PLANNED SYLLABUS COVERAGE (Theory)

G P Kinnaur	Department: Applied Science & Humanities Subject : Environmental Science					
	Course - Diploma		Duration – 15 weeks			
SYLLABUS COVERAGE	Total Periods - 30		Theory –30 hours			
Sr. No	Period No.	Topic	Details	Instruction references	Additional Study Recommended	Remarks
1	1 TO 6	1. Ecosystem	Structure of ecosystem, Biotic & Abiotic components Food chain and food web Aquatic (Lentic and Lotic) and terrestrial ecosystem Carbon, Nitrogen, Sulphur, Phosphorus cycle. Global warming -Causes, effects, process, Green House Effect, Ozone depletion.			
2	7-13	2. Air and, Noise Pollution	Definition of pollution and pollutant, Natural and manmade sources of air pollution (Refriger- ants, I.C., Boiler) ,Air Pollutants: Types, Particulate Pollutants: Effects and control (Bag filter, Cyclone separator, Electrostatic Precipitator). Gaseous Pollution Control: Absorber, Catalytic Converter, Effects of air pollution due to Refrigerants, I.C., Boiler. Noise pollution: sources of pollution, measurement of pollution level, Effects of Noise pollu-tion, Noise pollution (Regulation and Control) Rules, 2000.Solution.(Class test-I)	S.C. Sharma & M.P. Poonia, Environmental Studies	C.N. R. Rao, Understanding Chemistry	
3	14-19	3. Water and Soil Pollution	Sources of water pollution, Types of water pollutants, Characteristics of water pollutants Tur-bidity, pH, total suspended solids, total solids BOD and COD: Definition, calculation. 62 Waste Water Treatment: Primary methods: sedimentation, froth floatation, Secondary methods: Activated sludge treatment, Trickling filter, Bioreactor, Tertiary Method: Membrane separation technology, RO (reverse osmosis). Causes, Effects and Preventive measures of Soil Pollution: Causes-Excessive use of Fertilizers, Pesticides and Insecticides, Irrigation, E-Waste.			

| 4 | 20-25 | 4. Renewable sources of Energy | Solar Energy: Basics of Solar energy. Flat plate collector (Liquid & Air). Theory of flat plate col- lector. Importance of coating. Advanced collector. Solar pond. Solar water heater, solar dryer. Solar stills. Biomass: Overview of biomass as energy source. Thermal characteristics of biomass as fuel. Anaerobic digestion. Biogas production mechanism. Utilization and storage of biogas. Wind energy: Current status and future prospects of wind energy. Wind energy in India. Environmental benefits and problem of wind energy. New Energy Sources: Need of new sources. Different types new energy sources. Applications of (Hydrogen energy, Ocean energy resources, Tidal energy conversion.) Concept, origin and power plants of geothermal energy. separation) (c) Extraction(Roasting and calcinations & smelting) (d) Refining (Electro refining, zone refining).4.2 Extraction of - iron from haematite ore using blast furnace along with reactions. 4.3 Alloys – definition, purposes of alloying, ferrous alloys (Invar steel) and non-ferrous(Simple Brass & Bronze, Nichrome, Duralumin,Magnelium) with suitable examples, properties and applications.(Class Test-II) | S.C. Sharma & M.P. Poonia, Environmental Studies | C.N. R. Rao, Understanding Chemistry | |
| 5 | 26-30 | 5. Solid Waste Management, ISO 14000 & Environmental Management | Solid waste generation- Sources and characteristics of: Municipal solid waste, E-waste, bio- medical waste. Metallic wastes and Non-Metallic wastes (lubricants, plastics, rubber) from industries. Collection and disposal: MSW (3R, principles, energy recovery, sanitary landfill), Hazardous. Waste Air quality act 2004, air pollution control act 1981 and water pollution and control act1996.Structure and role of Central and state pollution control board. Concept of Carbon Credit, Carbon Footprint. Environmental management in fabrication industry.ISO14000: Implementation in industries, Benefits.boiler (scale and sludge, foaming and priming, corrosion.) 5.3 i) water softening techniques- zeolite process ii). Municipal water treatment (in brief only) – sedimentation, coagulation, filtration, sterilization. 5.4 Properties of water used for human consumption for drinking and cooking purposes from any water sources and Indian standard specification of drinking water.(H.T.) | | | |

