GOVERNMENT MILLENNIUM POLYTECHNIC, CHAMBA

DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

SUBJECT : MATHEMATICS - I

Lesson Plan

SESSION : Aug-Dec 2025

LECT. NO.	NAME OF THE CHAPTER	CONTENT TO BE TAUGHT	LEARNING OBJECTIVES
1	Trigonometry	Introduction and discussion on the contents of the syllabus and distribution of marks etc.	The students are expected to acquire necessary background in Trigonometry to appreciate the importance of the geometric study as well as for the calculation and the mathematical analysis
2		Concept of angles, measurement of angles in degrees, grades and radians and their conversions	
3		Question based on conversion of angle from one system of measurement unit of angle to other.	
4		DCS	
5		DCS	
6		T-Ratios of Allied angles (without proof)	
7		Questions based on T-Ratios of Allied angles.	
8		Sum, difference formulae and their applications (without proof).	
9		DCS	
10		DCS	
11		Questions based on Sum, difference formulae and their applications .	
12		Product formulae (Transformation of product to sum, difference and vice versa).	
13		Questions based on Product formulae (Transformation of product to sum, difference and vice versa).	
14		DCS	
15		DCS	
16		T- Ratios of multiple angles, sub-multiple angles (2A, 3A, A/2).	
17		Questions based on T- Ratios of multiple angles, sub-multiple angles (2A, 3A, A/2).	
18		Graphs of sin x, cosx	
19		DCS	
20		DCS	
21		Revision for class test - I	
22		Revision for class test - I	
23		Class Test-I	
24	Differential Calculus	Definition of function	The students are expected to learn the ability to find the effects of changing conditions on a system.
25		Concept of limits	
26		Questions on Function and Limit	
27		DCS	
28		DCS	
29		Standard limits $\lim_{x\to a}\frac{x^n-a^n}{x-a}$, $\lim_{x\to 0}\frac{\sin x}{x}$	
30		Standard limits $\lim_{x\to 0}(1+x)^{\frac{1}{x}}$, $\lim_{x\to 0}\frac{a^x-1}{x}$	
31		Questions on Four Standard Limits	
32		DCS	
33		DCS	
34		Definition of Differentiation	
35		Differentiation of x^n, $\sin x$ by Definition	
36		Differentiation of $\cos x$, $\tan x$ and e^x. by Definition	
37		DCS	
38		DCS	
39		Differentiation of sum, product of functions	
40		Differentiation of quotient of functions.	

41	Differential Calculus	Questions on Differentiation of sum, product and quotient of functions.	The students are expected to learn the ability to find the effects of changing conditions on a system.
42		DCS	
43		DCS	
44		Differentiation of function of a function.	
45		Differentiation of trigonometric function	
46		Differentiation of Inverse trigonometric functions	
47		DCS	
48		DCS	
49		Logarithmic differentiation.	
50		Miscelleneous questions on Diferentiation	
51		Miscelleneous questions on Diferentiation	
52		Revision for class test - II	
53		Revision for class test - II	
54		Class Test-II	
55		Complex Numbers: Definition, real and imaginary parts of a Complex number	
56		Polar and Cartesian, representation of a complex number and its conversion from one form to other	
57	Algebra	conjugate of a complex number, modulus and amplitude of a complex number	The students are expected to learn (i) Complex numbers enter into studies of physical phenomena in ways that most people cannot imagine. (ii) The partial fraction decomposition lies in the fact that it provides an algorithm for computing the anti derivative of a rational function.
58		DCS	
59		DCS	
60		Addition, Subtraction, Multiplication and Division of a complex number.	
61		De-movier's theorem, its application	
62		Partial fractions: Definition of polynomial fraction proper & improper fractions and definition of partial fractions.	
63		DCS	
64		DCS	
65		To resolve proper fraction into partial fraction with denominator containing non-repeated linear factors, repeated linear factors.	
66		Permutations and Combinations: Value of nPr and nCr	
67		Binomial theorem: Binomial theorem (without proof) for positive integral index (expansion and general form);	
68		DCS	
69		DCS	
70		Revision for House test	
71		Revision for House test	
72		Revision for House test	
73		Binomial theorem for any index (expansion without proof) first and second binomial approximation with applications to engineering problems.	
74		Miscelleneous questions on Binomial Theorem	
75		Miscelleneous questions on Binomial Theorem	
76		DCS	
77		DCS	
78		Revision for Final Examination	
79		Revision for Final Examination	
80		Revision for Final Examination	

