DEPARTMENT OF MECHANICAL ENGINEERING
GOVERNMENT CO-ED POLYTECHNIC, JAGDALPUR
Near RTO office Aadawal, Jagdalpur, Bastar (C.G) - 494001
Email: mechanical.gcpb@gmail.com

DEPARTMENT OF MECHANICAL ENGINEERING

Lesson Plan / Teacher's Diary

Session: Apr - May 2026

Name of Faculty: Rakesh Kumar Ray
Subject: Fundamentals of Civil & Mechanical Engineering
Course Code: 2000B02AT020
Branch & Semester: Electrical Engineering & Diploma 2nd Sem

Faculty Signature (Rakesh Kumar Ray)	HOD Signature

Principal
Govt. Co-Ed Polytechnic
Jagdalpur, Adawal

DEPARTMENT OF MECHANICAL ENGINEERING

Government Co-Ed Polytechnic Jagdalpur

Session - Apr - May 2026

LESSON PLAN / TEACHER'S DIARY

Subject: Fundamentals of Civil & Mechanical Engineering

Name Of Faculty: Rakesh Kumar Ray

Branch & Semester: Electrical Engineering & Diploma in 2nd Semester

Course Code: 2000B02AT020

LECT. N0.	UNIT N0.	TOPIC TO BE COVERED	PLANNED DATE	EXECUTION DATE	REMARKS
		UNIT-1: BUILDING MATERIALS			
1	1	Introduction of Brick, Classification of bricks.	02.03.2026 - 25.03.2026	02.03.2026	
2		Dimensions of modular and traditional bricks.		06.03.2026	
3		Good brick earth, moulding, characteristics of good bricks.		07.03.2026	
4		compression test and absorption test.		09.03.2026	
5		Constituents of cement, types of cement.		11.03.2026	
6		Wet process for manufacture of Portland cement,		13.03.2026	
7		Initial and final setting times, use of Vicat needle apparatus.		14.03.2026	
8		Distinctions between ordinary Portland cement, Pozzolana cement.		16.03.2026	
9		Grades of cement, white cement, uses of cements.		18.03.2026	
10		Stone: Geological, physical and chemical classification of stone		23.03.2026	
11		Important stones, uses of stone.		25.03.2026	

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Branch & Semester: Electrical Engineering & Diploma in 2nd Semester

Course Code: 2000B02AT020

LECT. N0.	UNIT N0.	TOPIC TO BE COVERED	PLANNED DATE	EXECUTION DATE	REMARKS
		UNIT-2: SURVEYING			
12	2	Introduction of Chain Survey, Chain Survey: Need of survey.	26.03.2026 - 10.04.2026	27.03.2026	
13		Instruments used in Chain Survey.		28.03.2026	
14		Types of chain and tapes.		06.04.2026	
15		Selection of survey-stations. Chain-lines, Off-sets, Oblique- offsets.		08.04.2026	
16		Selection of survey-stations. Oblique- offsets, Tie-lines, Check-lines.		10.04.2026	
17		Ranging. Field-Book, Plotting.		11.04.2026	
18		Compass Survey: The prismatic compass.		13.04.2026	
19		Compass Survey: The surveyors compass.		15.04.2026	
20		Definition and types of meridian. Dip and Declination.		16.04.2026	
21		Bearing: Whole circle bearing.		18.04.2026	
22		Bearing: Fore bearing and Back bearing.		20.04.2026	

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LECT. N0.	UNIT N0.	TOPIC TO BE COVERED	PLANNED DATE	EXECUTION DATE	REMARKS
		UNIT-3: FOUNDATION AND ESTIMATE			
23	3	Introduction of Foundation and its Importance	11.04.2026 - 30.04.2026	21.04.2026	
24		Necessity of foundations.		22.04.2026	
25		Bearing Capacity, safe bearing capacity, ultimate bearing capacity.		23.04.2026	
26		Types of foundations.		24.04.2026	
27		Sketches of spreads footing for walls, rectangular R.C.C.		25.04.2026	
28		footing for columns.		27.04.2026	
29		Raft-foundations for a group of columns.		29.04.2026	
30		Introduction of Estimation and its Importance		04.05.2026	
31		Type of estimate.		05.05.2026	
32		Estimate of simple building of two rooms.		06.05.2026	

