

## BARGAON INSTITUTE OF TECHNOLOGY

**DISCIPLINE:** ALL BRANCHES

**YEAR:** FIRST YEAR

**SUBJECT:** FUNDAMENTAL OF ELECTRICAL & ELECTRONICS ENGINEERING

**TOTAL PERIODS:** 64

### Lesson Plan

| Sl. | Week | Unit                                     | Topics Planned to be Covered                                                                                                                                                                                                                                                                                                                                      | Periods |
|-----|------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 1   | 1-5  | UNIT-1<br>(ELECTRIC & MAGNETIC CURRENTS) | Definition of EMF, current, potential difference, Ohm's law and temperature effect, Kirchhoff's laws, Voltage and current division rules, KCL/KVL, MMF, magnetic force, permeability, reluctance, electromagnetic induction, Faraday's law, self & mutual inductance, hysteresis loop, AC fundamentals (frequency, RMS, average, peak, form factor, phase angle). | 10      |
| 2   | 5-8  | UNIT-2 (AC CIRCUITS)                     | Mathematical and phasor representation of alternating current and EMF, star and delta connection                                                                                                                                                                                                                                                                  | 8       |

|   |       |                                                           |                                                                                                                                                                                              |   |
|---|-------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|   |       |                                                           | (derivation), impedance, L and C circuits, phasor representation, power factor, real/reactive/ap parent power.                                                                               |   |
| 3 | 8-10  | UNIT-3<br>(TRANSFORMER S AND DC MACHINES)                 | Fleming's rules, construction and working principles of DC machines, EMF equations, applications, transformer construction, principle, EMF equation and transformation ratio.                | 6 |
| 4 | 10-13 | UNIT-4<br>(MEASURING EQUIPMENT, WIRING AND POWER BILLING) | Measuring instruments, PMMC & MI instruments, ammeter, voltmeter, wattmeter, energy meter with connection diagrams, domestic wiring concepts, energy consumption and power billing numerals. | 9 |
| 5 | 14-17 | UNIT-5<br>(OVERVIEW OF BASIC ELECTRONICS AND COMPONENTS)  | Passive and active components, resistors, capacitors, inductors, diodes, transistors and applications,                                                                                       | 9 |

|   |       |                                                     |                                                                                                                                                                                                                                                |    |
|---|-------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
|   |       |                                                     | energy bands, insulator, conductor, semiconductor, intrinsic and extrinsic semiconductors.                                                                                                                                                     |    |
| 6 | 18-22 | UNIT-6<br>(OVERVIEW OF SIGNALS AND ANALOG CIRCUITS) | Definition/classification of diode (PN junction, LED, Zener), BJT, FET, MOS & CMOS, DC/AC signals, analog/digital signals, voltage/current sources, rectifiers, clippers, clampers, transistor as amplifier, RC coupled amplifier, oscillator. | 10 |
| 7 | 23-25 | UNIT-7 (ICs & OP-AMPS)                              | Introduction to ICs, advantages and uses, 741 IC pin configuration, ideal OP-AMP characteristics, open/closed loop, applications as amplifier, adder, differentiator and integrator.                                                           | 6  |
| 8 | 26-28 | UNIT-8<br>(OVERVIEW OF DIGITAL ELECTRONICS)         | Number systems (binary, octal, hexadecimal), logic gates, truth tables, universal gates, Boolean                                                                                                                                               | 6  |

|  |  |  |                                                   |  |
|--|--|--|---------------------------------------------------|--|
|  |  |  | expressions and implementation using logic gates. |  |
|--|--|--|---------------------------------------------------|--|

Total Periods: 64