LESSON PLAN

ProgramName	Diploma
Course/SubjectName	Applied Chemistry
Course/SubjectCode	BS105(Th)&BS109Applied Chemistry Lab
Course/SubjectCoordinatorName	Ms. Nisha Sharma

Evaluation scheme

S.No.	Subject Name	Studyscheme (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

Reference books	(i)	Dr.Vairam, S.,EngineeringChemistry,Wiley India Pvt.Ltd.,New Delhi, 2013
	(ii)	Jain&Jain, Engineering Chemistry,Dhanpat Rai,NewDelhi,2015
	(iii)	Text Book Of Chemistry forClass XI&XII(Part-I,Part-II);NCERT.,Delhi,2017-18
	(iv)	Dr.G.Hugar& Prof. A.N.Pathak Applied Chemistry Laboratory Practices,NITTTR
	(v)	Agnihotri, Rajesh, Chemistry for Engineers, Wiley India Pvt.Ltd.,2014

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

CO1	Solve various engineering problems by applying the basic concepts of atomic structure, chemical bonding and solution.
CO2	Understand and solve various engineering problems using concept of electrochemistry and corrosion.
CO3	Understand to analyzeengineering materials, their properties and applications.
CO4	Understand the suitability of water source and use relevant water treatment for domestic and industria application.
CO5	Use relevant fuel and lubricant for domestic and industrial application.
CO6	Understand and analyze various polymers and their application.

Teaching Plan:

Lecture No.	Name of topic	Actual date	Remarks
1	**Unit-1 Atomic Structure:** Fundamental particles(electron,proton,neutron), Bohr's theory, successes &limitatations		
2	Heisenberg uncertainty principle, Hydrogen spectrum		
3	Quantum numbers		
4	orbital concept, difference between orbit and orbital Shapes of s, p orbitals		
5	Pauli's exclusion principle, Hund's rule of maximum multiplicity Aufbau rule, electronic configuration(Z=1 to 30)		
6	**Unit-1Chemical Bonding and Solutions:** Concept of chemical bonding – cause of chemical bonding, types of bonds: ionic bonding (NaCl example) , Lewis concept of covalent bond (H2, F2, HF). Electronegativity,		
7	Difference between sigma and pie bond , Electron sea model of metallic bond, Idea of solute, solvent and solution		
8	**Unit-3 Electrochemistry and Corrosion:** Faradays laws of electrolysis and simple numerical problems		
9	Industrial application of Electrolysis – • Electrometallurgy		
10	• Electroplating		
11	• Electrolytic refining.		
12	Primary Application of redox reactions in electrochemical cells – dry cell, • Secondary cell - commercially used lead acid storage battery.		
13	Introduction to Corrosion of metals – definition, types of corrosion (electrochemical), H2 liberation and O2 absorption mechanism of electrochemical corrosion		
14	Internal corrosion preventive measures – Purification, alloying and heat treatment		
15	External corrosion preventive measures: metal (anodic, cathodic) coatings.		
16	**Unit-4 Engineering Materials:** Natural occurrence of metals – minerals, ores of iron, aluminium and copper, gangue (matrix), flux, slag.		
17	metallurgy – brief account of general principles of metallurgy(a).Crushing and grinding (b) Concentration of ore (Levigation)		
18	Froth flotation		
19	Magnetic separation		
20	(c) Extraction(Roasting and calcinations & smelting)		
21	(d) Refining (Electro refining, zone refining)		
22	Extraction of - iron from haematite ore using blast furnace along with reactions.		

