subject Name	Study scheme (Hrs/Week)	Marks in evaluation scheme			
			Internal Assessment		External Assessment	
			Theory	Practical	Theory	Practical
1.	Mathematics-I	3(Th)+2(DCS)	40	-	60	-
Reference books:			(1) B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, New Delhi, 40th Edition, 2007.			
			(2) G. B. Thomas, R.L. Finney, Calculus and Analytic Geometry, Addison Wesley, 9th Edition, 1995.			
			(3) Reena Garg, Engineering Mathematics, Khanna Publishing House, New Delhi (Revised Ed. 2018)			
			(4) V. Sundaram, R. Balasubramanian, K.A. Lakshminarayanan, Engineering Mathematics, 6/e., Vikas Publishing House			
			(5) Reena Garg & Chandrika Prasad Advanced Engineering Mathematics, Khanna Publishing House, New Delhi.			
			(6) Satish Kumar Sharma, Mathematics-I, Eagle Prakashan, 2023			

**Course Outcomes:** After the completion of the course, the students will be able to learn:

CO1	Acquire necessary background in Trigonometry to appreciate the importance of the geometric study as well as for the calculation and the mathematical analysis.
CO2	The ability to find the effects of changing conditions on a system.
CO3	Complex numbers enter into studies of physical phenomena in ways that most people cannot imagine.
CO4	The partial fraction decomposition lies in the fact that it provides an algorithm for computing the anti derivative of a rational function.

## Teaching Plan:

Lecture No.	Name of topic	Proposed date	Actual date	Remarks
1	Trigonometry : Concept of angles	12/08/2024		
2	Concept of angles	13/08/2024		
3	Measurement of angles in degrees, grades and radians and their conversions	14/08/2024		
4	Measurement of angles in degrees, grades and radians and their conversions	16/08/2024		
5	Measurement of angles in degrees, grades and radians and their conversions	17/08/2024		
6	T-Ratios of Allied angles	20/08/2024		
7	T-Ratios of Allied angles	21/08/2024		
8	Sum, difference formulae and their applications	23/08/2024		
9	Sum, difference formulae and their applications	24/08/2024		
10	Sum, difference formulae and their applications	27/08/2024		
11	Product formulae (Transformation of product to sum, difference and vice versa)	28/08/2024		
12	Product formulae (Transformation of product to sum, difference and vice versa)	30/08/2024		
13	Product formulae (Transformation of product to sum, difference and vice versa)	31/08/2024		
14	T- Ratios of multiple angles, sub-multiple angles (2A, 3A, A/2)	02/09/2024		
15	T- Ratios of multiple angles, sub-multiple angles (2A, 3A, A/2)	03/09/2024		
16	Graph of sin x	04/09/2024		
17	Graph of cos x	06/09/2024		
18	<b>Differential Calculus:</b> Definition of function	07/09/2024		
19	Definition of function	09/09/2024		
20	Concept of limits	10/09/2024		
21	Concept of limits	11/09/2024		
22	Concept of limits	13/09/2024		
23	Four standard limits, $\frac{x^n - a^n}{x - a}$ , $\frac{\sin x}{x}$ , $(1 + x)^{\frac{1}{x}}$ , $\frac{a^x - 1}{x}$	16/09/2024		
24	Four standard limits, $\frac{x^n - a^n}{x - a}$ , $\frac{\sin x}{x}$ , $(1 + x)^{\frac{1}{x}}$ , $\frac{a^x - 1}{x}$	17/09/2024		
25	Differentiation by definition of sinx, cosx, tanx	18/09/2024		
26	Differentiation by definition of $x^n$ , $e^x$	20/09/2024		
27	Differentiation formulae	21/09/2024		
28	Differentiation of sum and difference of functions	23/09/2024		
29	Differentiation of sum and difference of functions	24/09/2024		



30	Differentiation of product and quotient of functions	25/09/2024		
31	Differentiation of product and quotient of functions	27/09/2024		
32	Differentiation of function of a function	28/09/2024		
33	Differentiation of function of a function	30/09/2024		
34	Differentiation of trigonometric and inverse trigonometric functions	01/10/2024		
35	Differentiation of trigonometric and inverse trigonometric functions	04/10/2024		
36	Differentiation of trigonometric and inverse trigonometric functions	05/10/2024		
37	Logarithmic differentiation	07/10/2024		
38	Logarithmic differentiation	08/10/2024		
39	<b>Complex Numbers:</b> Definition, real and imaginary parts of a complex number, conjugate of a complex number	09/10/2024		
40	Addition and Subtraction of complex numbers	11/10/2024		
41	Multiplication and Division of complex numbers	14/10/2024		
42	Multiplication and Division of complex numbers	15/10/2024		
43	Multiplication and Division of complex numbers	16/10/2024		
44	Modulus and amplitude of a complex number	18/10/2024		
45	Polar and Cartesian, representation of a complex number and its conversion from one form to other	19/10/2024		
46	Polar and Cartesian, representation of a complex number and its conversion from one form to other	21/10/2024		
47	De-moivre's theorem, its application	22/10/2024		
48	<b>Partial fractions:</b> Definition of polynomial fraction proper & improper fractions and definition of partial fractions	25/10/2024		
49	To resolve proper fraction into partial fraction with denominator containing non-repeated linear factors	26/10/2024		
50	To resolve proper fraction into partial fraction with denominator containing repeated linear factors	04/11/2024		
51	To resolve proper fraction into partial fraction with denominator containing repeated and non repeated linear factors	05/11/2024		
52	<b>Permutations and Combinations:</b> Value of $P(n,r)$ and $C(n,r)$	06/11/2024		
53	Value of $P(n,r)$ and $C(n,r)$	08/11/2024		
54	<b>Binomial theorem:</b> Binomial theorem for positive integral index (expansion and general form)	16/11/2024		
55	Binomial theorem for positive integral index (general form)	18/11/2024		
56	Binomial theorem for positive integral index (general form)	19/11/2024		
57	Binomial theorem for any index	20/11/2024		
58	Binomial theorem for any index	22/11/2024		
59	First and second binomial approximation with applications to engineering problems	23/11/2024		
60	First and second binomial approximation with applications to engineering problems	25/11/2024		
61	DCS on the topic covered in previous classes	26/11/2024		

