GOVERNMENT POLYTECHNIC BHATAPARA

DEPARTMENT OF HUMANITIES & SCIENCE

WEEKLY LESSON PLAN (Session : 2024-25)

Session start date as per University calendar- March 2025

Course Name : **APPLIED CHEMISTRY**

Name of Subject teacher: **Dr. Monika Jain**

Course Code :[2000278 (011)] SECOND SEMESTER

Lecture plus Tutorial/Week : 3

WEEKLY LESSON PLAN

SESSION:- MAY-AUGUST 2023

DISCIPLINE:- CIVIL AND ELECTRICAL		Semester:- I	Class room instruction start date-					
Lecture no.	Chapter /Unit no.	Topic/Subtopics to be covered under this unit	No. of period planned	Actual no. of period taken	Date of class conduction	TEACHING METHOD & AIDS USED	Assessment Mode (Assignment /Projects/Test /Any Other)	Remarks if any
1-2	UNIT- 1	Atomic Structure:- Electronic structure of atoms, Discovery of electron, proton and neutron	2	2	12/4/25	Lect. Method, Chalk & Board	Test/ Assignment	
3			1	1	15/4/25	PPT	Quiz & Numericals	
4-5		Rutherford model and Bohrs scheme of distribution of electrons.	2	1	16/4/25	Lect. Method, Chalk & Board	Test	
6		De-Broglie equation, Heisenberg uncertainty Principle	1	1	17/4/25	Lect. Method, Chalk & Board	Test	
7-8		Auffbaus rule, Paulis exclusion priciple, Hunds rule of maximum multiplicity, Quantum number	2	2	19/4/25	Lect. Method, Chalk & Board	Test/ Assignment	
9-10		Chemical bonding:- Theory of Chemical Bonding, Types of Bonds	2	1	22/4/25	Lect. Method, PPT, Chalk & Board	Test	
11-12	UNIT- 2	Water Treatment:- Types of Hardness, Determination of hardness using EDTA method	2	1	25/4/25	PPT, youtube video	Test/ Practical Demonstration	
13		Boiler Problems	1	1	25/4/25	PPT, youtube video	Test/ Assignment	
14-15		Water softning	2	1	26/4/25	PPT, youtube video	Test/ Assignment	
16		Muncipal water treatment, BOD&COD	1	1	26/4/25	Lect. Method, PPT, Chalk & Board	Test	
17		Quiz	1	—	—	PPT	Quiz	
18-19		Polymer:- Classification of Polymer	2	2	6/5/25	Lect. Method, Chalk & Board	Test	

20-21		Types of rubber, Processing of Natural & Synthetic rubber	2	2	7/5/25	Lect. Method, Chalk & Board	Test	
22		Properties & Applications of Buna-N, Thiokol, Neoprene	1	1	8/5/25	Lect. Method, Chalk &	Test/ Assignment	
23	UNIT-3	Electrochemistry & Batteries:- Conductance	1	1	9/5/25	Lect. Method, Chalk &	Test	
24		Elecrical Conductance in Metal & Electrolyte	1	1	10/5/25	Lect. Method, Chalk & Board	Test	
25		Conductometric Titration	1	1	10/5/25	Lect. Method, Chalk &	Test	
26-27		Batteries:- Types of batteries with examples	2	1	10/5/25	Lect. Method, PPT, Chalk & Board	Test	
28-29		Electric Insulator & Thermocouple alloy-	2	—	—	Lect. Method, Chalk & Board	Test/ Assignment	
30	UNIT-4	Metallurgy- Mineral, Ore, Gaungue, Flux, Slag.	1	1	12/5/25	Lect. Method, PPT,	Q & A	
31-32		Metallurgical process of iron and copper	2	2	13/5/25	Lect. Method, PPT,	Test	
33		Metal Alloys:- Properties of metal like copper, Aluminium,	1	1	14/5/25	Lect. Method, Chalk & Board	Test/ Assignment	
34		Ferrous Alloys Non Ferrous alloy	1	1	Summer H.W.			
35		Quiz	1	—	—	...	Quiz	
36-37		Cement:- Portland cement- Constituent, Setting and Hardening	2	1	14/5/25	Lect. Method, Chalk &	Test	All the topics are covered by GD & Seminar by Students
38	UNIT-5	Fuel & Combustion:- Fuel- Calorific Value and ignition	1	~~18/6/25~~	18/6/25	PPT	Test/ Practical	
39		Solid Fuels	1	1	20/6/25	Lect. Method, PPT,	Test	
40		Carbonization of coke by Otto Hofmanns oven	1	1	23/6/25	Lect. Method, PPT,	Test	
41		Liquid fuels	1	1	20/6/25	PPT	Test	
42		Gaseous Fuels	1	1	20/6/25	Lect. Method	Test	
43-44		Lubricants, Paints and Varnishes:- Lubricant	1	1	24/6/25	Lect. Method	Test/ Assignment	
45		Paints and Varnishes- Constituents, Properties and uses	2	1	25/6/25	Lect. Method	Test/ Assignment	
46		Quiz	1	—	—	...	Quiz	
47-51		Revision	2	—	—	Discussion		
Total Periods			48					