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LECT. N0.	UNIT N0.	TOPIC TO BE COVERED	PLANNED DATE	EXECUTION DATE	REMARKS
		UNIT-4: BASICS OF APPLIED MECHANICS			
33	4	Definition and importance of Applied Mechanics.	01.05.2026 - 20.05.2026	08.05.2026	
34		Overview of Statics and Dynamics.		09.05.2026	
35		Types of Forces, External, Internal, and Concurrent Forces.		11.05.2026	
36		Types of Force Systems, Resolution of Forces into Components.		13.05.2026	
37		Equilibrium of a Body,Conditions for Static Equilibrium ($\Sigma F = 0, \Sigma M = 0$).		15.05.2026	
38		Free Body Diagram (FBD).		16.05.2026	
39		Analysis of a Simple Structure (Trusses, Beams)		18.05.2026	
40		Introduction of Friction, Types of Friction: Static, Kinetic, Rolling.		20.05.2026	
41		Laws of Friction, Coefficient of Friction.		22.05.2026	
42		Application in Design (Wedges, Belts, Inclined Plane)		23.05.2026	
43		Definition and Physical Significance of CG and MI		25.05.2026	

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LECT. N0.	UNIT N0.	TOPIC TO BE COVERED	PLANNED DATE	EXECUTION DATE	REMARKS
		UNIT-5: ENGINERRING MATERIALS AND THEIR PROPERTIES			
44	5	Classification of Materials(Metals and Non-Metals).	25.05.2026 - 10.06.2026	28.05.2026	
45		Properties of materials-Mechanical, Physical, Chemical.		29.05.2026	
46		Factors Affecting Material Selection in Engineering Design.		30.05.2026	
47		Stress-Strain behavior and Elastic Modulus.		01.06.2026	
48		Concept of Yield Strength, Ultimate Strength, and Fracture Toughness.		03.06.2026	
49		Fatigue, Creep and Corrosion Resistance in Engineering Materials.		05.06.2026	
50		Testing of Materials: Destructive and Non-destructive testing.		06.06.2026	
51		Hardness Test: Brinell and Rockwell Hardness test.		08.06.2026	
52		Impact tests – Charpy and Izod tests.		10.06.2026	
53		Magnetic particle crack detection test, Dye penetration test.		12.06.2026	
54		Ultrasonic test, Radiography test, Eddy current test.		13.06.2026	

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Course Code: 2000B02AT020

LECT. N0.	UNIT N0.	TOPIC TO BE COVERED	PLANNED DATE	EXECUTION DATE	REMARKS
		UNIT-6: PRINCIPLE OF THERMODYNAMICS			
55	6	Introduction to Thermodynamics-Basic Definitions: System, Surroundings	10.05.2026 - 30.06.2026	13.06.2026	
56		State, Process, Types of Systems: Open, Closed, and Isolated,		15.06.2026	
57		Properties of a Thermodynamic System Intensive vs. Extensive		17.06.2026	
58		Thermodynamic Laws: Zeroth Law of Thermodynamics		19.06.2026	
59		Thermodynamic Laws: 1st Law of Thermodynamics		20.06.2026	
60		Thermodynamic processes: constant pressure, constant temperature.		22.06.2026	
61		Thermodynamic processes: constant volume, adiabatic and isentropic processes		24.06.2026	
62		Heat Transfer Methods: Conduction.		25.06.2026	
63		Heat Transfer Methods: Convection.		27.06.2026	
64		Heat Transfer Methods: Radiation		01.07.2026	
65		Specific Heat Capacities and Their Use in Energy Calculations.		03.07.2026	
66		Thermodynamic Cycles- Otto and Thermal Efficiency.		04.07.2026	
67		Thermodynamic Cycles- Diesel cycle, Applications of Thermodynamics.		06.07.2026	