23	Alloys – definition, purposes of alloying, ferrous alloys (Invar steel) and non-ferrous (Simple Brass & Bronze,		
24	Nichrome, Duralumin, Magnelium with suitable examples, properties and applications.		
25	**Unit-5 Water:** Classification of soft and hard water based on soap test, salts causing water hardness, Cause of poor lathering of soap in hard water		
26	units of hardness(mg/L and ppm), simple numerical on water hardness		
27	Problems caused by the use of hard water in boiler (scale and sludge, foaming and priming, corrosion.)		
28	water softening techniques- i) zeolite process		
29	ii). Municipal water treatment (in brief only) – sedimentation, coagulation, filtration, sterilization.		
30	Properties of water used for human consumption for drinking and cooking purposes from any water sources and Indian standard specification of drinking water		
31	**Unit-6 Fuels:** Definition of fuel and combustion of fuel, classification of fuels, Characteristics of good fuel		
32	calorific values (HCV and LCV), calculation of HCV and LCV using Dulong's formula		
33	Petrol and diesel - fuel rating (octane and cetane numbers), Chemical composition		
34	Calorific values and applications of LPG, CNG, water gas, producer gas and biogas.		
35	**Unit-7 Lubrication:** Function and characteristic properties of good lubricant		
36	classification with examples		
37	Lubrication mechanism: hydrodynamic and boundary lubrication		
38	Physical properties (viscosity and viscosity index, oiliness, flash and fire point, cloud and pour point		
39	Chemical properties (coke number, total acid number, saponification value) of lubricants.		
40	**Unit-8 Polymer :**Monomer, homo and co polymers , degree of polymerization, simple reactions involved in preparation and their application of thermoplastics and thermosetting plastics (using Polythene, PVC,		
41	PS,PTFE, nylon-6,6 and Bakelite ,		
42	Vulcanization of rubber and properties of vulcanised rubber		

Assignments:

Assignment serial	Contents of syllabus covered	Actual date	Remarks
A-1	Atomic Structure, Chemical Bonding and Solutions.		
A-2	Electrochemistry and corrosion and Engineering Materials.		

House Test/Class Test:

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

Lab Plan:

Exp. No.	Name of experiment	Actual date G-A	Actual date G-B	Remarks
1	Preparation of standard solution of oxalic acid.			
2	To determine strength of solution by titrating against standard oxalic acid solution using phenolphthalein as indicator.			
3	Experimental verification of Faraday's first law of electrolysis using copper sulfate solution and copper electrode. OR To construct and measure emf of Electro Chemical Cell(Daniel cell)			
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.			
5	Estimation of total hardness of water using standard EDTA solution and using eriochromeblack-T (solochromeblack-T) indicator and approximately neutral buffer solution (pH range7-11). OR To estimate total alkalinity of given water sample by titrating it against standard Sulphuric acid.			
6	To estimate moisture in given coal sample gravimetrically.			
7	To estimate ash in given coal sample gravimetrically.			
8	To determine viscosity of given lubricating oil by Redwood viscometer.			

Signature of Teacher

HOD

Govt. Polytechnic Sundernagar (H.P.)

Demonstration Plan Practical

Branch: Mechanical Engineering **Semester : 1st Semester Mechanical(Diploma)**

Subject :Introduction to IT Lab. **Session :2025(August-November,2025)** **Theory=02**

Teacher : Er. Sudhir Sen

Chapter	Month	Week	Date	Detail of Contents	Remarks
1	August	2nd	8	Introduction of Curriculumn and introdocution of practical	
		3rd	11,12	To identify the various hardware components of computer system.	
		4th	18,19,22,23	To assemble hardware components of Computer System.	
		5th	25,26,29,30	To install Windows OS on computer system.	
2	September	1st	1,2,5,6	To study the various features offered on the desktop, creating new folder and new file on the desktop.	
		2nd	8,9,12	To work on different web browsers(google chrome , internet explorer), setting up default homepage on browser and study the various settings available.	
		3rd	15,16,19,20	To open search engines (google and yahoo) and search different information using the search engines. Creating an e-mail Account.	
		4th	22,23,26,27	Visit various e-governance/digital India Portals and understanding the services offered.	
		5th	29,30	Opening, creating and saving a document, locating files, copying contents in some different file(s), protecting files,	
3	October	1st	3,4	giving password protection for a file, Setting margins, tab setting, ruler, indenting, Entering text, cut, copy, paste using tool-	
		2nd	6,10	Formatting a document, Creating and editing tables, mail-merge.	
		3rd	13,14,17,18	Working on MS – EXCEL- Creating a worksheet in Excel. Copy, Move and Merge the cells and Use various Formatting features.	
		4th	21,24,25	Using formula and functions prepare worksheet for storing subject marks of ten students and perform the following:	
		5th	27,28,31	☐ Calculate the student wise total and average.☐	
4	November	1st	1	☐ Calculate the subject wise total and average.☐	
		2nd	3,4,7	☐ Calculate the overall percentage and also individual percentage of the student.☐	
		3rd	19,11,14,15	☐ Create a chart for the above.☐	
		4th	17,18,21,22	☐ Calculate the subject wise total and average.☐	
		5th	24,25	Revesion, **Session Closed on 26.11.2025**	

Signature of Teacher

Signature of H.O.D.