Class room Instruction End Date:- 30/6/25

Subject Teacher : Dr. Monika Jain
(Name and signature)

HOD

PRINCIPAL

Government Polytechnic Bhatapara

Department of Electrical & Civil Engineering

Lesson Plan - Session : Apr 24 - July 24

Sub Code: 200271 (046)		Subject: Communication Skills II				sem: 2nd	
Course: ALL	Faculty: Aamrapali Dhamgaya					ESE: 70	
	Theory Class: 2+1					CT: 20 TA:30	
	Total Class (T+L): 3					Total: 140	

Unit.No	Chapter No.	Chapter Name and Topics	Methodology	Lecture Scheduled	Date on which Lecture conducted	No. of Tutorial Periods	Remarks
1	1	**Applied Grammar**					
	1.1	Auxiliary Verbs	Chalk & duster	2	25-06-2024		
					26-06-2024		
	1.2	Modifiers & Advervial Phrases	Chalk & duster	2	08-07-2024		
					09-07-2024		
	1.3	Degree	Chalk & duster	2	02-07-2024		
					03-07-2024		
	1.4	Narration	Chalk & duster	2	09-07-2024		
					10-07-2024		
2	2	**Non-Verbal Communication**					
	2.1	Static features of Non Verbal Communication	Chalk & duster	1	17-05-2024		
	2.2	Dynamic features of Non Verbal Communication	Chalk & duster	1	14-05-2024		
3	3	**Paragraph and Letter Writing**					
	3.1	Paragraph Writing	Chalk & duster	1	12-04-2024		
	3.2	Letter Writing	Chalk & duster	1	15-04-2024		
	3.2.1	Purpose of Letters	Chalk & duster	1	17-04-2024		
	3.2.2	Characteristics of a Letters	Chalk & duster	1	19-04-2024		
	3.2.3	Types of Business Letters	Chalk & duster	2	22-04-2024		
					24-04-2024		
		Applications for Job and Resume Writing	Chalk & duster	2	26-04-2024		
		Letters of Enquiry	Chalk & duster	2	29-04-2024		
		Letter for Order Placement	Chalk & duster	2	03-05-2024		
		Letter of Complaints	Chalk & duster	2	06-05-2024		

4	4	**Technical Report Writing**				`	
	4.1	Report Writing	Chalk & duster	2	21-05-2024		
	4.1.1	Characteristics of a Good Report	Chalk & duster	2	19-06-2024		
	4.1.2	Types of Technical Report	Chalk & duster	2	09-05-2024		
	4.2	General outline of Project Report	Chalk & duster	2	11-07-2024		
	4.3	Progress Report of any assumed work	Chalk & duster	2	12-07-2024		
	4.4	**Notice**					
	4.4.1	Purposes of Notices	Chalk & duster	1	28-05-2024		
	4.4.2	Qualities of Notice	Chalk & duster	1			
	4.5	**E-Mail**					
	4.5.1	Purpose of E-Mail	Chalk & duster	1	13-05-2024		
	4.5.2	Format of E-Mail	Chalk & duster	1			
		TOTAL THEORY PERIOD		42			

FACULTY I/c :

Government Polytechnic Bhatapara

Course Name : Diploma		**Semester : 1st**		
Name of subject faculty : Aamrapali Dhamgaya		**ESE : 70**	**CT : 20**	**TA : 30**
Course Code : 2000171(046) Communication Skill-I		**Lectures/Tutorial per week =3**		