62	DCS on the topic covered in previous classes	27/11/2024		
63	DCS on the topic covered in previous classes	29/11/2024		
64	DCS on the topic covered in previous classes	30/11/2024		
65	DCS on the topic covered in previous classes	02/12/2024		

### Assignments:

Assignment serial	Contents of syllabus covered	Proposed week/date	Actual date	Remarks
A-1	Trigonometry & Differential Calculus	3rd week of Sept. 2024		
A-2	Differential Calculus & Algebra	1st week of Nov. 2024		

### House Test/Class Test:

House/Class Test	Contents of syllabus covered	Proposed week/date	Actual date	Remarks
CT-I	30% of the syllabus	2 <sup>nd</sup> week of Sept. 2024		
CT-II	Next 30% of the syllabus	3 <sup>th</sup> week of Oct. 2024		
House Test	80% of the syllabus	2 <sup>nd</sup> week of Nov. 2024		

Signature of Teacher

Dr. Reena Kumari

Signature of HOD



## LESSON PLAN

Program Name	CIVIL ENGG
Course/Subject Name	Applied Physics-I
Course/Subject Code	BS-103 & BS-106
Course/Subject Coordinator Name	Manoj Kumar

### Evaluation scheme

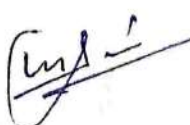
S.No.	Subject Name	Study scheme (Hrs/Week)	Marks in evaluation scheme			
			Internal Assessment		External Assessment	
			Theory	Practical	Theory	Practical
1.	Applied physics-I & Applied Physics-I lab	TH [3+1(DCS) + 2 (Lab)	40	40	60	60
Reference books			(i) Text Book of Physics for Class XI& XII (Part-I, Part-II); N.C.E.R.T., Delhi			
			(ii) Concepts in Physics by HC Verma, Vol. I & II, Bharti Bhawan Ltd. New Delhi			
			(iii) Applied Physics, Vol. I and Vol. II, TTTI Publications, Tata McGraw Hill, Delhi			
			(iv) Engineering Physics by DK Bhattacharya & Poonam Tandan; Oxford University Press, New Delhi			
			(v) Textbook of Applied Physics-I by Amit Pathak, Manoj Kumar Saini & Dr. Raj Kumar Jagota, True-Edu Publication			
			(vi) Practical Physics by C. L. Arora, S. Chand Publication.			

**Course Outcomes:** After the completion of the course the student will be able to

CO1	Understand the importance of applied physics in describing physical phenomena.
CO2	Employ the knowledge of units and dimensions for various types of measurements.
CO3	Understand the importance of various types of errors while doing measurements.
CO4	Understand the basic forces present in the nature and their effects in daily life.
CO5	Understand energy, work, power and their importance.
CO6	Understand the basic phenomena like elasticity, surface tension, pressure etc.
CO7	Differentiate between heat and temperature and their measurements.

### Teaching Plan:

Lecture No.	Name of topic	Proposed date	Actual date	Remarks
1	Unit-1 Physical world, Units & Dimensions: Physical quantities - fundamental and derived,	12/08/2024		
2	Units & systems of units (FPS, CGS and SI units)	13/08/2024		
3-4	Dimensions and dimensional formulae of physical quantities	16/08/2024 19/08/2024		
5	Principle of homogeneity of dimensions	20/08/2024		
6	Dimensional equations and their applications, conversion from one system of units to other,	22/08/2024		
7	checking of dimensional equations and derivation of simple equations)	23/08/2024		
8	Limitations of dimensional analysis	27/08/2024		





9	Error in measurement (systematic & random), absolute error, relative error, error estimation and significant figures	29/08/2024		
10	<b>Unit-2 Force &amp; motion:</b> Scalar and vector quantities – examples, representation of vector, types of vectors	30/08/2024		
11-12	Addition and Subtraction of Vectors, Triangle and Parallelogram law (Statement only),	02/09/2024 03/09/2024		
13	Scalar and Vector Product.	05/09/2024		
14	Resolution of Vectors and its application to inclined plane (Rectangular components) and lawn roller	06/09/2024		
15-16	Force, Momentum, Statement and Derivation of Conservation of linear momentum, its applications such as recoil of gun & rocket	09/09/2024 10/09/2024		
17	Impulse and its Applications	12/09/2024		
18	Circular motion, definition of angular displacement, angular velocity, angular acceleration, frequency, time period	13/09/2024		
19	Relation between linear and angular velocity, linear acceleration and angular acceleration (related numerical)	16/09/2024		
20	Centripetal and centrifugal forces with live examples such as banking of roads and bending of cyclist	17/09/2024		
21	<b>Unit-3 Work, Power &amp; Energy</b> Work: Concept and units, examples of zero work, positive work and negative work	19/09/2024		
22	Friction: concept, types, laws of limiting friction, Coefficient of friction, methods for reducing friction and its Engineering Applications	20/09/2024		
23	Work done in moving an object on horizontal and inclined plane for rough and plane surfaces and related applications	23/09/2024		
24	Energy and its units: Kinetic energy and gravitational potential energy with examples and their derivation	24/09/2024		
25-26	Mechanical energy, conservation of mechanical energy for freely falling bodies, transformation of energy(examples )	26/09/2024 27/09/2024		
27	Power and its units, power and work relationship, calculation of power (numerical problems)	30/09/2024		
28	<b>Unit-4 Rotational motion</b> Translational and rotational motions with examples	01/10/2024		
29	Definition of torque and angular momentum and their examples	03/10/2024		
30	Conservation of angular momentum (quantitative) and its applications	04/10/2024		
31	Moment of inertia and its physical significance, radius of gyration for rigid body,	07/10/2024		
32	Theorems of parallel and perpendicular axes (statements only), Moment of inertia of rod, disc , ring and sphere(hollow and solid) : (Formulae only )	08/10/2024		
33	<b>Unit-5 Properties of matter</b> Elasticity: definition of stress and strain, different types of moduli of elasticity,	10/10/2024		
34	Hooke's law, significance of stress strain curve	11/10/2024		
35	Pressure: definition, units, atmospheric pressure, gauge pressure, absolute pressure, Fortin's barometer and its applications	14/10/2024		
36	Surface tension: concept, units , cohesive and adhesive forces, angle of contact	15/10/2024		
37	Ascent Formula (No derivation), applications of surface tension,	18/10/2024		
38	effect of temperature and impurity on surface tension	21/10/2024		



