



NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY  
SERGARH-756060, BALASORE (ODISHA)  
(Approved by AICTE& affiliated to SCTE&VT, Odisha)



## **LESSON PLAN**

**SUBJECT: Th-4(A)(BASIC ELECTRICAL)**

**Name Of The Faculty :-** Er. NIRANJAN SAHU

**Branch :-**AUTO/MECH/CIVIL

**Session :-** 2023-24

**Semester :-**1ST

**Examination :-** 2023(W)

### **CHAPTER WISE DISTRIBUTION OF PERIODS**

| Sl.No. | Name of the chapter as per the Syllabus | No. of Periods as per the Syllabus | No. of periods actually needed |
|--------|---|------------------------------------|--------------------------------|
| 1      | Fundamentals                            | 5                                  | 5                              |
| 2      | AC theory                               | 8                                  | 8                              |
| 3      | Generation of electric power            | 3                                  | 3                              |
| 4      | Conversion of Electric Power            | 7                                  | 7                              |
| 5      | Wiring and Power Billing                | 4                                  | 4                              |
| 6      | Measuring Instrumrnt                    | 3                                  | 3                              |
|        | Total Period:                           | 30                                 | 30                             |

|  |                         |   |                               |
|--|-------------------------|---|-------------------------------|
| <b>Discipline:</b><br>AUTO/MECH/CIVIL<br>ENGINEERING | <b>Semester:</b><br>1ST | <b>Name of the Teaching Faculty:</b> Er. NIRANJAN SAHU  |                               |
|  |                         | <b>SESSION : 2023-24</b>  | <b>EXAMINATION : 2023 (W)</b> |
| <b>Week</b>  | <b>Class Day</b>        | <b>Topics to be Covered</b>   |                               |
| <b>1<sup>st</sup></b>                                | <b>1<sup>st</sup></b>   | 1. FUNDAMENTALS   |                               |
|  | <b>2<sup>nd</sup></b>   | 1.3 State Ohm's law and concept of resistance.<br>1.4 Relation of V, I & R in series circuit.   |                               |
| <b>2<sup>nd</sup></b>                                | <b>1<sup>st</sup></b>   | 1.5 Relation of V, I & R in parallel circuit.<br>1.6 Division of current in parallel circuit.   |                               |
|  | <b>2<sup>nd</sup></b>   | 1.7 Effect of power in series & parallel circuit  |                               |
| <b>3<sup>rd</sup></b>                                | <b>1<sup>st</sup></b>   | 11.8 Kirchhoff's Law.<br>1.9 Simple problems on Kirchhoff's law   |                               |
|  | <b>2<sup>nd</sup></b>   | A.C. THEORY   |                               |
| <b>4<sup>th</sup></b>                                | <b>1<sup>st</sup></b>   | 2.3 Define Amplitude, instantaneous value, cycle, Time period, frequency, phase angle, phase difference.                              |                               |
|  | <b>2<sup>nd</sup></b>   | 2.4 State & Explain RMS value, Average value, Amplitude factor.   |                               |
| <b>5<sup>th</sup></b>                                | <b>1<sup>st</sup></b>   | 2.4 State & Explain Form factor with Simple problems.   |                               |
|  | <b>2<sup>nd</sup></b>   | 2.5 Represent AC values in phasor diagrams.<br>2.6 AC through pure resistance, inductance & capacitance                               |                               |
| <b>6<sup>th</sup></b>                                | <b>1<sup>st</sup></b>   | 2.7 AC through RL, RC, RLC series circuits  |                               |
|  | <b>2<sup>nd</sup></b>   | 2.8 Simple problems on RL, RC & RLC series circuits   |                               |
| <b>7<sup>th</sup></b>                                | <b>1<sup>st</sup></b>   | 2.9 Concept of Power and Power factor<br>2.10 Impedance triangle and power triangle   |                               |
|  | <b>2<sup>nd</sup></b>   | GENERATION OF ELECTRICAL POWER<br>3.1 Give elementary idea on generation of electricity from thermal power station with block diagram |                               |
| <b>8<sup>th</sup></b>                                | <b>1<sup>st</sup></b>   | Give elementary idea on generation of electricity from , hydro power station with block diagram                                       |                               |
|  | <b>2<sup>nd</sup></b>   | Give elementary idea on generation of electricity from nuclear power station with block diagram                                       |                               |
| <b>9<sup>th</sup></b>                                | <b>1<sup>st</sup></b>   | 4. CONVERSION OF ELECTRICAL ENERGY<br>4.1 Introduction of DC machines.<br>4.2 Main parts of DC machines.                              |                               |
|  | <b>2<sup>nd</sup></b>   | 4.3 Classification of DC generator  |                               |
| <b>10<sup>th</sup></b>                               | <b>1<sup>st</sup></b>   | 4.4 Classification of DC motor.   |                               |
|  | <b>2<sup>nd</sup></b>   | 4.5 Uses of different types of DC generators & motors.<br>4.6 Types and uses of single phase induction motors.                        |                               |

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| <b>11<sup>th</sup></b> | <b>1<sup>st</sup></b> | 4.7 Concept of Lumen and details about different types of Lamps  |
|                        | <b>2<sup>nd</sup></b> | 4.8 Different types of Lamps (Filament, Fluorescent, LED bulb) its Construction and principle.   |
| <b>12<sup>th</sup></b> | <b>1<sup>st</sup></b> | 4.9 Star rating of home appliances (Terminology, Energy efficiency, Star rating Concept)   |
|                        | <b>2<sup>nd</sup></b> | WIRING AND POWER BILLING<br>5.1 Types of wiring for domestic installations.  |
| <b>13<sup>th</sup></b> | <b>1<sup>st</sup></b> | 5.2 Layout of household electrical wiring (single line diagram showing all the important component in the system).                           |
|                        | <b>2<sup>nd</sup></b> | 5.3 List out the basic protective devices used in house hold wiring.   |
| <b>14<sup>th</sup></b> | <b>1<sup>st</sup></b> | 5.4 Calculate energy consumed in a small electrical installation   |
|                        | <b>2<sup>nd</sup></b> | MEASURING INSTRUMENTS<br>6.1 Introduction to measuring instruments.<br>6.2 Torques in instruments.   |
| <b>15<sup>th</sup></b> | <b>1<sup>st</sup></b> | 6.3 Different uses of PMMC type of instruments (Ammeter & Voltmeter).<br>6.4 Different uses of MI type of instruments (Ammeter & Voltmeter). |
|                        | <b>2<sup>nd</sup></b> | 6.3 Different uses of PMMC type of instruments (Ammeter & Voltmeter).<br>6.4 Different uses of MI type of instruments (Ammeter & Voltmeter). |
| <b>16<sup>th</sup></b> | <b>1<sup>st</sup></b> | 6.5 Draw the connection diagram of A.C/ D.C Ammeter, voltmeter, energy meter and wattmeter. (Single phase only).                             |
|                        | <b>2<sup>nd</sup></b> | 6.5 Draw the connection diagram of A.C/ D.C Ammeter, voltmeter, energy meter and wattmeter. (Single phase only).                             |
| <b>17<sup>th</sup></b> | <b>1<sup>st</sup></b> | REVISION   |
|                        | <b>2<sup>nd</sup></b> | REVISION   |