LESSON PLAN

SESSION : 2024-25

Discipline: Mechanical

S.N.	Chapter/ unit no.	Topic/Sub-topics to be covered under this unit	No. of period planned	Actual no. of period taken	Date of class conduction	Remarks
1	1	Sentence- Parts, Sentence types and transformation Affirmative, Negative and interrogative Sentence	4	4	26-11-2024 03-12-2024 04-12-2024 05-12-2024	
2		Determiners	4	4	09-12-2024 10-12-2024 11-12-2024 12-12-2024	
3		Tenses	4	4	23-12-2024 24-12-2024 30-12-2024 31-12-2024	
4		Active and Passive Voice	4	4	06-01-2025 07-01-2025 08-01-2025 09-01-2025	
5		Prepositions	2	2	10-01-2025 14-01-2025	
6		Subject Verb Agreement	1	1	20-12-2024	
7	2	Objectives of Communication	2	2	18-09-2024 20-09-2024	
8		Elements of communication process	2	2	04-10-2024 07-10-2024	
9		Seven Cs of communication	3	3	21-09-2024 24-09-2024 08-10-2024	
10		Different Communication Skills- Listening	2	2	25-09-2024 09-10-2024	
11		Speaking	3	3	30-09-2024 01-10-2024 14-10-2024	
12		Reading	1	1	01-10-2024	
13		Writing	2	2	03-10-2024 15-10-2024	

14		Effective use of listening	**2**	**2**	26-09-2024 27-09-2024	
15		Listening vs. hearing	**1**	**1**	26-09-2024	
16		Process and Purpose of listening	**2**	**2**	16-10-2024 17-10-2024	
17	**3**	Selfish Giant	**2**	**2**	25-11-2024 02-12-2024	
18		A Letter to God	**3**	**3**	19-09-2024 21-11-2024 27-11-2024	
19		An Astrologer's Day	**2**	**2**	22-11-2024 28-11-2024	
20	**4**	Language of Science	**2**	**2**	21-10-2024 22-10-2024	
21		Non-Conventional sources of energy	**3**	**3**	23-10-2024 24-10-2024 16-11-2024	
22		Our environment	**3**	**3**	05-11-2024 14-11-2024 19-11-2024	
23		Entrepreneurship	**3**	**3**	11-11-2024 13-11-2024 20-11-2024	
Total Theory Period			**57**	**57**		

Government Polytechnic, Bhatapara (Chhattisgarh)

Department of Electrical Engineering

Academic year 2024-2025

Lesson Plan - Session : JULY - DEC 2024

Course name : Applied Maths-I	Course code:2000172(014)	Semester: 1st
Faculty: Divya Jotwani	Total Class (per week) : Theory : 2 Tutorial : 1	
ESE: 70	CT: 20	TA: 30	Total: 120

Unit	Unit Name and Topics	Theory Periods Scheduled	Theory periods conducted	DATE	No.of Tutorial Periods	DATE	Remarks
1	**ALGEBRA**						
1.1	Determinants	1		5.10.24			
1.11	Concept and properties of determinants	1		8.10.24			
1.12	Solution of simultaneous eqn in three unknowns by Cramer's rule	1		17.10.24			
1.2	Matrices	1		20.09.24			
1.21	Algebra of Matrices	1		21.09.24			
1.22	Inverse of Matrices	1		24.09.24 , 26.09.24			
1.23	Solution of simultaneous eqn by matrix inversion method	2		30.09.24 , 4.10.24			
2	**DIFFERENTIAL CALCULUS**						
2.1	Basic Trigonometry	1		16.11.24			
2.11	Multiple and sub multiple angles	1		20.11.24 , 21.11.24			
2.2	functions and Limits	1		22.11.24			
2.21	Independent and Dependent variables	1		23.11.24			
2.22	Different types of function						
2.23	Concept of Limit and its evaluation	1		27.11.24 , 28.11.24			
2.3	Differentiation of elementary functions						
2.31	Differentiation of Algebraic, Trigonometric, Exponential and Logarithmic functions	1		29.11.24			
2.32	Differentiation of sum, product, quotient of two function	1		30.11.24			
2.33	Differentiation of function of function	1		4.12.24			
3	**Application of Differential Calculus**						
3.1	Second order derivatives	3		5.12.24, 6.12.24, 7.12.24			
3.2	Equation of Tangent and Normal for functions of one variable only	3		11.12.24, 12.12.24, 13.12.24			
3.3	Maxima and Minima	2		14.12.24 , 19.12.24			
3.31	Maxima and Minima for functions of one variable only	3		20.12.24, 21.12.24 2.01.25			