39	<b>Unit-6 Thermometry: Concept of heat and temperature</b>	22/10/2024		
40	Modes of transfer of heat (Conduction, convection and radiation with examples)	24/10/2024		
41	scales of temperature and their relationship	25/10/2024		
42-43	Types of Thermometer (Mercury Thermometer, Bimetallic Thermometer)	11/11/2024 12/11/2024		
44	Platinum resistance thermometer and pyrometer and their uses	14/11/2024		
45-46	Expansion of solids, liquids and gases, coefficient of linear, surface and cubical expansions and relation amongst them,	18/11/2024 19/11/2024		
47	Co-efficient of thermal conductivity	21/11/2024		

#### Assignments:

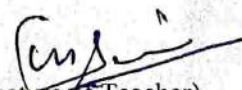
Assignment serial	Contents of syllabus covered	Proposed date	Actual date	Remarks
A-1	Physical world, Units & dimensions ,force and motion	02/09/2024		
A-2	Work, power, Energy and rotational motion	10/10/2024		
A-3	Properties of matter and thermometry	14/11/2024		


#### House Test/Class Test:

House/Class Test	Contents of syllabus covered	Proposed date	Actual date	Remarks
CT-I	30% of the syllabus	2 <sup>nd</sup> week of September		
CT-II	Next 30% of the syllabus	3 <sup>rd</sup> week of October		
House Test	80% of the syllabus	2 <sup>nd</sup> week of November		

#### Lab Plan:

Exp. No.	Name of experiment	Actual date		Remarks
		G-1	G-2	
1	To measure length, radius of a given cylinder, a test tube and a beaker using a Vernier Caliper and find volume of each object.			
2	To Determine diameter of wire, a solid ball and thickness of a cardboard using a screw gauge.			
3	To determine radius of curvature of a convex and concave mirror/surface using a spherometer.			
4	To verify triangle and parallelogram law of forces.			
5	To determine force constant of spring using Hooke's law			
6	To verify law of conservation of Mechanical energy (PE to KE).			
7	To find the Moment of Inertia of a flywheel.			
8	To measure room temperature and temperature of a hot bath using mercury thermometer and convert it into different scales.			

  
(Signature of Teacher)

  
(Signature of HOD)



## LESSON PLAN

ProgramName	Diploma (Civil.Engg.)
Course/SubjectName	Applied Chemistry
Course/SubjectCode	BS105(Th)& BS109 Applied Chemistry Lab
Course/SubjectCoordinatorName	Ms.Swati Bhardwaj

### Evaluation scheme

S.No	Subject Name	Study Scheme (Hrs/Week)	Marks in evaluation scheme			
			Internal Assessment		External Assessment	
			Theory	Practical	Theory	Practical
1.	Applied Chemistry +Applied Chemistry Lab	3(Th)+1(DCS) +2(Pr)	40	40	60	60
<b>Reference books</b>			1. Dr.Vairam, S.,Engineering Chemistry,Wiley India Pvt.Ltd.,New Delhi, 2013			
			2. Eagle's Applied Chemistry By S C Ahuja Edited by Dr Vibha Sharma and Aman Saini			
			3. TextBook Of Chemistry forClass XI & XII(Part-I,Part-II);NCERT.,Delhi,2017-18			
			4. Dr.G.Hugar & Prof. A.N.Pathak Applied Chemistry Laboratory Practices, NITTTR			
			5. Agnihotri, Rajesh, Chemistry for EngineersWiley India Pvt.Ltd.,2014			

**Course Outcomes:** After the completion of the course the student will be able to

CO1	Understand the classification and general properties of engineering materials such as metals, alloys and refractory using knowledge of chemical bonding.
CO2	Understand and assess the suitability of water source for domestic and industrial application, effluent and minimize water pollution.
CO3	Understand how to analyze engineering materials, their properties and applications.
CO4	Understand the use of fuel and lubricants suitable for economical industrial processing eco-friendly products
CO5	Understand construction and mechanism efficiency of electrochemical cells.
CO6	Understand the corrosion and develop prevention techniques.



## Teaching Plan:

Lect. No.	Name of topic	Proposed Date	Actual Date	Remarks
1	<b>Unit-1. Atomic Structure:</b> Fundamental particles (electron, proton, neutron), Bohr's theory (Postulates).	12-08-2024		
2	Bohr's theory( successes & limitations), Hydrogen spectrum.	13-08-2024		
3	Heisenberg uncertainty principle, Orbital concept, difference between orbit and orbital	14-08-2024		
4	Shapes of s, p orbitals & DCS.	20-08-2024		
5	Quantum numbers.	21-08-2024		
6	Pauli's exclusion principle, Hund's rule of maximum multiplicity, Aufbau rule.	22-08-2024		
7	Electronic configuration(Z=1 to 30).	27-08-2024		
8	<b>Unit-2. Chemical Bonding and Solutions:</b> Concept of chemical bonding – cause of chemical bonding, types of bonds: ionic bonding (NaCl example) , Lewis concept of covalent bond (H <sub>2</sub> , F <sub>2</sub> , HF). Electronegativity & DCS.	28-08-2024		
9	Difference between sigma and pie bond.	29-08-2024		
10	Electron sea model of metallic bond. Idea of solute, solvent and solution.	02-09-2024		
11	Methods to express concentration of solution: Molarity, molality, mass percentage.	03-09-2024		
12	<b>Unit-3 Electrochemistry and Corrosion:</b> Faraday's laws of electrolysis & DCS.	04-09-2024		
13	Simple numerical problems on Faraday's laws of electrolysis.	09-09-2024		
14	CLASS TEST - I	10-09-2024		
15	Industrial application of Electrolysis – • Electrometallurgy	11-09-2024		
16	• Electroplating & DCS.	12-09-2024		
17	• Electrolytic refining.	16-09-2024		
18	Primary Application of redox reactions in electrochemical cells – dry cell.	17-09-2024		
19	Secondary cell - commercially used lead acid storage battery.	18-09-2024		
20	Introduction to Corrosion of metals – definition, types of corrosion (electrochemical) & DCS.	18-09-2024		
21	H <sub>2</sub> liberation and O <sub>2</sub> absorption mechanism of electrochemical corrosion	19-09-2024		