Surya Negi
Lecturer Chemistry

HOD

Applied Sciences & Humanities

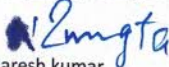Department : Applied Science   Subject : Mathematics - II
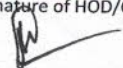
Course   Diploma (Mech. Engg.)   Duration : 14 Weeks

Total Periods - 70 (56 L+14 DCS)   70 (56 L +14 DCS) Hours

Sr. No.	Period Nos.	Topic	Details	Instruction references	Additional Study Recommended	Remarks
1	1 To 15 L-14,DCS-4	Determinants and Matrices	Determinants: Elementary Properties of determinents upto 3 rd order .	Mathematics by Dr. RD Sharma , & Engineering matics by N.Ch.S.N Iyengar.	Garg Engineering Mathematics , Khanna Publish ing house, NewDelhi	
			Crammers rule and consistency of equations.			
			Matrix Algebra of matrix ,Inverse of matrix.			
			Matrix Inverse method to solve a system of Linerar Equation in 3 variables .			
2	(L 16,34 DCS - 4)	2. Integral Calculas	Integration as inverse operation of differentation and Integration by substitution			
			Use of formulas			
			Integration by , by parts and by partial fraction (for linear factors only)			
			For solving problems where m,n are positive integers			
			Application of integers for (a) simple problem			
			on evaluation of area bounded by a curves and axis			
			Calculation of volume of a solid formed by revolution of an area about axis (simple problem)			
3	35 to 60 (L-16,DCS-4)	3 Co-odinate Geometry	Equation of straight line in various standered form (without proof), intersection of two straight line ,angle between two general equations of acirclesand its charactersticesto find the equation of a circle , given * Centre of radius *Three points line on it *Cordinates of end points of a diameter			
			Definition of conics (Perabola, Ellipse,Hyperbola) their standard Equation without proof. Problem on conics when their foci,directrices and vertices are given			
4	61 To70(L-10,DCS-2)	4 Differential Equation	Solution of first order method (Simple problem)			
			First Degree differential equation by variable separation method (simple problem			

Naresh kumar

Lect. Mathematics

APPROVED	Signature of HOD/OIC

PLANNED SYLLABUS COVERAGE (Theory)

G P Kinnaur	Department: Applied Science		Subject : Mathematics-II		
	Course - Diploma		Duration – 14 weeks		
SYLLABUS COVERAGE	Total Periods - 70 (56L+14DCS)		Theory – 70 (56L+14DCS) hours		

Sr. No	Period Nos	Topic	Details	Instruction references	Additional Study Recommended	Remarks
1	1 TO 15 (L-14,DCS-4)	1.Determinants and Matrices	Determinants: Elementary properties of determinants upto 3rd order.	Mathematics by Dr. RD Sharma , & Engineering Mathematics by N.Ch.S.N Iyengar .	Reena Garg, Engineering Mathematics, Khanna Publishing House, New Delhi (Revised	
			Crammer's rule and consistency of equations.			
			Matrix: Algebra of matrices, Inverse of a matrix.			
			Matrix inverse method to solve a system of linear equations in 3 variables.			
2	16 TO 34 (L-16, DCS-4)	2.Integral Calculus	Integration as inverse operation of differentiation and integration by substitution
Use of formulas			
			integration by,by parts and by partial fractions (for linear factors only) 3			
			For solving problems where m, n are positive integers			
			Applications of integration for: (a) Simple problem on evaluation of area bounded by a			
			b) Calculation of Volume of a solid formed by revolution of an area about axes.			
3	35 TO 60 (L-16,DCS-4)	3.Co-Ordinate Geometry	Equations of straight line in various standard forms (without proof), inter section of two straight lines, angle between two			
			General equation of a circle and its characteristics. To find the equation of a circle, given: * Centre and radius *. Three points lying on it * Coordinates of end points of a diameter.			
			Definition of conics (Parabola, Ellipse, Hyperbola) their standard Equations without proof. Problems on conics when their foci, directrices and vertices are given.			
4	61 TO 70 (L-10,DCS-2)	4.Differential Equations	Solution of first order method (simple problems).			
			first degree differential equation by variable separation method (simple problems).			