4	**Co-ordinate Geometry**						
4.1	Various forms of straight lines	1		3.01.25			
4.11	Co-ordinate system, slope point form, two point form	1		4.01.25, 8.01.25			
4.12	Distance between two points, division of a line segments	1		9.01.25, 10.01.25			
4.13	Two points intercepts form, general form	1		11.01.25, 11.01.25			
4.14	Perpendicular distance from a point on the line and between two parallel lines	1		14.01.25			
4.2	Conic Section						
4.21	Definition, standard forms	1		15.01.25, 15.01.25			
4.22	General equation	1		16.01.25, 16.01.25			
4.23	Center and radius of a circle	1		17.01.25			
4.24	Focus, axis, directrix, latus rectum and vertex of parabola and ellipse	2		17.01.25, 18.01.25			
5	**Fundamentals of Statistics**						
5.1	Frequency distribution and central tendency						
5.11	Introduction, graphical representation of frequency distribution	1		18.10.24			
5.12	Central tendency, mean, median, frequency distribution & mode	3		19.10.24, 19.10.24, 22.10.24			
5.2	Dispersion and Deviation						
5.21	Measure of dispersion	2		24.10.24, 25.10.24			
5.22	Range, quartile deviation	2		6.10.24, 8.10.24			
5.23	Standard deviation, root mean square deviation	2		9.11.24, 13.11.24			
5.3	Variance and coefficient of variance	1		14.11.24			

Total Theory Periods : **Total Tutorial Periods :** **Total Periods :**

Faculty Incharge :(Name & Sign.)

HOD : (Name, Seal & Sign.)

Government Polytechnic, Bhatapara (Chhattisgarh)
Department of Engineering
Academic year 2024-2025
Lesson Plan - Session :

Course name : Applied Physics | Course code:2000174(015) | Semester: 1
Faculty: Mrs.Jyoti Sen | Total Class (per week) : Theory-2 Practical-2 Tutorial-1

Unit	Unit Name and Topics	Theory Periods Scheduled	Theory periods conducted	DATE	No Of Tuto Periods	DATE	Remarks
1	**Units, Measurement and error anaysis**						
	1.1 Unit of physical quantity						
	1.11 Fundamental and derived unit	1		19/9/24			
	1.2 Unit system	1		21/9/24			
	1.21 CGS, MKS and SI	1		21/9/24		21/9/24	
	(a)Advantages/disadvantages of SI unit system (b) Seven basic and Supplementary units.	1		21/9/24			
	1.3 Dimensional Analysis	1		21/9/24			
	1.31 Dimensional formula and equations.	1		23/9/24		28/9/24.	
	1.32 Applications of Dimensional equations.	1		23/9/24			
	1.33 Numerical problems on Dimensional	2		25/9/24 26/9/24			
	1.4 Measurement	1		27/9/24			
	1.41 Accuracy, Precision and Errors.	1		1/10/24			
	1.5 Significant figures and rounding off.			1/10/24			
	1.42 Absolute, Relative and percentage Error.	1		1/10/24			
2	**Force and General Properties of matter**						
	2.1 Force						
	2.11 Types of Forces	1		3/10/24			
	(a) Conservative and nonconservative forces	1		4/10/24			
	(b) Frictional Forces, Limiting static and dynamic friction.	1		5/10/24		4/10/24	
	©Centripetel& centrifugal force	1		7/10/24			
	(d) Gravitational Force' G' and 'g' and their interrelation, Factors affecting 'g'	2		8/10/24		18/10/24	
	2.2 Elasticity						
	2.21 Hooke's law	1		9/10/24			
	(a) Elastic limit and elastic fatigue	1		15/10/24			
	2.22 Modulii of elasticities			15/10/24			
	(a) Young' s modulus, Bulk Modulus, Shear modulus of rigidity	2		18/10/24 17/10/24			
	2.3 Surface Tension						
	2.31 Molecular force, surface energy,effect of temperature	1		22/10/24		25/10/24	
	2.32 Cohesive and adhesive force	1		24/10/24			
	2.33 Excess pressure and its illustration, rise of liquid in capillary tube	2		29/10/24 26/10/24			

