**LESSON PLAN**

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| **Discipline:** ETC. Engg. | **Semester:** Third (3rd) | **Name of the Faculty:** Er Abdul Sajid Khan |
| **Subject: E**lectronics Measurement & Instrumentation | **No. of days/week class allotted:** Five (5) | **Semester from Date:** 01.07.24 **to Date:** 08. 11.24**No. of Weeks:** 15 |
| **WEEK** | **CLASS DAY** | **THEORY TOPICS** |
|  | 1st  | Discuss the static characteristics. |
|  | 2nd  | Accuracy, Sensitivity. |
|  | 3rd  | Reproducibility & static error of instrument. |
|  | 4th  | Dynamic characteristics & speed of instruments. |
|  | 5th | Errors of an instrument and explain various types. |
|  | 6th | **Review** |
| 2nd | 1st  | Introduction to indicator & Display devices & its types. |
| 2nd  | Basic principle of meter movement &its advantages & disadvantages. |
| 3rd  | Basic principle of permanent magnetic moving coil movement &its advantages & disadvantages. |
| 4th  | Operation of Moving Iron Instrument. |
| 5th | Basic principle of operation of DC Ammeter & Multi range Ammeter. |
| 6th | Basic principle of operation of AC Ammeter & Multi range Ammeter. |
| 3rd | 1st  | Basic principle of operation of DC voltmeter & its applications. |
| 2nd  | Basic principle of operation of AC voltmeter & its applications. |
| 3rd  | Basic principle ohm meter (series & shunt type). |
| 4th  | Basic principle of Analog Multimeter, its types & applications. |
| 5th | Operation of Q meter & its essentials. |
| 6th | **Monthly Test-1** |
| 4th | 1st  | **Review** |
| 2nd  | Principle of operation of Ramp type Digital voltmeter & applications. |
| 3rd  | Applications of Ramp type Digital voltmeter. |
| 4th  | Operation of display of 3 1/2 |
| 5th | 4 1/2 –Digital Multimeter and Resolution & Sensitivity. |
| 6th | Basic principle of operation of working of digital Multimeter types & application. |
| 5th | 1st  | Basic principle of operation of working of frequency Meter. |
| 2nd  | Operation of working of Digital Measurement of Time. |
| 3rd  | Measurement of Frequency. |
| 4th  | Principle of operation of working of Digital Tachometer. |
| 5th | Principle of operation of working of Automation in Digital Instruments (polarity indication, ranging,). |
| 6th | Principle of operation of working of Automation in Digital Instruments zeroing& fully Automatic.) |
| 6th | 1st  | Block Diagram of LCR meter & it’s working principle. |
| 2nd  | **Review** |
| 3rd  | Basic principle of Oscilloscope & its Block Diagram. |
| 4th  | Basic principle & Block Diagram of CRO, |
| 5th | Dual Trace Oscilloscope & its specification. |
| 6th | **Monthly Test-2** |
| 7th | 1st  | CRO Measurements |
| 2nd  | Lissajous figures. |
| 3rd  | Application of oscilloscope (voltage ,period & frequency measurement). |
| 4th  | Operation of Digital Storage Oscilloscope. |
| 5th | High frequency Oscilloscope. |
| 6th | **Review** |
| 8th | 1st  | Types of Bridges (DC & AC Bridges). |
| 2nd  | DC Bridges (Measurement of Resistance by Wheatstone’s Bridge. |
| 3rd  | AC bridges (Measurement of inductance by Maxwell’s Bridge). |
| 4th  | AC bridges (Measurement of inductance by Hay’s Bridge). |
| 5th | Measurement of capacitance by Schering’s Bridge. |
| 6th | DeSauty Bridge. |
| 9th | 1st  | Working principle of Q meter its circuit diagram and measurement of Low impedance. |
| 2nd  | Measurement of frequency. |
| 3rd  | LCR Meter & its measurement. |
| 4th  | **Review** |
| 5th | Parameter, method of selecting & advantage of Electrical Transducer. |
| 6th | **Monthly Test-3** |
| 10th | 1st  | Parameter, method of selecting & advantage of Resistive Transducers. |
| 2nd  | Working principle of strain gauge ,define Strain Gauge(No Mathematical Derivation). |
| 3rd  | Working principle of LVDT. |
| 4th  | Working principle of capacitive transducer(pressure). |
| 5th | Working principle of load cell(pressure cell). |
| 6th | Working principle of Temperature Transducer (RTD). |
| 11th | 1st  | Working principle of Temperature Transducer(Optical Pyrometer). |
| 2nd  | Working principle of Temperature Transducer (Thermocouple, Thermistor). |
| 3rd  | Working principle of current transducer and KW Transducer. |
| 4th  | Working principle of proximity & Light sensor. |
| 5th | **Review** |
| 6th | **Monthly Test-4** |
| 12th | 1st  | General aspect & classification of Signal generators |
| 2nd  | Working principle of AF sine wave generator. |
| 3rd  | Working principle of AF square wave generator. |
| 4th  | Working principle of Function Generator. |
| 5th | Function of basic wave analyser & spectrum analyser. |
| 6th | Basic concept of Data Acquisition system (DAS). |
| 13th | 1st  | **Review** |
| 2nd  | Revision class |
| 3rd  | Revision class |
| 4th  | Revision class |
| 5th | Revision class |
| 6th | Revision class |
| 14th | 1st  | Revision class |
| 2nd  | Revision class |
| 3rd  | Revision class |
| 4th  | Revision class |
| 5th | Revision class |
| 6th | Revision class |
| 15th  | 1st  | Revision class |
| 2nd  | Previous year question answer discussion  |
| 3rd  | Previous year question answer discussion  |
| 4th  | Previous year question answer discussion  |
| 5th | Previous year question answer discussion  |
| 6th | Previous year question answer discussion  |