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Session: Apr - May 2026

Name of Faculty: Rakesh Kumar Ray

Subject: Fundamentals of Civil & Mechanical Engineering

Course Code: 2000B02AT020

Branch & Semester: Mechanical + Metallurgical Engineering Diploma 2nd Sem

Faculty Signature (Rakesh Kumar Ray)	**HOD Signature**

Principal
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DEPARTMENT OF MECHANICAL ENGINEERING

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67		Thermodynamic Cycles- Diesel cycle, Applications of Thermodynamics.		06.07.2026	

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GOVERNMENT CO-ED POLYTECHNIC,JAGDALPUR
BASTAR(C.G)
DEPARTMENT OF SCIENCE AND HUMANITY
LESSON PLAN

Session: - JAN-JUNE 2025
Semester: - **2 nd**
Session start date as per University Calendar: -
Course Name:- Applied Mathematics
CourseCode:- 2000B04AT014

Name of Subject teacher:- KAJAL BEHARA

Unit-1.0 Integral Calculus			
Class Room Instruction (CI)	**No. of Periods**	**Laboratory Instruction (LI)**	**Remark**
1.1 Simple Integration: Rules of integration and integration of standard functions	4		
1.2 Methods of Integration: 1.21 Integration by substitution. 1.22 Integration by parts 1.23 Integration by partial fractions.	6		

Unit-2.0 Definite Integral			
Class Room Instruction (CI)	**No. of Periods**	**Laboratory Instruction (LI)**	**Remark**
1.1 Definite integral	5		
1.2 Area under the curve using integration	7		

Unit-3.0 Differential equations of first order and first degree			
Class Room Instruction (CI)	**No. of Periods**	**Laboratory Instruction (LI)**	**Remark**
3.1 Concept of differential equation	1		
3.2 Order, degree and formation of differential equation	4		
3.3 Solution of differential equation 3.31 Variable separable form. 3.32 Homogeneous Differential Equations	5		
3.4 Linear differential equation	3		

Unit-4.0 Numerical solution of integration			
Class Room Instruction (CI)	**No. of Period**	**Laboratory Instruction (LI)**	**Remark**
Introduction of algebraic and transcendental equations	1		
4.1 Bisection method	4		
4.2 regula falsi method	3		
4.3 Newton Raphson method	4		

Unit-5 Numerical integration			
Class Room Instruction (CI)	**No. of Period**	**Laboratory Instruction (LI)**	**Remark**
I Introduction to Numerical integration	1		
5.1 Trapezoidal rule	3		
5.2 Simpson's one third rule	4		
5.2 Simpson's three eighth rule	4		

GOVERNMENT CO-ED POLYTECHNIC,JAGDALPUR BASTAR(C.G)

DEPARTMENT OF SCIENCE & HUMANITIES

LESSON PLAN

Session: - **APR-MAY 2026**
Semester: - **2nd**
Session start date as per University Calendar: -
Course Name: - **Fundamentals of Electrical & Electronics Engineering**
Course Code: - **2000B03AT028**
Name of Subject teacher:- **ONKAR DEWANGAN**

Unit -1 Active and passive elements			
Class Room Instruction (CI)	**No. of Periods**	**Self-Learning (SL)**	**Remark**
1.1 Ideal voltage and current sources, V-I characteristic of ideal and practical voltage and current sources		Sketch the symbols of different types of resistors	
1.2 charge, current, voltage or potential difference, electrical ground, electric power resistance conductance resistivity. Linear and nonlinear element			
1.3 Ohm's law, open circuit and short circuit types of resistor and resistor color code		Compare the rating of the different types of active and passive components	
1.4 Energy storage circuit elements ideal capacitor capacitance I-V relation of capacitor, types of capacitor, colour coding of capacitor			
1.5 Ideal inductor inductance I- V relation of inductor, type of inductors and color coding of inductor			

Number of periods planned (Approx.Hrs:CI+LI+SW+SL) : **09**
Number of periods actually taken :