	2.4 Viscosity					
	Coefficient of viscosity, Newton's lawof viscosity	1		5/11/24		
	2.42 Streamline and turbulent flow, Reynolds number	1		6/11/24		
	2.43 Poiseuille's equation(no derivation of formula), Stoke's law and their applications	2		8/11/24		
3	**Optics, optical instruments and optical fibers**					
	3.1 Refraction	1		14/11/24		13/11/24
	3.11 Laws of refraction	1		14/11/24		
	3.12 Lenses and combination of lenses	1		18/11/24		
	3.2 Absolute and relative refractive index	1		19/11/24		
	3.21 Refraction through prism, Angle of minimum deviation and its relation	2		21/11/24 22/11/24		22/11/24
	3.3 Total internal reflection of light	1		26/11/24		
	3.31 Applications of TIR	1		26/11/24		
	3.32 Optical fiber, NA of Optical fiber	1		28/11/24		23/11/24
	3.4 Optical instruments	1		28/11/24		
	3.41 Simple and compound microscope	3		3/12/24, 5/12/24		
	3.42 Spectrometer	1		5/12/24		
	3.5 Critical angle. Electromagne tic spectrum	1		10/12/24		29/11/24
	3.51 Pure and Impure spectrum, Visible range	1		12/12/24		
4	**Electrostatics, Magnetism and Current Electricity**					
	4.1 Electric Charge, Coulomb's Law	1		17/12/24		
	4.2 Electric Field, Potential, Potential Difference between TwoPoints, Equi- potential Surfaces	1		19/12/24		20/12/24
	4.3 Types of dielectrics and dielectric Strength	1		20/12/24		
	4.4 Capacity, Units, Principle of Capacitor	1		24/12/24		
	4.41 Factors Affecting Capacity, type of capacitors	2		30/12/24		3/12/24
	4.5 Magnetism:	1		31/12/24		
	4.51 Magnetic lines of force, lines of induction	1		02/1/25		
	4.6 Current Electricity	1		02/1/25		2/1/25
	4.61 Resistance, Specific resistance	1		03/1/25		
	4.62 Series and parallel combinationof resistance	2		06/1/25		
	4.63 Internal resistance of a cell	1		07/1/25		
	4.64 Potential difference and e.m.f of a cell	1		07/1/25		
	4.65 Combination of cells in series and in parallel.	2		8/1/25		
	4.66 Simple applications of Wheatstone bridge, metre bridge and Potentiometer	1		7/01/25		
	4.67 Electrical power	1		7/01/25		

Modern Physics						
Photoelectric effect	1		8/01/25			
5.11 Laws of photoelectric emission, Photoelectric equation and threshold frequency	1		8/01/25			
5.12 Photo cell	1		11		8/01/25	
5.2 X-rays	1		9/1/25			
5.21 Production of X rays, properties & uses	2		9/1/25			
5.3 Laser	1		10/1/25			
5.31 Spontaneous and stimulated emission	1		10/1/25		10/01/25	
5.32 population inversion, pumping scheme and active system Ruby Laser and semiconductor laser	2		10/1/25			
5.4 Ultra-sonics	1		11/1/25			
5.41 Frequency range	1					
5.42 Methods of production- Magnetostriction & Piezo electric method	2		11/1/25			
5.43 Properties of ultra- sonics	1		9/1/25			
5.44 Applications of ultra- sonics.	1		11/1/25			

Total Periods : 83

Faculty

(Name & Sign.)

Jyoti Sen.

HOD

(Name, Seal & Sign.)

Government Polytechnic, Bhatapara (Chhattisgarh)
Department of Engineering
Academic year 2024 - 2025
Lesson Plan - Session :

Course name : Applied Physics
Faculty: Mrs.Jyoti Sen
Course code:
Semester: 2nd
Total Class (per week) : Theory-2 Practical-2 Tutorial-1