Amandeep

Signature Of Teacher

(Amandeep)

Signature Of OIC
Applied Sciences

Applied Science 1st Semester

Applied Chemistry plan for the Session August-December 2025

Lecture NO	Topic NO
	Unit-1 : Atomic Structure (08 hrs) 12 marks
1	Fundamental particles of atoms : Electron, proton, neutron (Definitions), Atomic Structure: Bohr's theory, successes and limitations
2	Hydroen spectrum explanation based on Bohr's model of atom, Heisenberg's Uncertainity principle
3	Quantum numbers – orbital concept
4	DCS
5	Shapes of s, p orbitals , difference between orbit and orbital
6	Pauli's exclusion principle, Hund's rule of maximum multiplicity, Aufbau rule
7	Electronic Configuration (z =1 to 30)
8	DCS
	Unit-2 : Chemical bonding and Solutions (8 hrs) 12 marks
9	Concept of chemical bonding – cause of chemical bonding, types of bonds: ionic bonding (NaCl example)
10	Lewis concept of covalent bond (H2, F2, HF), Electronegativity,
11	Difference between sigma and pie bond,
12	DCS
13	Electron sea model of metallic bond
14	Idea of solute, solvent and solution
15	Methods to express the concentration of solution- molarity (M = mole per liter), molality,mass percentage
16	DCS
	Unit:-3 Electro Chemistry and Corrosion (11 hrs) 17 marks
17	Electronic concept of oxidation, reduction and redox reactions, Definition of terms: electrolytes, non-electrolytes with suitable examples
18	Faradays laws of electrolysis and simple numerical problems. Industrial application of Electrolysis , Electrometallurgy
19	Industrial application of Electrolysis:- Electroplating, Electrolytic refining.
20	DCS
21	Application of redox reactions in electrochemical cells Primary cells – dry cell, Secondary cell - commercially used lead acid storage battery
22	Introduction to Corrosion of metals – definition, types of corrosion (electrochemical),
23	H2 liberation and O2 absorption absorption, mechanism of electrochemical corrosion
24	DCS
25	Internal corrosion preventive measures – Purification, alloying
26	heat treatment, External corrosion preventive measures
27	metal (anodic, cathodic) coatings.

	Unit-4 Engineering Materials (8 hrs) 14 marks
28	DCS
29	Natural occurrence of metals – minerals, ores of iron, aluminium and copper, gangue (matrix), flux, slag, metallurgy
30	brief account of general principles of metallurgy(a).Crushing and grinding (b) Concentration of ore
	Levigation, Froth flotation, Magnetic separation)
31	Extraction(Roasting and calcinations & smelting) (d) Refining (Electro refining, zone refining)
	DCS
32	Extraction of - iron from haematite ore using blast furnace along with reactions
33	Alloys – definition, purposes of alloying, ferrous alloys (Invarsteel) and non-ferrous(Simple Brass & Bronze,
34	Nichrome, DuraluminMagnelium) with suitable examples, properties and applications.
35	DCS
	Unit:-5 Water (9 hrs) 12 marks
36	Classification of soft and hard water based on soap test, salts causing water hardness,
37	units of hardness(mg/L and ppm) and simple numerical on water hardness.
38	Cause of poor lathering of soap in hard water, Problems caused by the use of hard water in boiler
39	DCS
40	scale and sludge, foaming and priming, corrosion
41	water softening techniques- zeoliteprocess, Municipal water treatment (in brief only) – sedimentation
42	coagulation, filtration, sterilization.
43	DCS
44	Properties of water used for human consumption for drinking and cooking purposes from any water sources,
	Indian standard specification of drinking water.