Ravinder Singh
(Lecturer Maths)

	APPROVED	SIGN HOD
DATE:-	(3/ - 12 -2024)	

LESSON PLAN

Program Name	CIVIL & MECH. ENGG
Course/Subject Name	Applied Physics-II
Course/Subject Code	BS-104 & BS-106
Course/Subject Coordinator Name	Champa Sharma

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-II & Applied Physics-II lab	TH [3+1(DCS) + 2 (Lab)	40	40	60	60
Reference books			(i)　　　　Fundamental of Physics By Halliday/Resnick/Walker			
			(ii)　　　　New simplified Physics by S.L.Arora			
			(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			

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

CO1	Describe waves and wave motion, periodic and simple harmonic motions and solve simple problems.
CO2	Explain ultrasonic waves and engineering, medical and industrial applications of Ultrasonic. Apply acoustics principles to various types of buildings for best sound effect.
CO3	Describe the refractive index of a liquid or a solid and will be able to explain conditions for total internal reflection.
CO4	Define capacitance and its unit, explain the function of capacitors in simple circuits, and solve simple problems.
CO5	Differentiate between insulators, conductors and semiconductors, and define the terms: potential, potential difference, electromotive force.
CO6	Express electric current as flow of charge, concept of resistance, measure of the parameters: electric current, potential difference, resistance.
CO7	Explain the operation of appliances like moving coil galvanometer, simple DC motors.
CO8	Illustrate the conditions for light amplification in various LASER and laser based instruments and optical devices.
CO9	Appreciate the potential of optical fiber in fields of medicine and communication.

Teaching Plan:

Lecture No.	Topic Covered	Actual Date	Remarks
1	**UNIT - 1: Wave motion and its applications-** Wave motion, transverse and longitudinal waves with examples.		
2	Definitions of wave velocity, frequency and wavelength and their relationship		
3	Sound and light waves and their properties		
4	Wave equation ($y = r \sin \omega t$) amplitude, phase, phase difference, Principle of superposition of waves and beat formation		
5	Simple Harmonic Motion (SHM): definition, expression for displacement, velocity		