22	Internal corrosion preventive measures – Purification, alloying and heat treatment.	23-09-2024		
23	External corrosion preventive measures: metal anodic coating.	24-09-2024		
24	Cathodic coating & DCS.	25-09-2024		
25	<b>Unit-4 Engineering Materials:</b> Natural occurrence of metals – minerals, ores of iron, aluminum and copper, gangue (matrix), flux, slag.	26-09-2024		
26	metallurgy – brief account of general principles of metallurgy(a).Crushing and grinding (b) Concentration of ore (Levigation).	30-10-2024		
27	Froth flotation process.	01-10-2024		
28	Magnetic separation process & DCS.	01-10-2024		
29	(c) Extraction( Roasting and calcinations & smelting).	03-10-2024		
30	(d) Refining (Electrorefining, zone refining).	07-10-2024		
31	Extraction of - iron from haematite ore using a blast furnace along with reactions.	08-10-2024		
32	Alloys – definition, purposes of alloying & DCS.	09-10-2024		
33	Ferrous alloys (Invar steel), Non-ferrous alloys (Simple Brass & Bronzes) with properties and applications,	10-10-2024		
34	Nichrome, Duralumin, Magnesium with properties and applications.	14-10-2024		
35	<b>Unit-5 Water:</b> Classification of soft and hard water based on soap test, salts causing water hardness, Cause of poor lathering of soap in hard water	15-10-2024		
36	units of hardness(mg/L and ppm), simple numerical on water hardness & DCS.	16-10-2024		
37	Problems caused by the use of hard water in boilers (scale and sludge, foaming and priming, corrosion.)	21-10-2024		
38	water softening techniques- i) zeolite process	22-10-2024		
39	<b>CLASS TEST - II</b>	22-10-2024		
40	ii). Municipal water treatment (in brief only) – sedimentation, coagulation,filtration, sterilization & DCS.	23-10-2024		
41	Properties of water used for human consumption for drinking and cooking purposes from any water sources and Indian standard specification of drinking water	24-10-2024		
42	<b>Unit-6 Fuels:</b> Definition of fuel and combustion of fuel, classification of fuels	11-11-2024		
43	Characteristics of good fuel, Calorific values (HCV and LCV)	12-11-2024		



44	Calculation of HCV and LCV using Dulong's formula & DCS.	13-11-2024		
45	Petrol and diesel - fuel rating (octane and cetane numbers), Chemical composition	14-11-2024		
46	Calorific values and applications of LPG, CNG, water gas,	18-11-2024		
47	Calorific values and applications of producer gas and biogas.	19-11-2024		
48	<b>Unit-7 Lubrication:</b> Function and characteristic properties of good lubricant & DCS.	19-11-2024		
49	Classification of lubricants with examples	20-11-2024		
50	Hydrodynamic and Boundary lubrication	20-11-2024		
51	Physical properties (viscosity and viscosity index, oiliness, flash and fire point, cloud and pour point & DCS.	25-11-2024		
52	Chemical properties (coke number, total acid no. saponification value) of lubricants & DCS.	26-11-2024		
53	<b>Unit-8 Polymer :</b> Monomer, Polymers, homo and copolymers , degree of polymerization,	26-11-2024		
54	simple reactions of preparation thermoplastics (Polythene, PVC, PS, PTFE).	27-11-2024		
55	Thermosetting plastics (nylon-6,6 and Bakelite)	28-11-2024		
56	Vulcanization of rubber and properties of vulcanised rubber & DCS.	02-12-2024		

**Note:** Doubt-clearing sessions are scheduled according to the syllabus to provide maximum benefit to students. Once the doubts have been addressed, the syllabus coverage follows (may in the same or next lecture).

### Assignments:

Assign	Contents of syllabus covered	Proposed Date	Actual Date	Remarks
A-1	Atomic Structure, Chemical Bonding and Solutions, Electrochemistry and Corrosion	18-09-2024		
A-2	Engineering Materials, Water, Fuels OR Lubrication, Polymers	20-11-2024		

### House Test/Class Test:

House/Class Test	Contents of syllabus covered	Proposed Date slot	Actual Date	Remarks
CT-I	30% of the syllabus	10-09-2024		
CT-II	Next 30% of the syllabus	22-10-2024		
House Test	80% of the syllabus	2 <sup>nd</sup> week of November , 2024		

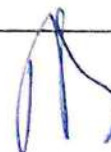


Exp. No.	Name of experiment	Proposed Date (G-1&G-2)	Actual Date (G-1&G-2)	Remarks
1	Preparation of standard solution of oxalic acid.	16-08-2024 & 14-08-2024		
2	To determine strength of solution by titrating against standard oxalic acid solution using phenolphthalein as indicator.	23-08-2024 & 21-08-2024		
3	Experimental verification of Faraday's first law of electrolysis using copper sulfate solution and copper electrode. OR To construct and measure emf of ElectroChemical Cell(Daniel cell)	30-08-2024 & 04-09-2024		
4	Iodometric estimation of Copper in the given Copper ore using standard Hypo solution. OR To determine the percentage of Iron present in the given Haematite ore by standard Potassium Permanganate solution.	13-09-2024 & 11-09-2024		
5	Estimation of total hardness of water using standard EDTA solution and using eriochrome black-T (solochrome black-T) indicator and approximately neutral buffer solution (pH range 7-11). OR To estimate total alkalinity of a given water sample by titrating it against standard Sulphuric acid.	20-09-2024 & 25-09-2024		
6	To estimate moisture in a given coal sample gravimetrically.	27-09-2024 & 16-10-2024		
7	To estimate ash in a given coal sample gravimetrically.	18-10-2024 & 23-10-2024		
8	To determine viscosity of given lubricating oil by Redwood viscometer.	08-11-2024 & 20-11-2024		



Signature of Teacher

(Swati Bhardwaj)



HOD(AS&H)



## LESSON PLAN

Program Name	DIPLOMA IN CIVIL ENGG.
Course/Subject Name	Communication Skills In English
Course/Subject Code	HS 101
Course/Subject Coordinator Name	Renu Patial

### Evaluation scheme

S. No.	Subject Name	Study scheme (Hrs/Week)	Marks in evaluation scheme			
			Internal Assessment		External Assessment	
			Theory	Practical	Theory	Practical
1.	Communication Skills in English	2(Th)+1(DCS)+2(Pr.)	40	40	60	60
Reference books:			(1) The Functional Aspects of Communication Skills			
			(2) H. G Publications English Grammar			
			(3) English & Comm. Skills-I & II by Eagle Publications			
			(4) General English By Lucent			

**Course Outcomes:** After the completion of the course the students will:

CO1	Develop basic speaking and writing skills including proper usage of language and vocabulary so that they can become highly confident and skilled speakers and writers.
CO2	Be informed of the latest trends in basic verbal activities such as presentation facing interviews and other forms of communication.
CO3	Also Develop Skill of group presentation and communication in team.
CO4	Develop Non-Verbal Communication such as proper use of body language and gesture.