Unit	Unit Name and Topics	Theory Periods Scheduled	Theory periods conducted	DATE	No. Of Tuto Periods	DATE	Remarks
1	**Units, Measurement and error analysis**					5/04/25	
	1.1 Unit of physical quantity						
	1.11 Fundamental and derived unit	1		22/03/25			
	1.2 Unit system	1		29/03/25			
	1.21 CGS, MKS and SI	1		22/03/25			
	(a)Advantages/disadvantages of SI unit system	1		01/04/25			
	(b) Seven basic and Supplementary units.						
	1.3 Dimensional Analysis	1		2/04/25			
	1.31 Dimensional formula and equations.	1		2/04/25			
	1.32 Applications of Dimensional equations.	1		5/04/25			
	1.33 Numerical problems on Dimensional	2		8/04/25		9/04/25	
	1.4 Measurement	1		8/04/25			
	1.41 Accuracy, Precision and Errors.	1		9/04/25			
	1.5 Significant figures and rounding off.			9/04/25			
	1.42 Absolute, Relative and percentage Error.	1		12/04/25			
2	**Force and General Properties of matter**					15/04/25	
	2.1 Force						
	2.11 Types of Forces	1		8/04/25			
	(a) Conservative and nonconservative forces	1		12/04/25			
	(b) Frictional Forces, Limiting static and dynamic friction.	1		18/04/25			
	©Centripetel& centrifugal force	1		15/04/25			
	(d) Gravitational Force' G' and 'g' and their interrelation, Factors affecting 'g'	2		15/04/25			
	2.2 Elasticity						
	2.21 Hooke's law	1		22/04/25			
	(a) Elastic limit and elastic fatigue	1		16/04/25			
	2.22 Modulii of elasticities			16/04/25			
	(a) Young' s modulus, Bulk Modulus, Shear modulus of rigidity	2		19/04/25			
	2.3 Surface Tension					23/04/25	
	2.31 Molecular force, surface energy,effect of temperature	1		22/04/25			
	2.32 Cohesive and adhesive force	1		23/04/25			
	2.33 Excess pressure and its illustration, rise of liquid in capillary tube	2		23/04/25 26/04/25			

	2.4 Viscosity					
	Coefficient of viscosity, Newton's lawof viscosity	1		29/04/25		
	2.42 Streamline and turbulent flow, Reynolds number	1		29/04/25		
	2.43 Poiseuille's equation(no derivation of formula), Stoke's law and their applications	2		30/04/25 29/04/25		
3	**Optics, optical instruments and optical fibers**				7/05/25 13/05/25	
	3.1 Refraction	1		3/05/25		
	3.11 Laws of refraction	1		3/05/25		
	3.12 Lenses and combination of lenses	1		6/05/25		
	3.2 Absolute and relative refractive index	1		6/05/25		
	3.21 Refraction through prism, Angle of minimum deviation and its relation	2		7/05/25		
	3.3 Total internal reflection of light	1		7/05/25		
	3.31 Applications of TIR	1		10/05/25		
	3.32 Optical fiber, NA of Optical fiber	1		10/05/25		
	3.4 Optical instruments	1		13/05/25		
	3.41 Simple and compound microscope	3		13/05/25		
	3.42 Spectrometer	1		14/05/25		
	3.5 Critical angle. Electromagne tic spectrum	1		14/05/25		
	3.51 Pure and Impure spectrum, Visible range	1		17/05/25		
4	**Electrostatics, Magnetism and Current Electricity**				20/05/25 24/05/25	
	4.1 Electric Charge, Coulomb's Law	1		18/05/25		
	4.2 Electric Field, Potential, Potential Difference between TwoPoints, Equi- potential Surfaces	1		18/05/25		
	4.3 Types of dielectrics and dielectric Strength	1		18/05/25		
	4.4 Capacity, Units, Principle of Capacitor	1		19/05/25		
	4.41 Factors Affecting Capacity, type of capacitors	2		20/05/25		
	4.5 Magnetism:	1		20/05/25		
	4.51 Magnetic lines of force, lines of induction	1		21/05/25		
	4.6 Current Electricity	1		21/05/25		
	4.61 Resistance, Specific resistance	1		21/05/25		
	4.62 Series and parallel combinationof resistance	2		23/05/25		
	4.63 Internal resistance of a cell	1		23/05/25		
	4.64 Potential difference and e.m.f of a cell	1		23/05/25		
	4.65 Combination of cells in series and in parallel.	2		24/05/25		
	4.66 Simple applications of Wheatstone bridge, metre bridge and Potentiometer	1		24/05/25		
	4.67 Electrical power	1		28/05/25		

5	**Modern Physics**						
	Photoelectric effect	1				28/06/25	
	5.11 Laws of photoelectric emission, Photoelectric equation and threshold frequency	1		25/06/25			
	5.12 Photo cell	1		26/06/25			
	5.2 X-rays	1		26/06/25			
	5.21 Production of X rays, properties & uses	2		27/06/25			
	5.3 Laser	1		27/06/25			
	5.31 Spontaneous and stimulated emission	1		28/06/25			
	5.32 population inversion, pumping scheme and active system Ruby Laser and semiconductor laser	2		28/06/25			
	5.4 Ultra-sonics	1		30/06/25			
	5.41 Frequency range	1					
	5.42 Methods of production- Magnetostriction & Piezo electric method	2					
	5.43 Properties of ultra- sonics	1					
	5.44 Applications of ultra- sonics.	1					

Total Periods : 60

Faculty

(Name & Sign.)