Govt. Polytechnic Sundernagar (H.P.)

Lesson Plan Theory

Branch: Computer Engineering **Semester : 1st Semester Mechanical Engg.(Diploma)**

Subject : Introduction to IT System **Session :2025(August-December,2025)** **Practical=4*2**

Teacher : Er. Sudhir Sen

Chapter	Month	Week	Date	Chapter Description	Detail of Contents	Remarks
1	August	3rd	12,14	**UNIT 1: Basics of Computer System**	Block Diagram of Computer System, General Understanding of various hardware components- CPU,	
		4th	21		Memory, Display Devices (CRT and LCD Monitors), Keyboard,	
		5th	28		Display Devices (CRT and LCD Monitors), Keyboard, Mouse, HDD	
2	September	1st	2,4	**UNIT 2: Software Concepts**	Software and its types,	
		2nd	9,11		**1st Class Test**	
		3rd	16,18		Operating System: Definition, types and function of Operating System, Booting the System(Cold and Warm)	
		4th	23,25	**UNIT 3: Internet Skills**	Understanding the terminology of internet-web browser, search engine, world wide web,	
		5th	30		Types of Networks.	
3	October	2nd	7,9		Awareness about the government portals (state portals and national portals) and institute portals.	
		3rd	14,16		**2nd Class Test**	
		4th	21,23	**UNIT 4: Working with MS-Word**	File Management (Creating new document, saving a document, printing a document)	
		5th	28,30		Editing a document, use of Home toolbar, Insert, Design Layout ribbons,**Diwali Vacation**	
4	November	2nd	4,6		Working with spread sheets, entering data into the cells, merging cells, **House Test**	
		3rd	11,13	**UNIT 5: Working**	formula bar, usage of simple functions such as sum, average, min, max, percentage, round, floor, ceiling, conditional formatting of cells.	
		4th	18,20	**UNIT 6: Information Security**	Concept of online frauds, threats of online crime, virus attacks and use of antivirus. Session Closes 26.11.2025	
		5th	25		Revesion, **Session Closed on 26.11.2025**	

Signature of Teacher

Signature of H.O.D.

LESSON PLAN FOR ENGG GRAPHICS (SESSION: AUG-DEC 2025) MECH. ENGG. 1ST SEMESTER

S.NO.	MONTH	WEEK	DAY	PARTICULARS	SHEETS	REMARKS
		1ST	NIL	.....	.....	
		2ND	NIL	**Orientation programme w.e.f. 01/08/2025 to 07/08/2025**	.....	
1	Aug	3RD	13,14	Draw horizontal, Vertical, 30 degrees, 45 degrees, 60 and 75 degrees lines, different types of lines, dimensioning styles using Tee and Set squares/drafter. Write alphabets and numerical in 7:4 scale (Vertical only) (do this exercise in sketch book).	SHEET 1	
		4TH	20,21	Draw some problems on Engineering Plain scale	SHEET 2	
		5TH	27,28	Draw some problems on Engineering Diagpnal scale	SHEET 3	
2	Sept	1ST	3,4	Draw some problems on orthographic projections using first angle method of projection having plain and slanting, cylindrical surfaces, ribs and slots.	SHEET 4	
		2ND	10,11	Draw some problems on orthographic projections using first angle method of projection having plain and slanting, cylindrical surfaces, ribs and slots.	SHEET 5	CT1
		3RD	17,18	Draw some problems on orthographic projections using first angle method of projection having plain and slanting, cylindrical surfaces, ribs and slots.	SHEET 6	
		4TH	24,25	Draw some problems on Isometric view of simple objects having plain and slanting and cylindrical surface (e.g. Cube, Cone and cylinder etc.) by using natural scale.	SHEET 7	
		5TH	NIL	.....		
3	Oct	1ST	1	Draw some problems on Isometric view of simple objects having plain and slanting and cylindrical surface (e.g. Cube, Cone and cylinder etc.) by using natural scale.	SHEET 8	
		2ND	8,9	Draw free hand sketches/ conventional representation of machine elements in sketch book such as thread profiles, nuts, bolts	SHEET 9	
		3RD	15	Draw free hand sketches/ conventional representation of machine elements in sketch book such as , set screws, washers & locking arrangements	SHEET 10	CT2
		4TH	22,23	Problem based Learning: Given the orthographic views of at least three objects with few missing lines, the student will try to imagine the corresponding objects, complete the views and draw	SHEET 11	
		5TH	29,30	.....		
		1ST	NIL	Draw basic 2D entities like: Rectangle, Rhombus, Polygon using AutoCAD (Print out should be a part of progressive assessment). Draw basic 2D entities like: Circles, Arcs, circular using AutoCAD (Printout should be a part of progressive assessment).	SHEET 12	

