| PNS SCHOOL OF ENGINEERING AND TECHNOLOGY | | |
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| Branch: Electrical Engineering | Semester: 4TH | Name of the Lecturer: |
| Subject: EMMI | No of Classes Alloted in a Week: 5 | Duration of Semester: 14.2.2023 - 23.5.2023 |
| Week | Class Day | Theory / practical Topic |
| 1st | 1 | **Measuring instruments** - Accuracy, Precision, Errors, Resolution, Sensitivity, Tollerence. |
| | 2 | Classifications of measuring Instruments<br>Deflecting arrangements of indicating type of instruments |
| | 3 | Controlling arrangements of indicating type of instruments, Spring control, Gravity control |
| | 4 | Damping arrangements of indicating type of instruments, Calibration of instruments |
| | 5 | **Analog ammeters and voltmeters** - Construction, principle of operation, errors, ranges merits and demerits of Moving iron type instruments. |
| 2nd | 1 | Construction, principle of operation, errors, ranges merits and demerits of Permanent Magnet Moving coil type instruments |
| | 2 | Construction, principle of operation, errors, ranges merits and demerits of Permanent Magnet Moving coil type instruments |
| | 3 | Construction, principle of operation, errors, ranges merits and demerits of Permanent Magnet Moving coil type instruments |
| | 4 | Construction, principle of operation of Dynamometer type instruments |
| | 5 | Construction, principle of operation of Rectifier type instruments |
| 3rd | 1 | Construction, principle of operation of Induction type instruments |
| | 2 | Extend the range of instruments by use of shunts and Multipliers. |
| | 3 | Solve Numerical |
| | 4 | Solve Numerical |
| | 5 | **Class Test- I** |
| 4th | 1 | **Wattmeter and measurement of power** - Construction, principle of working of Dynamometer type wattmeter. (LPF type) |
| | 2 | Construction, principle of working of Dynamometer type wattmeter. (LPF type) |
| | 3 | Construction, principle of working of Dynamometer type wattmeter. (UPF type) |
| | 4 | Construction, principle of working of Dynamometer type wattmeter. (UPF type) |
| | 5 | The Errors in Dynamometer type wattmeter |
| 5th | 1 | methods of their correction |
| | 2 | Induction type watt meters |
| | 3 | **Energy meters and measurement of energy** - Introduction |
| | 4 | Single Phase Induction type Energy meters – construction, |
| | 5 | Single Phase Induction type Energy meters – working principle |
| 6th | 1 | Single Phase Induction type Energy meters – their compension and adjustments |
| | 2 | Testing of energy meter. |
| | 3 | Testing of energy meter. |
| | 4 | **Internal Assesment Exam** |
| | 5 | **Measurement of speed, frequency and power factor** - Tachometers types & principles |

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| 7th | 1 | Principle of operation and construction of Mechanica resonance Type frequency meters. |
| | 2 | Principle of operation and construction of Electrical resonance Type frequency meters. |
| | 3 | Principle of operation and working of Dynamometer type single phase power factor meters. |
| | 4 | Principle of operation and working of Dynamometer type three phase power factor meters. |
| | 5 | **Measurement of Resistance, Inductance& Capacitance** - Classification of resistance |
| 8th | 1 | Measurement of low resistance by potentiometer method |
| | 2 | Measurement of medium resistance by wheat Stone bridge method |
| | 3 | Measurement of high resistance by loss of charge method. |
| | 4 | Construction, principle of operations of Megger or Earth tester for insulation resistance |
| | 5 | Construction, principle of operations of Megger or Earth tester for earth resistance |
| 9th | 1 | Construction and principles of Multimeter. (Analog and Digital) |
| | 2 | Measurement of inductance by Maxewell's Bridge method |
| | 3 | Measurement of capacitance by Schering Bridge method |
| | 4 | **Class Test- II** |
| | 5 | **Sensors And Transducer** - Define Transducer, sensing element or detector element and transduction elements |
| 10th | 1 | Classify transducer. Give examples of various class of transducer |
| | 2 | Resistive transducer - Linear and angular motion potentiometer |
| | 3 | Resistive transducer - Thermistor and Resistance thermometers, Wire Resistance Strain Gauges |
| | 4 | Inductive Transducer - Principle of linear variable differential Transformer (LVDT), Uses of LVDT |
| | 5 | Capacitive Transducer - General principle of capacitive transducer |
| 11th | 1 | Capacitive Transducer - Variable area capacitive transducer, Change in distance between plate capacitive transducer |
| | 2 | Piezo electric Transducer with their applications. |
| | 3 | Hall Effect Transducer with their applications. |
| | 4 | **Oscilloscope** - Principle of operation of Cathode Ray Tube |
| | 5 | Principle of operation of Oscilloscope (with help of block diagram) |
| 12th | 1 | Measurement of DC Voltage & current |
| | 2 | Measurement of AC Voltage, current, phase & frequency |
| | 3 | Previous Semester Question Discussion |
| | 4 | Previous Semester Question Discussion |
| | 5 | Previous Semester Question Discussion |

Signature of the Lecturer

Signature of the HOD