Mrs. Jyoti Sen.

HOD

(Name, Seal & Sign.)

1. **Name of the Institute** — **GOVT POLYTECHNIC, BHATAPARA**
2. **Name of the department** — Electrical Engineering
3. **Name of the Teacher** — Mrs. Sunita Tiwari
4. **Title of the course** — **WIND and SOLAR POWER TECHNOLOGY**
5. **Course Code** — **2024672(024)**
6. **Credits** — **5**
7. **Contact hours** — **6** Classes/week (Total approx. **90** classes during semester)

Course Outcomes (Cos)	**CO-1 Use renewable sources of energy.**
	CO-2 Analyze the working of various components of wind power plants.
	CO-3 Maintain wind power plants.
	CO-4 Analyze the working of series and parallel connection of PV cells.
	CO-5 Implement PV modules with battery for domestic/commercial applications.

Session: **Semester: SIXTH** **Class room instruction start Date:**

Session Outcomes	Class room instruction topics	No. of periods planned	Actual number of periods taken	Theory/Tutorial/Doubts/Quiz/Content coverage beyond syllabus/Remedial classes	Learning Resources	Remarks
UNIT 1: Renewable Energy Sources **SO 1.1** Differentiate between conventional and Non-conventional sources of energy.	Various sources of Energy Conventional and Nonconventional.	1	14/01/2025	Theory	Book & Internet/Lecture Notes	
	Importance of Non-Conventional Energy Sources.	2	15/01/2025 16/01/2025	Theory	Book & Internet/Lecture Notes	
	Tutorial No 1	1	18/01/2025	Tutorial 1	Discussion	20/01/2025
SO 1.2 Classify various renewable energy resources on the basis of the given parameter	Energy Chain – Energy Flow block diagram from primary energy source to final energy consumption via electrical and non-electrical route.	3	23/01/2025 25/01/2025	Theory	Book & Internet/Lecture Notes	
	Advantages and disadvantages of conventional energy sources.	1	27/01/2025	Theory	Book & Internet/Lecture Notes	28/01/2025
SO 1.3 State the major features of given Non-conventional energy sources.	Salient features of Nonconventional energy sources.	2	29/01/2025 30/01/2025	Theory	Book & Internet/Lecture Notes	

SO 1.4 Describe the advantages of Green power.	Green Power- Definition and advantages	2	31/01/2025	Theory	Book & Internet/Lecture Notes	
	Tutorial No 2	1	4/2/2025	Tutorial - 2	Discussion	
UNIT 2: Wind Energy **SO 2.1**Explain the aerodynamic features of a given wind power plant	Wind Energy - Introduction	2	5/02/2025	Theory	Book & Internet/Lecture Notes	
	Factors effecting the distribution of wind energy on the surface of earth.	3	06/02/2025 8/02/2025	Theory	Book & Internet/Lecture Notes	
	Tutorial No 3	1	10/02/2025	Tutorial - 3	Discussion	
SO 2.2 Explain the nature of variation of wind speed with height from the ground.	Variation of wind speed with height- existing formula and related plot	3	12/02/2025 13/02/2025	Theory	Book & Internet/Lecture Notes	22/02 2025
	Estimation of wind energy at a site – Power in wind, empirical formula, Wind speed duration curve, Power versus wind speed characteristics.	3	15/02/2025 18/02/2025	Theory	Book & Internet/Lecture Notes	
SO 2.3 Explain the factors responsible for distribution of wind energy on the surface of earth.	Capacity Factor of a Wind power plant –Definition and formula.	2	24/02/2025 25/02/2025	Theory	Book & Internet/Lecture Notes	25/02 25
	Tutorial No 4	1	27/02/2025	Tutorial - 4	Discussion	
SO 2.4 State the most favorable sites for installation of wind turbines.	Selection of Site for a Wind Power Plant- Factors effecting wind power generation, important features	2	03/03/2025 04/03/2025	Theory	Book & Internet/Lecture Notes	
	Elementary Fluid Flow concepts – nature of flow around a body, relative motion of fluid at the boundary wall,	3	12/03/2025 17/03/2025	Theory	Book & Internet/Lecture Notes	