	Unit-6 Fuels (8 hrs) 12 marks
45	Definition of fuel and combustion of fuel, classification of fuels
46	calorific values (HCV and LCV), calculation of HCV and LCV
47	DCS
48	Dulong's formula. Characteristics of good fue
49	Petrol and diesel - fuel rating (octane and cetane numbers) 6
50	Chemical composition, calorific values and applications of LPG, CNG,
51	DCS
52	Chemical composition, calorific values and applications of water gas, producer gas and biogas.
	Unit 7 Lubrication (8 hrs) 12 marks
53	Function and characteristic properties of good lubricant,
54	classification with examples
55	DCS
56	Lubrication mechanism – hydrodynamic
57	Lubrication mechanism –boundary lubrication
58	Physical properties (viscosity and viscosity index, oiliness, flash and fire point, cloud and pour point only
59	DCS
60	chemical properties:- coke number, total acid number, saponification value of lubricant
	Unit -8 Polymers (4 hrs) 9 marks
61	Monomer, homo and co polymers , degree of polymerization
62	simple reactions involved in preparation and their application of thermoplastics and thermosetting plastics
	using Polythene, PVC, PS, PTFE, nylon-6,6 and Bakelite only
63	DCS
64	Vulcanization of rubber and properties of vulcanised rubber.

Sinature of Teacher
(Abhishek Vohra)

Signature of H.O.D/O.I.C
(Kanan Upadhyay)

	Deptt.:Applied Sciences & Humanities
	Subject: Communication Skills in English (HS101)(2025)
	Course Objectives: **1) To develop confidence in speaking english with correct pronunciation.** **2) To develop communication skills of students i.e. Listening, speaking, reading and writing skills.** **3) To develop certain qualities which will aid students in handling personal and career challenges, leadership skills etc.**
Lect.No	**Topic Number**
	Unit- 1 Communication: Theory and Practice(11 hrs.)
	1. Basics of communication:
1	Introduction , Meaning and Defination
2	Process of Communication.
3	DCS
	2. Types of communication:
4	Formal and informal, verbal-non verbal and Written
5	Barriers to effective communication.
6	DCS
	3. 7Cs for effective communication
7	considerate, concrete, concise, clear,complete,correct,corteous.
	4. Art of effective communication:
8	A) Choosing words, B) Voice, C) Modulation, D) Clarity, E) Time, F) Simplification of Words
9	D) Clarity, E) Time, F) Simplification of Words
10	DCS
	5.Technical Communication
11	Technical Communication
	Unit-2 .Soft Skills for ProfessionalExcellence(7 hrs.)
	Introduction:
12	Soft Skills and Hard Skills, Importance of Soft skills
13	DCS
	Life Skills:
14	Self -awareness and Self-analysis, adaptability., resilience
15	emotional intelligence and empathy etc.
16	DCS
17	Applying soft skills across cultures
18	DCS

	Unit 3: Reading Comprehension(13 hrs.)
	Section -1 Short Stories
19	1.The gift of Magi by O. Henry
20	The gift of Magi by O. Henry
21	DCS
22	2.Uncle Podger Hang a Picture by Jerome K. Jerome
23	Uncle Podger Hang a Picture by Jerome K. Jerome
24	DCS
	Section -2 Poetey
25	1. Night of the scorpion by Nissim Ezekiel
26	Night of the scorpion by Nissim Ezekiel
27	DCS
28	2. Stopping by Woods on a Snowy Evening
29	3. Where the Mind is Without Fear
30	Where the Mind is Without Fear
31	DCS
	Unit 4 .Professional Writting(8 hrs.)
32	**1.The art of precis writing**
33	1.The art of precis writing
	2. Letters
34	Business Letters
35	Personal Letters
36	DCS
	3. Drafting
37	email, notices
38	minutes of meeting etc.
39	DCS
	Unit 5. Vocabulary and Grammar(9 hrs.)
40	1. Glossary of administrative Terms
41	2.One word substitution
42	DCS
43	Idioms ,Phrases.
44	3.Part of speech
45	DCS
46	tenses,active passive voice
47	Punctution.
48	DCS