Unit – 2 Fundamentals of Electric Circuits			
Class Room Instruction (CI)	**No. of Periods**	**Self-Learning (SL)**	**Remark**
2.1 Electrical Network, branch loop, mesh, node.		Prepare a chart showing the different types of magnetic materials and draw their B-H curve	
2.2 Kirchhoff's Voltage Law (KVL) and Kirchhoff's current law (KCL)			
2.3 Series resistors and the voltage divider rule, parallel resistors and current divider rule.			
2.4 Inductors and capacitors in series and parallel			
2.5 Passive sign convention for power absorbed and dissipated			
2.6 Use of KCL KVL to determine voltage current and power in simple series and parallel circuit.			
2.7 Concept of Magnetic field andflux linkage, Types of Electromotive forces Magnetic coupling , Self and mutual inductances			
Number of periods planned (Approx.Hrs:CI+LI+SW+SL) : **09** **Number of periods actually taken :**			

Unit – 3 Semiconductor Materials and Diode Devices			
Class Room Instruction (CI)	**No. of Periods**	**Self-Learning (SL)**	**Remark**
3.1 Semiconductors: Types: Intrinsic, Extrinsic, charge carrier & conductivity		Compare different types of semiconductor materials (Silicon, Germanium, Gallium Arsenide) and their applications.	
3.2 P-N Junction Diode: Formation of P-N junction, behavior under forward and reverse bias, I-V characteristics, working principle & Application of Diodes: Rectifiers (Half-wave, Full-wave)			
3.3 Special Diodes: Zener, LED, Photodiode. (Working Principle & Application)			
Number of periods planned (Approx.Hrs:CI+LI+SW+SL) : **09** **Number of periods actually taken :**			

Unit – 4 Bipolar Junction Transistor (BJT) and Field effect transistor (FET)			
Class Room Instruction (CI)	**No. of Periods**	**Self-Learning (SL)**	**Remark**
4.1 BJT: Types of BJT; Working Principle, Mode of Operation, Application of BJT as Amplifier, Switch.		Understand the importance of Heat Sink in power transistors and MOSFETs	
4.2 Field Effect Transistor (FET) : Construction, working principle, Schematic Symbol			
4.3 Metal Oxide FET: Types of MOSFET, Construction, working principle, Schematic Symbol (Enhancement type).			

Number of periods planned (Approx.Hrs:CI+LI+SW+SL) : **09**
Number of periods actually taken :

Unit – 5 Number Systems & Logic Gates			
Class Room Instruction (CI)	**No. of Periods**	**Self-Learning (SL)**	**Remark**
5.1 NUMBER SYSTEM: Importance of Number System, Types of Number Systems: Binary, Decimal, Octal, Hexadecimal		Study the application of logic gates in real-world electronic circuits.	
5.2 Number System Conversions: Binary to Decimal and Decimal to Binary, Binary to Hexadecimal, Binary to Octal			
5.3 Logic Gates: Basic Logic Gates: AND Gate, OR Gate, NOT Gate. Universal Logic Gates: NAND Gate, NOR Gate			

Number of periods planned (Approx.Hrs:CI+LI+SW+SL) : **09**
Number of periods actually taken :

Number of Total periods planned (Approx.Hrs:CI+LI+SW+SL): **45**
Number of Total periods actually taken :
Subject Teacher : ONKAR DEWANGAN

(Name and Signature)
Onkar Dewangan

HOD
(Department of Science & Humanities)

GOVERNMENT CO-ED POLYTECHNIC,JAGDALPUR BASTAR(C.G)

DEPARTMENT OF SCIENCE AND HUMANITY

LESSON PLAN

Session: - APR-MAY **2026**
Semester: - **2nd**
Session start date as per University Calendar: - **02/03/2026**
Course Name: - Applied Physics
Course Code: - 2000B01AT015
Name of Subject teacher:- **AAYUSHI DEWANGAN**

Unit-1.0 Unit & Dimensional Analysis				
Class Room Instruction (CI)	**No. of Periods**	**Laboratory Instruction (LI)**	**No. of Periods**	**Remark**
1.1 Units for measurement 1.11 Fundamental andderived unit		LE1.1 Use Vernier Calipers to measure the dimensions of givenobject in significant figures and estimate errors precisely.		
1.12 S. I. units, Advantages of SI unit 1.2 Dimensional Analysis 1.21Dimensions & Dimensional Formula 1.22Applications of Dimensional Analysis		LE1.2 Use Screw gauge to measure the dimensions of givenobject in significant figures and estimate errors precisely		
1.3 Accuracy & Precision 1.31 Accuracy & Precision definition and examples .		LE1.3 Use Spherometer to measure the dimensions of given objects in significant figures and estimateerror precisely.		