1/3

6	Acceleration, time period, frequency of SHM, Free, forced and resonant vibrations and their examples.		
7	Acoustics of buildings – reverberation, reverberation time, echo, noise, coefficient of absorption of sound		
8	Methods to control reverberation time and their applications.		
9	Ultrasonic waves – Introduction and properties, engineering and medical applications of ultrasonic.		
10	**UNIT - 2: Optics** -Basic optical laws- reflection and refraction		
11	Refractive index, Images and image formation by mirrors,		
12	Lens and thin lenses, lens formula, power of lens, magnification		
13	Total internal reflection, Critical angle and conditions for total internal reflection, applications of total internal reflection in optical fiber.		
14	Optical Instruments- simple and compound microscope		
15	Astronomical telescope in normal adjustment and their magnifying power		
16	**UNIT - 3: Electrostatics-** Coulomb's law, unit of charge.		
17	Electric field, Electric lines of force and their properties.		
18	Electric flux, Electric potential and potential difference		
19	Gauss's law		
20	Capacitor and its working, Capacitance and its units. Capacitance of a parallel plate capacitor		
21	Series and parallel combination of capacitors (related numerical)		
22	Dielectric and its effect on capacitance, dielectric break down		
23	**UNIT - 4: Current Electricity-** Electric Current and its units, Direct and alternating current.		
24	Resistance and its units, Specific resistance, Conductance, Specific conductance,		
25	Series and parallel combination of resistances.		
26	Factors affecting resistance of a wire, carbon resistances and colour coding.		
27	Ohm's law and its verification		
28	Kirchhoff's laws, Concept of terminal potential difference and Electromotive force (EMF)		
29	Heating effect of current, Electric power, Electric energy and its units (related numerical problems)		
30	Advantages of Electric Energy over other forms of energy.		
31	**UNIT - 5: Electromagnetism-** Types of magnetic materials: dia, para and ferromagnetic with their properties.		
32	Magnetic field and its units, magnetic intensity, magnetic lines of force, magnetic flux and units, magnetization		
33	Lorentz force (force on moving charge in magnetic field), Force on current carrying conductor.		
34	Moving coil galvanometer; principle, construction and working		
35	Conversion of a galvanometer into ammeter and voltmeter.		
36	**UNIT - 6: Semiconductor Physics-**Energy bands in solids, Types of materials (insulator, semiconductor, conductor)		
37	Intrinsic and Extrinsic semiconductors. p-n junction		
38	Junction diode and V-I characteristics		
39	Diode as rectifier – half wave and full wave rectifier (center taped).		
40	Photocells, Solar cells; working principle and engineering applications.		

41	**UNIT - 7: Modern Physics-** Lasers: Energy levels, ionization and excitation potentials; spontaneous and stimulated emission			
42	Population inversion, pumping methods, optical feedback.			
43	Types of lasers;Ruby, He-Ne Laser			
44	Semiconductor laser and engineering and medical applications of lasers. laser characteristics			
45	Fiber Optics: Introduction to optical fibers, light propagation, acceptance angle and numerical aperture			
46	Fiber types, applications in; telecommunication, medical and sensors.			

Assignments:

Assignment serial	Contents of syllabus covered	Proposed date	Actual date	Remarks
A-1	Wave motion and its applications & Optics	22/02/2023		
A-2	Electrostatics & Current electricity	20/03/2023		
A-3	Semiconductor & Modern Physics	22/04/2023		

House Test/Class Test:

House/Class Test	Contents of syllabus covered	Proposed date	Actual date	Remarks
CT-I	30% of the syllabus	2nd week of April		
CT-II	Next 30% of the syllabus	2nd week of May		
House Test	80% of the syllabus	4th week of May2023		

Lab Plan:

Exp. No.	Name of experiment	Actual date G-1	G-2	Remarks
1	To verify laws of reflection from a plane mirror/ interface.			
2	To verify laws of refraction (Snell's law) using a glass slab.			
3	To determine focal length and magnifying power of a convex lens.			
4	To verify Ohm's law by plotting graph between current and potential difference.			
5	To verify laws of resistances in series and parallel combination.			
6	To verify Kirchhoff's laws using electric circuits.			
7	To find resistance of a galvanometer by half deflection method.			
8	To convert a galvanometer into an ammeter.			
9	To convert a galvanometer into a voltmeter.			

(Signature of Teacher)

(Signature of HOD

3/3

LESSON PLAN
DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES
GOVERNMENT POLYTECHNIC KINNAUR, SHIMLA, H.P-171207

Course: Diploma			Duration: 3 Years	
Subject Title: Fundamentals of Electrical and Electronics Enginnering			Session: Jan-May 2025	
Subject Teacher: Pawan Divya			Semester: 2nd	
Total Lectures: 64			Lectures: 4/ Week	