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Semester - I

ES102 (Introduction to IT Systems)

Subject plan for the Session Aug - Dec 2025

Lecture No.	Topic	
	UNIT 1: Basics of Computer System	**(7hrs.)**
1	Block Diagram of Computer System	
2	General Understanding of various hardware components- CPU	
3	Memory, Types of Memory	
4	Display Devices (CRT and LCD Monitors)	
5	Keyboard, Types of Keyboards	
6	Mouse, Types of Mouse	
7	Working, Components of Hard Disk Drive	
	UNIT 2: Software Concepts	**(5hrs.)**
8	Software and its types	
9	Operating System	
10	Types of Operating System	
11	Functions of Operating System	
12	Booting the system (Cold and warm)	
	UNIT 3: Internet Skills	**(7hrs.)**
13	Understanding the terminology of internet-web browser	
14	Search Engine, Examples of Search Engine	
15	World Wide Web(WWW)	
16	Types of Networks	
17	Awareness about the government portals (state portals)	
18	Awareness about the government portals (national portals)	
19	Awareness about institute portals	
	UNIT 4: Working with MS- Word	**(5hrs.)**
20	File Management (Creating new document, saving a document)	
21	Printing a document	
22	Editing a document, use of Home ribbon.	
23	Use of Insert ribbon	
24	Use of Design Layout ribbon	
	UNIT 5: Working with MS- Excel	**(5hrs.)**
25	Working with spread sheets, entering data into the cells	
26	Merging cells, Formula bar	
27	Usage of simple functions such as sum, average, min, max	
28	Usage of simple functions such as percentage, round, floor, ceiling	
29	Conditional formatting of cells	
	UNIT 6: Information Security	**(3hrs.)**
30	Concept of online frauds	
31	Threats of online crime	
32	Virus attacks and use of antivirus	

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GOVERNMENT MILLENNIUM POLYTECHNIC, CHAMBA
DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