Number of periods planned (Approx. Hrs: CI+ LI+SW+SL) = **18**
Number of periods actually taken :

Unit-2.0 Force and General Properties of matter				
Class Room Instruction (CI)	**No. of Periods**	**Laboratory Instruction (LI)**	**No. of Periods**	**Remark**
2.1 Force 2.11 Conservative and non-conservative forces 2.12Gravitational Force, Relation between' G' and 'g' and Factors affecting 'g'		LE2.1 Determine g using simple pendulum.		
		LE2.2 Determine terminal velocity of given object by Stoke's law apparatus.		
2.2 Surface Tension 2.21 Adhesive and Cohesive force 2.22 Surface energy and surface tension 2.23 Surface tension in daily life. 2.24 Rise of liquid in capillary tube (no derivation of formula)		LE2.3 Determine surfacetension of water by Capillary rise method.		
		LE2.4 Comparison of viscosity of different liquids		
2.3 Viscosity 2.31Coefficient of viscosity, Newton's law of viscosity 2.32 Streamline and turbulent flow 2.33 Reynolds number and it's significance 2.34 Stoke's law				

Number of periods planned (Approx. Hrs: CI+ LI+SW+SL) = **18**
Number of periods actually taken :

Unit-3.0 General Optics				
Class Room Instruction (CI)	**No. of Periods**	**Laboratory Instruction (LI)**	**No. of Periods**	**Remark**
3.1 Refraction 3.11 Refraction through multiple media & Law of reversibility of light. 3.12 Refraction through lenses at different positions, real and virtual image 3.13 Refraction through prism, formula for thin prism 3.14 Total internal reflection of light, critical angle, relation between critical angle and refractive index		LE3.1 Calculate refractive indexof material of glass slab. LE3.2 Calculate refractive indexof material of glass prism. LE3.3 Calculate focal lengthof convex/concave lenses accurately.		
3.2 Pure and impure spectrum				

3.3 Optical fiber				

Number of periods planned (Approx. Hrs: CI+ LI+SW+SL) = **18**
Number of periods actually taken :

Unit-4.0. Basic of Electricity and Magnetism

Class Room Instruction (CI)	No. of Periods	Laboratory Instruction (LI)	No. of Periods	Remark
4.1 Static Electricity 4.11Electric Charge, Coulomb's law, Electro static potential		LE4.1 To determine the resistance of a conductor by applying Ohm's law.		
4.2Current Electricity 4.21 Current, Voltage, Resistance, Specific resistance & conductivity 4.22 Ohm's Law 4.23 Relation between voltage, current & power in electrical circuit.		LE4.2 To determine the power consumption in resistive load using voltmeter and ammeter		
4.3 Magnetism 4.31 Magnetic pole strength and Coulomb's inverse square law for magnets 4.32 Magnetic flux and magnetic field intensity		LE4.3 To draw the magnetic lines of force of a bar magnet keeping its N-pole pointing to magnetic north of the earth (N-N). Locate neutral points.		
4.4Electromagnetismlinkage magnetic flux of an EMF in a coil (Faraday's law)		LE4.4 To draw the magnetic lines of force of a bar magnet keeping its S-pole pointing to magnetic north of the earth (N-S). Locate neutral points.		