### Teaching Plan:

Lecture No.	Name of topic	Proposed Date	Actual date	Remarks
1	Unit-1 Communication: Theory and Practice Introduction	12/08/24		
2	Basics of communication, Introduction meaning and definition, process of communication etc.	13/08/24		
3	Types of Communication: Formal & Informal, Verbal, Non-Verbal and written Barriers to effective communication.	14,19,20/08/24		
4	7Cs for effective communication( Consideration, concrete, concise, clear, complete, correct, courteous)	21/08/24		





5	Art of effective communication, ( Choosing words, Voice,Modulation,Clarity, Time, Simplification of Words and Technical Communication.	27,28/08/24		
6	<b>Unit-2 Soft Skills For Professional Excellence:</b> Introduction: Soft Skills and Hard skills Importance of soft skills	02/09/24		
7	Life Skills,Self Awareness and self analysis, Adaptability, resilience, emotional intelligence and empathy etc.	03/09/24		
8	<b>Unit- 3 Reading Comprehension</b> <b>Section: Short Stories 1. The Gift Of Magi</b>	04/09/24		
9	The Gift Of Magi	09/09/24		
10	2.Uncle Podger Hangs a Picture	10/09/24		
11	Uncle Podger Hangs a Picture	11/09/24		
12	<b>Section :2 Poetry</b> 1.Night Of the Scorpion	16/09/24		
13	1.Night Of the Scorpion	17/09/24		
14	2.Stopping By Woods On A snowy Evening	18/09/24		
15	Stopping By Woods On A snowy Evening	23/09/24		
16	3. Where Mind Is without fear	24/09/24		
17	<b>Unit-4. Professional writing</b> The Art of précis writing	25/09/24		
18	The Art of precis Writing	30/10/24		
19	Letters: Business and Personal	01/10/24		
20	Letters: Business and Personal	07/10/24		
21	Letters: Business and Personal	08/10/24		
22	Drafting e-mail	09/10/24		
23	Drafting Notices	14/10/24		
24	Minutes Of Meeting	15/10/24		
25	Minutes Of Meeting	16/10/24		
26	<b>Unit -5 Vocabulary and Grammar</b> Glossary of administrative terms( Hindi and English)	21/10/24		
27	One-word substitution	22/10/24		
28	One-word substitution	23/10/24		
29	Idioms and phrases	28,29/10/24		
30	Idioms and phrases	30/10/24		
31	Parts of Speech	04/11/24		
32	Parts of Speech	05/11/24		
33	Parts of Speech	06/11/24		
34	Parts of Speech	11/11/24		
35	Tenses	12/11/24		
36	Tenses	13/11/24		
37	Active and Passive Voice	18/11/24		
38	Active and Passive voice	19/11/24		



39	Active and Passive Voice	20/11/24		
40	Active and Passive Voice	25/11/24		
41	Punctuation.	26,27/11/24		
42	Punctuation.	02/12/24		

### Assignments:

Assignment serial	Contents of syllabus covered	Actual date	Remarks
A-1	Communication and Soft Skills		
A-2	Reading Comprehension		

### House Test/Class Test:

House/Class Test	Contents of syllabus covered	Proposed Date	Actual date	Remarks
CT-I	30% of the syllabus			
CT-II	Next 30% of the syllabus			
House Test	80% of the syllabus			

### Lab Plan( 101 ):

Month	Name of Practical	Actual Date		Remarks
		G-A	G-B	
AUG	<b>Unit-1 listening Skills:</b> Listening process and practice, introduction to recorded lectures, poems, interviews and speeches, listening tests.			
SEP	<b>Unit-2 introduction to phonetics</b> 1. Sounds: Consonant, Vowel, Diphthongs etc. transcription of words(IPA) Syllable Division 2. Words , Stress, Intonation, Voice Modulation etc.			
OCT-NOV	<b>Unit-3 Speaking Skills</b> Standard and Formal speech Group Discussion Oral Presentation Public Speaking ,Business presentation etc. Conversation Practice Role playing Mock Interview			

Signature of Teacher

Signature of HOD



## LESSON PLAN

Program Name	DIPLOMA ( <i>Civil</i> Engg.)
Course/Subject Name	Introduction to IT Systems
Course/Subject Code	ES 102
Course/Subject Coordinator Name	Pooja Thakur

### Evaluation scheme

S.No.	Subject Name	Study Scheme Hours/week	Marks in evaluation scheme	
			Internal Assessment	External Assessment
1.	Introduction to IT Systems	2	40	60
Reference books			R.S. Salaria, Computer Fundamentals, Khanna Publishing House.	
			Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd.	
			Information Technology for Management by Henery Lucas, Tata McGraw Hills, New Delhi.	
			Computer Fundamentals Architecture and organization by B Ram, revised Edition, New Age International Publishers, New Delhi.	

### Course Outcomes:

After the completion of the course the students will be able to comfortably work on computers, install and configure operating systems, assemble a PC and connect it to various external devices, create documents, create worksheets, protect information and computers from basic abuses and attacks.

### Teaching Plan:

Lecture No.	Name of topic	Proposed Date	Actual date	Remarks
	<b>Unit-1 Basic of Computer Systems</b>			
1	Computer a brief introduction with the help of Block Diagram of Computer.	14/08/2024		
2	General understanding of hardware components : Input components.	17/08/2024		
3	General understanding of Output Components	21/08/2024		