Week	Chapter to be Covered	Topic to be Covered	Learning Outcomes	Reference
1st	1	**Overview of Electronic Components & Signals**: Passive Active Components: Resistances, Capacitors, Inductors, Diodes, Transistors and their applications ,	Students will learn about the different electrical and electronic components.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
2nd	1	FET, MOS and CMOS and their Applications. Signals: DC/AC, voltage/current, periodic/nonperiodic signals	Students will learn about the different signals and electronic components.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
3rd	1	Average, rms, peak values, different types of signal waveforms, Ideal/non-ideal voltage/current sources, independent/dependent voltage current sources.	Students will learn about the various sources ,waveforms and parameters related to it.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
4th	2	**Overview of Analog Circuits**: Operational Amplifiers-Ideal Op-Amp, Practical op amp, Open loop and closed loop configurations,	Students will learn about the operational amplifiers.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
5th	2	Application of Op-Amp as amplifier, adder, differentiator and integrator. **Assignment-1 to be allotted. Class Test - 1 to be conducted.**	Students will learn about the different applications of op amp.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
6th	3	**Overview of Digital Electronics**: Introduction to Boolean Algebra, Electronic Implementation of Boolean Operations, ,	Students will learn about the concept of Boolean algebra.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV

7th	3	Gates-Functional Block Approach, Storage elements-Flip Flops-A Functional block approach **Declamation/Group Discussion to be conducted.**	Students will learn about the logic gates and flip flops.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
8th	3	Counters: Ripple, Up/down and decade, Introduction to digital IC Gates (of TTL Type).	Students will learn about the different counters.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
9th	4	**Electric and Magnetic Circuits:** EMF, Current, Potential Difference, Power and Energy; M.M.F, magnetic force, permeability, hysteresis loop,	Students will learn about the terminology related to electrical circuits.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
10th	4	Reluctance, leakage factor and BH curve; Electromagnetic induction, Faraday's laws of electromagnetic induction, Lenz's law;	Students will learn about the basics of magnetic circuit.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
11th	4	Dynamically induced emf; Statically induced emf; Equations of self and mutual inductance; Analogy between electric and magnetic circuits. **Assignment-2 to be allotted. Class Test - 2 to be conducted.**	Students will learn about induced emf and inductances.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
12th	5	**A.C. Circuits:** Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value, Form Factor Peak Factor, impedance, phase angle, and power factor;;	Students will learn about the various terminology used in AC Circuit.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
13th	5	Mathematical and phasor representation of alternating emf and current; Voltage and Current relationship in Star and Delta connections **House Test to be conducted.**	Students will learn about the basic of AC Circuits.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
14th	5	A.C in resistors, inductors and capacitors; A.C in R-L series, R-C series, R-L-C series and parallel circuits; Power in A. C. Circuits, power triangle.	Students will learn about the series and parallel connection of RLC.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV

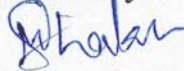|				
15th	6	**Transformer and Machines**: General construction and principle of core and shell type of transformers; Emf equation and transformation ratio of transformers;	Students will learn about the basic concept of transformers.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
16th	6	Auto transformers; Basic principle of Electromechanical energy conversion.	Students will learn about the basic concept of autotransformer.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV

Prepared By

Er. Pawan Divya
Lecturer EE
Govt. Polytechnic Rohru

Checked by

Sh. Mohan Singh
H.O.D.(A.S&H)
Govt. Polytechnic Kinnaur

Approved by

Dr. Puneet Sood
Principal
Govt. Polytechnic Kinnaur

LESSON PLAN
DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES
GOVERNMENT POLYTECHNIC KINNAUR, SHIMLA, H.P-171207

Course: Diploma	Duration: 3 Years
Subject Title: Fundamentals of Electrical and Electronics Enginnering	Session: Jan-May 2025
Subject Teacher: Pawan Divya	Semester: 2nd
Total Lectures: 64	Lectures: 4/ Week