Number of periods planned (Approx. Hrs: CI+ LI+SW+SL) = **18**
Number of periods actually taken :

UNIT 5. Modern Physics				
Class Room Instruction (CI)	**No. of Periods**	**Laboratory Instruction (LI)**	**No. of Periods**	**Remark**
5.1 Photoelectric effect		LE5.1Calculate the work function of given photoelectric materials.		
5.2Laws of photoelectric emission, photoelectric effect and threshold frequency.				
5.3 Einstein's photoelectric equation		LE5.2Calculate the divergence of given laser.		
5.4 Laser 5.41 Spontaneous and stimulated emission 5.42 Population inversion, pumping methods, active medium and resonance cavity. 5.43 Ruby Laser 5.44 Ultra sonics 5.51 frequency range 5.52 production of ultra sonic waves using piezo electric mrthod 5.53 Properties of ultra-sonic waves. 5.54 Applications of ultra-sonic waves.		LE5.3To verify inverse square law of light using photocell		

Number of periods planned (Approx. Hrs: CI+ LI+SW+SL) = **18**
Number of periods actually taken :

Number of Total periods planned : 90
Number of Total periods actually taken :
Subject Teacher : AAYUSHI DEWANGAN

Aayushi

(Name and Signature)

Aayushi Dewangan

HOD

(Department of SCIENCE & HUMANITY)

GOVT. CO-ED POLYTECHNIC BASTAR, JAGDALPUR

DEPARTMENT OF HUMANITIES & SCIENCE

LESSON PLAN

Course Name : **Environmental Engg. & Sustainable Development (EE & SD)** Course Code : **2000B05CT020**	**Session- Apr-May 2026**	
Name of Subject teacher: **TEMAN LAL BARLE**		
Lecture plus Tutorial/Week : **3** Branch : **ELECTRICAL**		
Semester: 2		

LESSON PLAN

Lecture no.	chapter/unit no.	Topic/Subtopics to be covered under this unit	No. of period planned	Remarks if any
1	**UNIT- 1**	**Water pollution and Air pollution:** Introduction to environment and environment pollution	1	
2		**water pollution :** Introduction, classification of water pollutants	1	
3-4		sources of water pollution, adverse effect of water pollution, control of water pollution	2	
5		Physical and chemical standard of domestic water as per Indian standard.	1	
6		**Air pollution:** Introduction, classification of air Pollutants,	1	
7-8		Sources of air Pollutants, Effect of air pollution on human plant, animal.	2	
9-10		Air monitoring system and air pollution control	2	
11-13	**UNIT- 2**	**Soil pollution:** introduction, sources, adverse effec and control measures of soil pollution	3	
14-15		**Noise pollution:** Introduction, sources, effects and control of noise pollution	2	
16-17		**Thermal pollution:** introduction, causes, effects and control of thermal pollution	2	
18-20		**Radioactive pollution:** introduction, sources, effects and control of radioactive pollution	3	
21	**UNIT-3**	**Sustainable Development :** Concept of sustainable development and types of resources	1	
22		Principles of conservation of energy and management	1	
23-24		Need of Renewable energy Growth of renewable energy in India and the world Concept of waste management and recycling	2	

25		**Clean Technologies** Introduction: Clean technology Types of Energy- Conventional and Non-conventional Sources of Energy	1	
26-27		**Solar Power** Features of solar thermal and PV systems Types of solar cookers and solar water heaters	2	
28		Hydel Energy , wind energy - advantages and limitations	1	
29-30		**Biomass Energy:** Types of Biomass Energy Sources Energy content in biomass of different types Types of Biomass conversion processes Biogas production	2	
31	**UNIT-4**	**Envi. Impact Assessment (EIA)** : Public Participation in EIA	1	
32-33		EIA documentation	2	
34		Case studies on EIA	1	
35-36		EIA scope & steps	2	
37-38		**EIA process:** EIA report, EIA Gazette notification	2	
39-40		**EIA action plan:** EIA implementation , EIA directives, Follow-up	2	
41-42	**UNIT-5**	**Social Issues And The Environment :** Water conservation, Rain water Harvesting, Watershed management	2	
43-46		Acid Rain and its effects, Climate Change, Ozone Layer Depletion, Green house effect, Global Warming	4	
47		**Solid waste management:** causes, effects and control measures of urban and industrial waste, importance ofm 3R's in waste management.	1	
48		**Environment protection Act** **1986:** importance and objective	1	
Total Periods			48	

Total No. of periods as per Lesson Plan - 48

Subject Teacher : **TEMAN LAL BARLE**
(Name and signature)