	fluid friction, pressure difference, drag on a body, lift force.					18/03/2025
UNIT 3: Wind Power Generation **SO 3.1** Explain the working of the given type of wind power plant.	Introduction- block diagram of wind energy conversion systems (WECS).	3	18/03/2025	Theory	Book & Internet/Lecture Notes	
	Wind Turbines – Types Horizontal Axis Wind Turbine(HAWT) & Vertical Axis Wind Turbine(VAWT)	2	25/03/2025 26/03/2025	Theory	Book & Internet/Lecture Notes	
	Tutorial No 5	1	29/03/2025	Tutorial No 5	Discussion	7/04/2025
SO 3.2 Describe the procedure of scheduled and preventive maintenance of the given type of wind power system.	Speed Control strategies for wind turbines - Yaw and tilt control, pitch control and stall control	4	1/04/2025 1/04/2025	Theory	Book & Internet/Lecture Notes	
	Tutorial No 6	1	2/04/2025	Tutorial No 6	Discussion	
SO 3.3 Describe the procedure to troubleshoot the faults of the given type of wind power system.	Generators Suitable for Wind Power Generation- DC, Synchronous and Induction generators, advantages and disadvantages	3	3/04/2025	Theory	Book & Internet/Lecture Notes	3/04/2025
	Fixed speed drive scheme – power output versus wind speed characteristics	3	4/04/2025	Theory	Book & Internet/Lecture Notes	
	Variable speed drive Scheme& Environmental aspects of wind power	4	4/04/2025 5/04/2025 8/04/2025	Theory	Book & Internet/Lecture Notes	
	Tutorial No 7	1	7/04/2025	Tutorial No 7	Discussion	
UNIT 4: PV cell **SO 4.** Describe the VI characteristics of a PV cell	PV cell characteristics and its equivalent circuit. Types of material	4	8/04/2025	Theory	Book & Internet/Lecture Notes	9/04/2025

	used for PV cells					
	Data sheet of PV cell with emphasis on short circuit current, open circuit voltage, peak power, cell efficiency parameters	4	9/4/2025	Theory	Book & Internet/Lecture Notes	
SO 4.2 Explain the effect of temperature on the open circuit voltage and short circuit current of a PV cell.	Effect of temperature on PV cell.	2	10/4/2025	Theory	Book & Internet/Lecture Notes	
	Tutorial No 8	1	10/4/2025	Tutorial No 8	Discussion	
SO 4.3 Justify the need of connecting PV cells in series and parallel.	Connection of Identical and non-identical PV cells in series	3	10/4/2025 11/04/2025	Theory	Book & Internet/Lecture Notes	
	Connection of Identical and non-identical PV cells in parallel	3	12/04/2025	Theory	Book & Internet/Lecture Notes	
SO 4.4 Describe the limitation in load sharing when non identical PV cells are connected in series.	Protecting series and parallel connected PV cells	3	15/04/2025	Theory	Book & Internet/Lecture Notes	
SO 4.5 Describe the limitation in load sharing when non identical PV cells are connected in parallel	Interconnection of modules in series and parallel	3	16/04/2025	Theory	Book & Internet/Lecture Notes	
UNIT 5: Energy from sun and sizing of PV SO 5.1 Describe the insolation and irradiance and its variation with time.	Insolation and irradiance and Insolation variation with time of a day	3	17/04/2025	Theory	Book & Internet/Lecture Notes	
SO 5.2 Describe the earth centric view point and energy	Insolation and energy on a horizontal flat plate.	3	17/04/2025	Theory	Book & Internet/Lecture Notes	

incident ona horizontal flat surface	Atmospheric effects.	2	14/04/2025			
	Tutorial No 9	1	15/04/2025	Tutorial No 9	Discussion	
SO5.3 Explain types of battery and the battery parameters	Introduction to batteries, Battery capacity, Battery C rate,Battery efficiency, Energy and power densities	3	15/04/2025	Theory	Book & Internet/Lecture Notes	
SO5.4 Evaluate PV sizing for a given load profile without battery	Battery selection, Battery and PV sizing for a domestic/commercial application considering days of autonomy	3		Theory	Book & Internet/Lecture Notes	
	Tutorial No 10	1		Tutorial No 10	Discussion	

Total number of classes planned: ~~94~~ 72
Total number of classes actually taken: 60

Sign of Teacher

HOD