4	General Understanding of Memory Components	24/08/2024		
5	Revision	28/08/2024		
	<b>Unit-2 Software Concepts</b>			
6	Software and its types.	31/08/2024		
7	Operating System and its types.	04/09/2024		
8	Functions of Operating System, Booting the system (Cold and warm).	07/09/2024		
9	Revision.	11/09/2024		
	<b>Unit-3 Internet Skills</b>			
10	Understanding the terminology of the internet, web browser.	18/09/2024		
11	Search Engine, word wide web.	21/09/2024		
12	Network and its types.	25/09/2024		
13	Awareness about the government portals i.e. national portals, state portals and institution portals.	28/09/2024		
14	Revision.	05/10/2024		
	<b>Unit-4 Working with MS-Word</b>			
15	Introduction to word processors, i.e. MS - Word	09/10/2024		
16	File management, creating a new document, saving a document.	16/10/2024		
17	Printing a document, Editing a document.	19/10/2024		
18	Use of Home, Insert, Design layout ribbons.	23/10/2024		
19	Revision.	26/10/2024		
20	Introduction to spreadsheets, i.e. MS- Excel.	30/10/2024		
	<b>Unit-5 Working with MS-Excel</b>			
21	Working with spreadsheets, worksheets.	02/11/2024		
22	Entering data into cells, merging and splitting of cells.	06/11/2024		
23	Usage of simple functions like sum average, min max, percentage.	13/11/2024		
24	Round, floor, ceiling, Conditional formatting.	16/11/2024		
25	Revision.	20/11/2024		
	<b>Unit-6 Information Security</b>			
26	Concept of online frauds.	23/11/2024		
27	Threats of online crime.	27/11/2024		
28	Virus attacks, Use of antivirus.	30/11/2024		




Assignment serial	Contents of syllabus covered	Proposed date	Actual date	Remarks
A-1	Unit 1 Basic of Computer System	31/08/2024		
A-2	Unit 2 Software concepts and Unit 3 Internet skills	28/09/2024		
A-3	Unit 4 Working with MS-Word and Unit 5 Working with MS-Excel.	02/11/2024		

### House Test/Class Test:

House/Class Test	Contents of syllabus covered	Proposed date	Actual date	Remarks
CT-I	30% of the syllabus	2 <sup>nd</sup> week of September 2024 (11/9/24)		
CT-II	Next 30% of the syllabus	3 <sup>rd</sup> week of October 2024 (16/10/24)		
House Test	80% of the syllabus	2 <sup>nd</sup> week of November 2024		

  
 (Signature of Teacher)  
 POOJA THAKUR

  
 (Signature of HOD)  
 Aman Saini



## LESSON PLAN

Program Name	DIPLOMA (Civil Engg.)
Course/Subject Name	Introduction to IT Systems Lab
Course/Subject Code	ES 108
Course/Subject Coordinator Name	Pooja Thakur

### Evaluation scheme

S.No.	Subject Name	Study Scheme Hours/week	Marks in evaluation scheme	
			Internal Assessment	External Assessment
1.	Introduction to IT Systems Lab	4	40	60
Reference books			R.S.Salaria, Computer Fundamentals, Khanna Publishing House.	
			Ramesh Bangia, PC Software Made Easy-The PC Course Kit, Khanna Publishing House/	
			IT Essentials PC Hardware and Software Companion Guide, Davis Anfinson and Ken Quamme, CISC Press Pearson Education.	
			PC Hardware and A+ Handbook, Kate J. Chase PHI (Microsoft)	

### Course Outcomes:


After the completion of the course the students will be able to comfortably work on computers, install and configure operating systems, assemble a PC and connect it to various external devices, create documents, create worksheets, prepare presentations, protect information and computers from basic abuses/attacks.

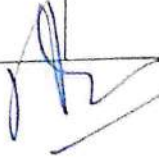
### Lab Plan:

Exp. No.	Name of experiment	Proposed date		Actual date		Remarks
		G-I	G-II	G-I	G-II	
1	To identify the various hardware components of a computer system.	14/08/2024 16/08/2024	13/08/2024 16/08/2024			
2	To assemble hardware components of Computer.	21/08/2024 23/08/2024	20/08/2024 23/08/2024			



3	To install Windows OS on a computer system.	28/08/2024 30/08/2024	27/08/2024 30/08/2024			
4	To study the various features offered on the desktop, creating new folders and new files on the desktop.	04/09/2024 06/09/2024 11/09/2024 13/09/2024	03/09/2024 06/09/2024 10/09/2024 13/09/2024			
5	To work on different web browsers (google chrome, internet explorer), setting up default homepage on browser and study the various settings available.	13/09/2024 18/09/2024 20/09/2024 25/09/2024	17/09/2024 20/09/2024 24/09/2024 27/09/2024			
6	To open search engines (google and yahoo) and search different information using the search engines. Creating an email Account.	27/09/2024 04/10/2024 09/10/2024	01/10/2024 04/10/2024 08/10/2024			
7	Visit various e-governance/digital India Portals and understand the services offered.	11/10/2024 16/10/2024 18/10/2024	11/10/2024 15/10/2024 18/10/2024			
8	Opening, creating and saving a document, locating files, copying contents in some different file(s), protecting files, giving password protection for a file, Setting margins, tab setting, ruler, indenting, Entering text, cut, copy, paste using tool-bars.	23/10/2024 25/10/2024 30/10/2024 01/11/2024	22/10/2024 25/10/2024 29/10/2024 01/11/2024			
9	Formatting a document, Creating and editing tables, mail-merge.	05/11/2024 08/11/2024 13/11/2024 15/11/2024	05/11/2024 08/11/2024 12/11/2024 15/11/2024			
11	Using formula and functions prepare worksheet for storing subject marks of ten students and perform the following: Calculate the student wise total and average. Calculate the subject wise total and average. Calculate the overall percentage and also individual percentage of the student. Create a chart for the above.	20/11/2024 22/11/2024 27/11/2024 29/11/2024	19/11/2024 22/11/2024 26/11/2024 29/11/2024			

  
(Signature of Teacher)

  
(Signature of HOD)  
(Aman Saini)



## LESSON PLAN

Branch	Civil Engg.
Course Title	Sports and Yoga
Course Code	HS103
Number Of Credits	1 (L : 0 , DCS : 0 , P :2)
Course Category	HS

### Evaluation Scheme

Sr No.	Subject Name	Study Scheme Hrs/Week	Marks Evaluation Scheme			
1	Sports and Yoga		Internal Assessment		External Assessment	
			Theory	Practical	Theory	Practical
		02 Hrs/week		40		60
2	Reference Books	Modern trends and physical Edu. By Prof. Ajmer singh				
		Light on Yoga By B.K.S. Iyenger.				
		Health and Physical Edu.- NCERT (11 th and 12 th Classes)				

**Course Outcome:** On successful completion of the course the students will be able to:

i	Practice physical activities and hatha yoga focusing on yoga for strength, flexibility, and relaxation.
ii	Learn techniques for increasing concentration and decreasing anxiety which leads to stronger academic performance.
iii	Learn breathing exercises and healthy fitness activities. Understand basic skills associated with yoga and physical activities including strength and flexibility, balance and coordination.
iv	Perform yoga movements in various combination and forms
v	Assess current personal fitness levels.
vi	Identify opportunities for participation in yoga and sports activities
vii	Develop understanding of health related fitness components cardiorespiratory endurance, flexibility and body composition etc.
viii	Improve personal fitness through participation in sports and yogic activities
ix	Develop understanding of psychological problems associated with the age and life style
x	Demonstrate and understanding of sound nutritional practices as related to health and physical performance
xi	Assess yoga activities in terms of fitness value
xii	Identify and apply injury prevention principals related to yoga and physical fitness activities.