SUBJECT : Sports & Yoga
Lesson Plan
SESSION : Aug-Dec 2025

LECT. NO.	NAME OF THE CHAPTER	CONTENT TO BE TAUGHT	LEARNING OBJECTIVES
1	Introduction to Physical Education	Introduction to syllabus , Meaning & definition of Physical Education	The students will be able to learn about physical Education and its importance in our life.
2		Aims & Objectives of Physical Education.	
3		Changing trends in Physical Education.	
4	Olympic Movement	Ancient & Modern Olympics (Summer & Winter.)	The students will get to know about different sports events and award related to different sports event .
5		Olympic Symbols, Ideals, Objectives & Values.	
6		Awards and Honours in the field of Sports in India (Dronacharya Award, Arjuna Award, Dhayanchand Award, Rajiv Gandhi Khel Ratna Award etc.).	
7	Physical Fitness, Wellness & Lifestyle	Meaning & Importance of Physical Fitness & Wellness. Components of Physical fitness. Components of Health related fitness. Components of wellness. Preventing Health Threats through Lifestyle Change. Concept of Positive Lifestyle.	Learn techniques for increasing concentration and decreasing anxiety which leads to stronger academic performance.
8	Fundamentals of Anatomy & Physiology in Physical Education, Sports and Yoga	Define Anatomy, Physiology & Its Importance. Effect of exercise on the functioning of Various Body Systems. (Circulatory System, Respi- ratory System, Neuro-Muscular System etc.).	Develop understanding of health-related fitness components: cardiorespiratory endur-ance, flexibility and body composition etc.
9	Kinesiology, Biomechanics & Sports	Meaning & Importance of Kinesiology & Biomechanics in Physical Edu. & Sports. Newton's Law of Motion & its application in sports. Friction and its effects in Sports.	Understand and correctly apply biomechanical and physiological principles related to exercise and training.
10	Postures	Meaning and Concept of Postures. Causes 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	Understand basic skills associated with yoga and physical activities including strength and flexibility, balance and coordination.
11	Yoga	Meaning & Importance of Yoga. Elements of Yoga. Introduction - Asanas, Pranayama, Meditation & Yogic Kriyas	Assess yoga activities in terms of fitness value.
12		Yoga for concentration & related Asanas (Sukhasana; Tadasana; Padmasana & Sha-shankasana). Relaxation Techniques for improving concentration Yognidra.	
13	Yoga & Lifestyle	Asanas as preventive measures. Hypertension: Tadasana, Vajrasana, Pavan Muktasana, Ardha Chakrasana, Bhujangasana,Sharasana.	Improve personal fitness through participation in sports and yogic activities.
14		Obesity: Procedure, Benefits & contraindications for Vajrasana, Hastasana, Trikonasana, Ardh Matsyendrasana. Back Pain: Tadasana, Ardh Matsyendrasana, Vakrasana, Shalabhasana, Bhujangasana.	
15		Diabetes: Procedure, Benefits & contraindications for Bhujangasana, Paschimottasana, Pavan Muktasana, Ardh Matsyendrasana. Asthema: Procedure, Benefits & contraindications for Sukhasana, Chakrasana,Gomukhasana, Parvatasana, Bhujangasana, Paschimottasana, Matsyasana.	
16	Training and Planning in Sports	Meaning of Training. Warming up and limbering down. Skill, Technique & Style. Meaning and Objectives of Planning. Tournament – Knock-Out, League/Round Robin & Combination.	Demonstrate an understanding of sound nutritional practices as related to health and physical performance.Identify and apply injury prevention principles related to yoga and physical fitness activities.

17	Psychology & Sports	Definition & Importance of Psychology in Physical Edu. & Sports. Define & Differentiate Between Growth & Development. Adolescent Problems & Their Management.	(i) Practice Physical activities and Hatha Yoga focusing on yoga for strength, flexibility, andrelaxation. (ii) Learn techniques for increasing concentration and decreasing anxiety which leads to stronger academic performance.
18		Emotion: Concept, Type & Controlling of emotions. Meaning, Concept & Types of Aggressions in Sports. Psychological benefits of exercise.	
19		Anxiety & Fear and its effects on Sports Performance. Motivation, its type & techniques. Understanding Stress & Coping Strategies.	
20	Doping	Meaning and Concept of Doping. Prohibited Substances & Methods. Side Effects of Prohibited Substances	The students will get to know about different Doping Substances that are prohobited and their effects .
21	Sports Medicine	First Aid – Definition, Aims & Objectives. Sports injuries: Classification, Causes & Prevention. Management of Injuries: Soft Tissue Injuries and Bone & Joint Injuries.	The students will get to know about different Sports injuries, medicines and remedies .
22	Sports/ Games	Following sub topics related to any one Game/Sport of choice of student out of: Athletics, Badminton,	The students can assess their current personal fitness levels by participating in different sports events.
23		Basketball, Chess, Cricket	
24		Kabaddi, Lawn Tennis,	
25		Swimming, Table Tennis,	
26		Volleyball, Yoga etc.	
27		History of the Game/Sport.	
28		Latest General Rules of the Game/Sport.	
29		Specifications of Play Fields and Related Sports Equipment.	
30		Important Tournaments and Venues.	
31		Sports Personalities.	
32		Proper Sports Gear and its Importance.	

