

GOVT. POLYTECHNIC MAYURBHANJ
LESSON PLAN

Discipline :
Civil
Engineering

Semester: 2ND

Name of the Teaching Faculty : HEMANTA KUMAR SETHI

Subject : FUNDAMENTAL OF ELECTRICAL AND ELECTRONICS

No. of Days /
per week class allotted : 04

Semester From date : 04.02.2025

To Date : 17.05.2025

| MONTH | Week | Day | UNIT | TOPICS |
|----------|--------|--------------------|--|--|
| FEBRUARY | UNIT-1 | | | Overview of Electronic Components & Signals |
| | Week 1 | 3RD | UNIT-1 | Passive Components: Resistors. Types, Series and parallel Connection |
| | | 4TH | | Passive Components: Resistors Colour code and simple problem on |
| | | 5TH | | Passive Components: Capacitors, Basic principle, unit etc |
| | Week 2 | 1ST | | Capacitance Series and parallel Connections with simple problems |
| | | 3RD | | Passive Components: Inductor-Types, Basic principle, unit etc |
| | | 4TH | | Inductance Series and parallel Connections with simple problems |
| | Week 3 | 5TH | | Active Components : PN Junction Diode |
| | | 1ST | | Diode-Forward bias, Reverse Bias |
| | | 3RD | | Zener Diode and LED - Working and application |
| | | 4TH | | Transistor - Construction and Working of NPN and PNP Transistor |
| | Week 4 | 5TH | | Transistor configuration - CE, CB, CC with amplification factor |
| | | 1ST | | MOS and CMOS and their Applications. |
| | | 4TH | | Simple problems of Resistance, Capacitor & Inductor |
| | | 5TH | | FET and Concept of MOS and CMOS |
| | MARCH | Week 1 | | 1ST |
| 4TH | | | | Different types of signal waveforms, Ideal/non-ideal voltage/current sources, independent/dependent voltage current sources. |
| 5TH | | | REVISION | |
| UNIT-2 | | | Overview of Analog Circuits: | |
| Week 2 | | 1ST | Overview of Analog Circuits: Op Amp parameters | |
| | | 3RD | Ideal Op Amp characteristics | |
| | | 4TH | Op Amp open loop configuration, Op Amp close loop configuration | |
| Week 3 | | 1ST | Op Amp Inverting mode amplifier, Op Amp Non-inverting mode amplifier | |
| | 3RD | Op Amp as an adder | | |

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| | | 4TH | | Op Amp as a differentiator, integrator |
| | | UNIT-3 | | Overview of Digital Electronics |
| | Week 3 | 5TH | UNIT - 3 | Overview of Digital Electronics - Number system and conversions |
| | Week 4 | 1ST | | Boolean laws and theorem, Logic gates |
| | | 3RD | | Flip flops and its types, |
| | | 4TH | | 1ST INTERNAL ASSESSMENT |
| | | 5TH | | Use of flip flops as counter - asynchronous counters and synchronous counters |
| | Week 1 | 3RD | | Introduction to Integrated Circuits - Transistor Transistor Logic (TTL) |
| | | UNIT-4 | | Electric and Magnetic Circuits |
| | Week 1 | 4TH | UNIT - 4 | Electric and Magnetic Circuits - EMF, Current, Potential Difference, Power and Energy |
| | | 5TH | | M.M.F, magnetic force, permeability |
| | Week 2 | 1ST | | hysteresis loop, reluctance, leakage factor and BH curve |
| | | 3RD | | Electromagnetic induction, Faraday's laws of electromagnetic induction, Lenz's law |
| | | 4TH | | Dynamically induced emf, Statically induced emf |
| | | 5TH | Equations of self and mutual inductance, Analogy between electric and magnetic circuits | |
| | | UNIT - 5 | | A.C. Circuits |
| | Week 3 | 3RD | UNIT - 5 | A.C. Circuits: Cycle, Frequency, Periodic time, Amplitude, Angular velocity |
| | | 4TH | | RMS value, Average value, Form Factor, Peak Factor |
| | Week 4 | 1ST | | Impedance, phase angle, and power factor; Mathematical and phasor representation of alternating emf and current; |
| | | 3RD | | Voltage and Current relationship in Star and Delta connections; |
| | | 4TH | | A.C in resistors, inductors and capacitors; |
| | | 5TH | A.C in R-L series, R-C series, A.C in R-L-C series and parallel circuits | |
| | Week 5 | 1ST | | Power in A. C. Circuits, power triangle. |
| | | 3RD | | REVISION |
| | | UNIT - 6 | | Transformer and Machines |
| | Week 1 | 4TH | UNIT - 6 | Transformer and Machines: General construction and principle of different type of transformers |
| | | 5TH | | 2ND INTERNAL ASSESSMENT |
| | Week 2 | 1ST | | Transformer and Machines: General construction and principle of different type of transformers |
| | | 3RD | | Emf equation and transformation ratio of transformers |
| | | 4TH | | Auto transformers |
| | | 5TH | Construction and Working principle of DC motors | |
| | Week 3 | 3RD | | Basic equations and characteristic of motors. |
| | | 4TH | | Basic equations and characteristic of motors. |
| | | 5TH | | REVISION |