## Lab Plan: Sports and Yoga( Civil Engg.)

No.	Name of Contents	Proposed date		Actual date		Remarks
		G-I	G-II	G-I	G-II	
1	<b>Introduction to Physical Education.</b> Meaning & definition of Physical Education. Aims & Objectives of physical Education. Changing trends in Physical Education	22/08/24	16/08/2024			
2	<b>Olympic Movement.</b> Ancient & Modern Olympics ( Summer & Winter). Olympic Symbols, Ideals, Objectives & Values. Awards and Honours in the field of sports in India (Dronacharya Award, Arjuna Award, Dhayanchand Award, Rajiv Gandhi Khel Ratna Award etc. )	29/08/24	23/08/2024			
3	<b>Physical Fitness, Wellness &amp; Lifestyle.</b> Meaning & Importance of physical Fitness & wellness. Components of Physical fitness. Components of Health related fitness. Components of wellness. Preventing health threats Though Lifestyle Change. Concept of positive Lifestyle.	05/09/24	30/8/2024			
4	<b>Fundamentals of Anatomy &amp; Physiology in physical Education, Sports and yoga.</b> Define anatomy, Physiology & Its importance. Effect of exercise on the fuctioning of various body system. (Circulatory system, Respi- ratory system. Neuro-Muscular system etc. )	12/09/24	06/09/2024			
5	<b>Kinesiology, Biomechanics &amp; sports.</b> Meaning & Importance of Kinesiology & Biomechancis in Physical Edu. & sports. Friction and its effects in sports.	19/09/24	13/09/2024			
6	<b>Postures.</b> Meaning and concept of Postures. Casuses of Bad Posture. Advantages & Disadvantages of weight training. Concept & advantages of correct Posture. Common Postural Deformities - Knock Knee; Flat Foot; Round Shoulders; Lordosis, ky- Phosis, Bow legs and Scoliosis. Corrective measures for Postural Deformities.	26/09/24	20/09/2024			
7	<b>Yoga.</b> Meaning & Importance of Yoga. Elements of Yoga. Introducation - Asanas, Pranayama, Meditation & Yogic Kriyas. Yoga for concentration & related Asanas (Sukhasana; Tadasana; Padmasana & Sha- Shankasana). Relaxation Techniques for improving concentration Yognidra.	03/10/24	27/09/24			
8	<b>Yoga &amp; Lifestyle.</b> Asanas as preventive measures. Hypetension: Tedasana, Vajrasana, Pravan Muktasana, Ardha Chakrasana, Bhujagasa a, sharasana. Obesity: Procedure, Benefits & contrai dications for Vajrasana, Hastasana, Trikonasana, Ardh matsyendrasana, Matsyendrasana. Back Pain: Tadasana, Ardh Matsyendrasana, Vakrasana shalabhasana, Bhujangasana.	10/10/24	04/10/2024			


*Signature*



Diabetes:	Procedure,				
Benefits & contraindications for Bhujangasana, Paschimottasana, Pawan Kuktasana, Ardh Matsyendrasana. Asthema: procedure, Benefits & Contraindications for suhkasana, Chakrasana, Gomukhasana, Parvatasana, Bhujangasana, Paschimottasana, Matsyasana.		24/10/24	11/10/2024		
Taining and Planning in Sports.	Meaning				
Of Training. Warming up and limbering down. Skill, Technique & style. Meaning and Objectives of Planning. Tournamet - Knock-Out, League/Round Robin & combination		07/11/24	01/11/2024		
Psychology & Sports. Definition & Importance of psychology in physical Edu. & sports. Define & Differentiate Between Growth & Development Adolescent Problems & Their Management. Emotion: Concept, Type & Controlling of emotions. Meaning, concept & types of Aggressions in sports. Psychological benefits fo exercise. Anxiety & Fear and its effects on Sports Performance. Motivation, its types & techniques. Understanding Stress & Coping Strategies.		21/11/24	08/11/2024		
Doping.	Meaning				
and Concept of Doping, Prohibited substance & methods. Side Effects of Prohibited Substances		21/11/24	15/11/2024		
Sports Medicine:	First				
Aid. - Defination, Aims & Objectives sports injuries: Classification, Causes & Prevention. Management of Injuries: Soft Tissue Injuries and Bone & Joint Injuries.		28/11/24	22/11/2024		
Sports / Games.	Following				
sub topics related to any one Game / Sport of choice of student out of: Athletics, Badminton, Basketball, Chess, Cricket, Kabaddi, Lawn Tennis, Swimming, Table Tennis, Volleyball, Yoga etc. History of the Game/Sport. Latest General Rules of the Game/Sport. Specification of Play fields and Related Sports Equipment. Important Taurnaments and Venues. Sports Personalities. Proper Sports Gear and its Importance.		28/11/24	21/11/2024		



Subject Teacher



HOD

App. Sci. Hum.