Amandeep

Signature Of Teacher

(Amandeep)

Signature Of OIC
Applied Sciences

GOVERNMENT MILLENNIUM POLYTECHNIC, CHAMBA
DEPARTMENT OF APPLIED SCIENCES & HUMANITIES
SUBJECT : Engineering Workshop Practice (Electrical)
Lesson Plan **SESSION : Aug-Dec 2025**

Duration : 16 Weeks
Work Load per week : 03 Hrs Practical + 3 Hrs DCS

Week	Group Of The Discipline	Practical Topic
1st	Group -4	One Lamp Controlled by One Switch
	Group-1	
	Group-2	
2nd	Group-3	
	Group -4	DCS
	Group-1	
3rd	Group-2	
	Group-3	
4th	Group -4	Lamp Circuit Connection Of Lamp and Socket by separate Switches
	Group-1	
	Group-2	
5th	Group-3	
	Group -4	Connection of Flourescent / Tube Light
	Group-1	
6th	Group-2	
	Group-3	
	Group -4	DCS
7th	Group-1	
	Group-2	
	Group-3	
8th	Group -4	Simple Lamp Install Bedroom Lighting
	Group-1	
	Group-2	
	Group-3	

9th	Group -4	Simple Lamp Circuit Install Staircase Wiring
	Group-1	
	Group-2	
10th	Group-3	
	Group -4	DCS
	Group-1	
11th	Group-2	
	Group-3	
	Group -4	Demonstration Of Measurement of Current Voltage Power and Energy
12th	Group-1	
	Group-2	
	Group-3	
13th	Group -4	Demonstration of Tools Used In Electrical wiring
	Group-1	
	Group-2	
14th	Group-3	
	Group -4	Demonstration Of Advanced Power Tools and Pneumatic Tools Accessories
	Group-1	
15th	Group-2	
	Group-3	
	Group -4	Tools For Cutting and Drilling
16th	Group-1	
	Group-2	
	Group-3	

Subject Teacher
(Sh. Abinash Thakur)

OIC

Lesson Plan

Name of the Faculty: Sh. Ajay Sharma

Semester: 1st (N-22 Scheme)

Subject: Engineering Workshop Practice

Duration: 16 Weeks

Workload per week 06 Hrs Practical

Week	Group of the Discipline	Practical Topic
1st	Group-1	Demonstration of different sheet metal tools/Machine
	Group-2	
	Group-3	
	Group-4	
2nd	Group-1	Demonstration of different sheet metal Working Machines
	Group-2	
	Group-3	
	Group-4	
3rd	Group-1	Demonstration of different sheet metal operations like sheet cutting, bending, edging, end curling, lancing, soldering, brazing, riveting.
	Group-2	
	Group-3	
	Group-4	
4th	Group-1	Demonstration of different sheet metal operation soldering and Brazing
	Group-2	
	Group-3	
	Group-4	
5th	Group-1	Demonstration of different sheet metal operation soldering and Brazing
	Group-2	
	Group-3	
	Group-4	
6th	Group-1	Demonstration of different sheet metal machine
	Group-2	
	Group-3	
	Group-4	
7th	Group-1	Demonstration of different sheet metal operations
	Group-2	
	Group-3	
	Group-4	
8th	Group-1	One simple job involving sheet metal operations, soldering and riveting
	Group-2	
	Group-3	
	Group-4	

Week	Group of the Discipline	Practical Topic
9th	Group-1	One simple job involving sheet metal operations, soldering and riveting
	Group-2	
	Group-3	
	Group-4	
10th	Group-1	One simple job involving sheet metal operations, soldering and riveting
	Group-2	
	Group-3	
	Group-4	
11th	Group-1	One simple job involving sheet metal operations, soldering and riveting
	Group-2	
	Group-3	
	Group-4	
12th	Group-1	One simple job involving sheet metal operations, soldering and riveting
	Group-2	
	Group-3	
	Group-4	
13th	Group-1	One simple job involving brazing practice
	Group-2	
	Group-3	
	Group-4	
14th	Group-1	One simple job involving brazing practice
	Group-2	
	Group-3	
	Group-4	
15th	Group-1	One simple job involving brazing practice
	Group-2	
	Group-3	
	Group-4	
16th	Group-1	One simple job involving brazing practice
	Group-2	
	Group-3	
	Group-4	

Ajay Sharma

WSI Sheet Metal

OIC