4	Nov	2ND	6	Draw basic 2D entities like: Circular and rectangular array using AutoCAD (Printout should be a part of progressive assessment). Draw blocks of 2D entities comprises of Rectangle, Rhombus, Polygon,Circles, Arcs, circular and rectangular array, blocks using AutoCAD (Print out should be a part of progressive assessment).	SHEET 13	HT
		3RD	12,13	Draw basic branch specific components in 2D using AutoCAD (Print out should be a part of term work).	SHEET 14,15	
		4TH	19,20	Draw basic branch specific components in 2D using AutoCAD (Print out should be a part of term work).	SHEET 16,17	
		5TH	26	Revision		

Prepared by

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Approved by
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HOD, MED

01/08/2025

LESSON PLAN

Program Name	DIPLOMA (Civil Engg.)
Course/Subject Name	Sports and Yoga
Course/Subject Code	HS103
Course/Subject Coordinator Name	Gopal Dass

Evaluation scheme

S.No.	Subject Name	Study scheme (Hrs/Week)	Marks in evaluation scheme			
			Internal Assessment		External Assessment	
			Theory	Practical	Theory	Practical
1.	Sports & Yoga	2(Pr.)	--	40	---	60
Reference books			(i) Modern Trends and Physical Education by Prof. Ajmer Singh.			
			(ii) Light On Yoga By B.K.S. Iyengar.			
			(iii) Health and Physical Education – NCERT (11th and 12th Classes).			

Teaching Plan:

Practical Hrs.	Name of topic	Actual date
1-2	Introduction to Physical Education:, Meaning & definition of Physical Education. Aims & Objectives of Physical Education. Changing trends in Physical Education. units, Olympic Movement o 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.)	
3-4	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	
5-6	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.).	
7-8	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.,	
9-10	Postures o 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.	
11-12	Yoga Meaning & Importance of Yoga. Elements of Yoga. Introduction - Asanas, Pranayama, Meditation & Yogic Kriyas Yoga for concentration & related Asanas (Sukhasana;	

	Tadasana; Padmasana & Sha-shankasana). Relaxation Techniques for improving concentration Yognidra	
13-14	Yoga & Lifestyle Asanas as preventive measures. oHypertension: Tadasana, Vajrasana, Pavan Muktasana, Ardha Chakrasana, Bhujangasana,Sharasana. Obesity: Procedure, Benefits & contraindications for Vajrasana, Hastasana, Trikonasana, Ardh Matsyendrasana. Back Pain: Tadasana, Ardh Matsyendrasana, Vakrasana, Shalabhasana, Bhujangasana. Diabetes: Procedure, Benefits & contraindications for Bhujangasana, Paschimottasana, Pavan Muktasana, Ardh Matsyendrasana	
15-16	Asthema: Procedure, Benefits & contraindications for Sukhasana, Chakrasana,Gomukhasana, Parvatasana, Bhujangasana, Paschimottasana, Matsyasana.	
17-18	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.	
19-20	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 of exercise. Anxiety & Fear and its effects on Sports Performance. Motivation, its type & techniques. Understanding Stress & Coping Strategies.	
21-22	Doping Meaning and Concept of Doping. Prohibited Substances & Methods. Side Effects of Prohibited Substances.	
23-24	Sports Medicine First Aid – Definition, Aims & Objectives. Sports injuries: Classification, Causes & Prevention. Management of Injuries: Soft Tissue Injuries and Bone & Joint Injuries.	
25-26	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	
27-28	Specifications of Play Fields and Related Sports Equipment. Important Tournaments and Venues. Sports Personalities. Proper Sports Gear and its Importance.	

Signature of Teacher

Signature of HOD