**DEPARTMENT OF APPLIED SCIENCES & HUMANITIES**

**LESSON PLAN**

Academic Year	2024-25
Semester	1 <sup>st</sup>
Course Code	ES101
Course Title	ENGINEERING GRAPHICS
Prerequisites	NIL
Course Category	ES
Name of Faculty	ER. Harnem singh
Semester Start & End Dates	12/8/24 to 02/12/24
Credits	1.5

**STUDY AND EVALUATION SCHEME**

Sr. No.	Name of the Subject	L	DCS	P	Internal Assessment			External Assessment					Total Marks
					Th	Pr	Total	Th	Hrs	Pr	Hrs	Total	
3.2	Engineering Graphics	-	1	3	-	40	40	60	3	-	-	60	100

**Subject Details:**

Day	Unit & Topic of Discussion	Topic Details	Delivery Method
Unit 1. Introduction to Engineering Drawing			
Day 1	Introduction	Drawing Instruments and supporting materials: method to use them with applications.	Chalk & Talk
Day 2	Types of lines	Convention of lines and their applications. Write alphabets and numerical in 7:4 scale (Vertical only)	Chalk & Talk



Day 3	Dimensioning techniques	as per SP-46:2003 – types and applications of chain, parallel and coordinate dimensioning.	Chalk & Talk
Day 4	Scales	Representative Fractions – reduced, enlarged and full size scales; Engineering Scales such as plain and diagonal scale	Chalk & Talk
Day 5		Representative Fractions – reduced, enlarged and full size scales; Engineering Scales such as plain and diagonal scale	Chalk & Talk
Day 6		Representative Fractions – reduced, enlarged and full size scales; Engineering Scales such as plain and diagonal scale	Chalk & Talk
Day 7		Representative Fractions – reduced, enlarged and full size scales; Engineering Scales such as plain and diagonal scale	Chalk & Talk
Day 8		Representative Fractions – reduced, enlarged and full size scales; Engineering Scales such as plain and diagonal scale	Chalk & Talk
<b>DAY 9 CLASS TEST- I (4<sup>th</sup> WEEK OF SEPTEMBER, 2023)</b>			
<b>Unit 2 : Orthographic projection (First Angle Projection)</b>			
Day 10	Orthographic projection (First Angle Projection)	Orthographic, perspective, isometric and oblique: concept and applications.	Chalk & Talk
Day 11		Orthographic, perspective, isometric and oblique: concept and applications.	Chalk & Talk
Day 12		Orthographic, perspective, isometric and oblique: concept and applications.	Chalk & Talk
Day 13		Orthographic, perspective, isometric and oblique: concept and applications.	Chalk & Talk
Day 14		Orthographic, perspective, isometric and oblique: concept and applications.	Chalk & Talk
Day 15		Orthographic, perspective, isometric and oblique: concept and applications.	Chalk & Talk



## CLASS TEST- II (4<sup>th</sup> WEEK OF OCTOBER, 2023)

### Unit 3 Isometric projection

Day 17	Isometric projection	Introduction to isometric projections. Isometric scale and Natural scale. Isometric view and isometric projection. Illustrative problems related to objects containing lines, circles and arcs shape only. Conversion of orthographic views into isometric view/projection.	Chalk & Talk
Day 18		Introduction to isometric projections. Isometric scale and Natural scale. Isometric view and isometric projection. Illustrative problems related to objects containing lines, circles and arcs shape only. Conversion of orthographic views into isometric view/projection.	Chalk & Talk
Day 19		Introduction to isometric projections. Isometric scale and Natural scale. Isometric view and isometric projection. Illustrative problems related to objects containing lines, circles and arcs shape only. Conversion of orthographic views into isometric view/projection.	Chalk & Talk
Day 20		Introduction to isometric projections. Isometric scale and Natural scale. Isometric view and isometric projection. Illustrative problems related to objects containing lines, circles and arcs shape only. Conversion of orthographic views into isometric view/projection.	Chalk & Talk
Day 21		Introduction to isometric projections. Isometric scale and Natural scale. Isometric view and isometric projection. Illustrative problems related to objects containing lines, circles and arcs shape only. Conversion of orthographic views into isometric view/projection.	Chalk & Talk

**DAY 22**

### HOUSE TEST (2<sup>nd</sup> WEEK OF NOVEMBER, 2023)


#### UNIT- 4 Free Hand Sketches of engineering elements

Day 23		Free hand sketches of machine elements: Thread profiles, nuts, bolts, studs, set screws, wash- er, Locking arrangements. Free hand sketches of orthographic view (on squared graph paper) and isometric view (on isometric grid paper).	Chalk & Talk
Day 24		Free hand sketches of machine elements: Thread profiles, nuts, bolts, studs, set screws, wash- er, Locking arrangements. Free hand sketches of orthographic view (on squared graph paper) and isometric view (on isometric grid paper).	Chalk & Talk

#### UNIT 5: Computer aided drafting interface

Day 25		Computer Aided Drafting: concept. Hardware and various CAD software available. System requirements and Understanding the interface.	Using CAD Software
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		Components of AutoCAD software window: Title bar, standard tool bar, menu bar, object properties tool bar, draw tool bar, modify tool bar, cursor cross hair. Command window, status bar, drawing area, UCS icon. File features: New file, Saving the file, opening an existing drawing file, Creating templates, Quit. Setting up new drawing: Units, Limits, Grid, Snap. Undoing and redoing action.	
Day 26		Computer Aided Drafting: concept. Hardware and various CAD software available. System requirements and Understanding the interface. Components of AutoCAD software window: Title bar, standard tool bar, menu bar, object properties tool bar, draw tool bar, modify tool bar, cursor cross hair. Command window, status bar, drawing area, UCS icon. File features: New file, Saving the file, opening an existing drawing file, Creating templates, Quit. Setting up new drawing: Units, Limits, Grid, Snap. Undoing and redoing action.	Using CAD Software
<b>UNIT 6: Computer aided drafting</b>			
Day 27		Draw basic entities like Line, Circle, Arc, Polygon, Ellipse, Rectangle, Multiline, Polyline. Method of Specifying points: Absolute coordinates, Relative Cartesian and Polar coordinates. Modify and edit commands like trim, extend, delete, copy, offset, array, block, layers. Dimensioning: Linear, Horizontal Vertical, Aligned, Rotated, Baseline, Continuous, Diameter, Radius, Angular Dimensions. Dim scale variable. Editing dimensions. Text: Single line Text, Multiline text.	Using CAD Software
Day 28		Draw basic entities like Line, Circle, Arc, Polygon, Ellipse, Rectangle, Multiline, Polyline. Method of Specifying points: Absolute coordinates, Relative Cartesian and Polar coordinates. Modify and edit commands like trim, extend, delete, copy, offset, array, block, layers. Dimensioning: Linear, Horizontal Vertical, Aligned, Rotated, Baseline, Continuous, Diameter, Radius, Angular Dimensions. Dim scale variable. Editing dimensions. Text: Single line Text, Multiline text.	Using CAD Software

  
HOD (ASH)

(Harnem singh)  
Harnem Singh