Week	Chapter to be Covered	Topic to be Covered	Learning Outcomes	Reference
1st	1	**Overview of Electronic Components & Signals:** Passive Active Components: Resistances, Capacitors, Inductors, Diodes, Transistors and their applications ,	Students will learn about the different electrical and electronic components.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
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4th	2	**Overview of Analog Circuits:** Operational Amplifiers-Ideal Op-Amp, Practical op amp, Open loop and closed loop configurations,	Students will learn about the operational amplifiers.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
5th	2	Application of Op-Amp as amplifier, adder, differentiator and integrator. **Assignment-1 to be allotted. Class Test - 1 to be conducted.**	Students will learn about the different applications of op amp.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
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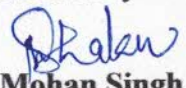|				
7th	3	Gates-Functional Block Approach, Storage elements-Flip Flops-A Functional block approach **Declamation/Group Discussion to be conducted.**	Students will learn about the logic gates and flip flops.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
8th	3	Counters: Ripple, Up/down and decade, Introduction to digital IC Gates (of TTL Type).	Students will learn about the different counters.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
9th	4	**Electric and Magnetic Circuits**: EMF, Current, Potential Difference, Power and Energy; M.M.F, magnetic force, permeability, hysteresis loop,	Students will learn about the terminology related to electrical circuits.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
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11th	4	Dynamically induced emf; Statically induced emf; Equations of self and mutual inductance; Analogy between electric and magnetic circuits. **Assignment-2 to be allotted.** **Class Test - 2 to be conducted.**	Students will learn about induced emf and inductances.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
12th	5	**A.C. Circuits:** Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value, Form Factor Peak Factor, impedance, phase angle, and power factor;;	Students will learn about the various terminology used in AC Circuit.	1. Fundamental of Electric circuits by Charles K Alexander and Mathew N O Sadiku. 2. Fundamental of Electrical and Electronics Engineering by S.K.SAHDEV
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Prepared By

Er. Pawan Divya
Lecturer EE
Govt. Polytechnic Rohru

Checked by

Sh. Mohan Singh
H.O.D.(A.S&H)
Govt. Polytechnic Kinnaur

Approved by

Dr. Puneet Sood
Principal
Govt. Polytechnic Kinnaur

GOVT POLYTECHNIC KINNAUR (CAMP AT ROHRU, DISTT. SHIMLA)

PLANNED SYLLABUS COVERAGE

Engineering graphics 1st Sem ME/Civil

Sr. no	Period no.	Topic/practical	Details of topic/practical	Assignment details	Practical Details	Remarks
1	1-10	Basic elements of Drawing	Drawing Instruments and supporting materials: method to use them with applications. Convention of lines and their applications. Representative Fractions – reduced, enlarged and full size scales; Engineering Scales such as plain and diagonal scale. Dimensioning techniques as per SP-46:2003 – types and applications of chain, parallel and coordinate dimensioning.		----------	
2	11-20	Orthographic projections	Introduction of projections-orthographic, perspective, isometric and oblique: concept and applications. (No question to be asked in examination). Introduction to orthographic projection, First angle and Third angle method, their symbols. Conversion of pictorial view into Orthographic Views – object containing plain surfaces, slanting surfaces, slots, ribs, cylindrical surfaces. (use First Angle Projection method only)			
3	21-36	Isometric Projections:	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.			

4	37-48	Free Hand Sketches of engineering elements:	Free hand sketches of machine elements: Thread profiles, nuts, bolts, studs, set screws, wash- er, Locking arrangements. (For branches other than mechanical Engineering, the teacher should select branch specific elements for free hand sketching). Free hand sketches of orthographic view (on squared graph paper) and isometric view (on isometric grid paper).			
5	49-56	Computer aided drafting interface	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, sta- tus 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.			
		Computer aided drafting	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			

Signature of Teacher

Rohit Tiwari & Pankaj Chatanta

Date: 25/06/2024

Counter signed by HOD