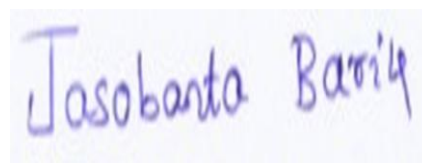


ACADEMIC LESSON PLAN SUMMER 2025

Discipline Electrical	Semester: 4 th Sec-B	Name of the Teaching Faculty: - JASOBANTA BARIK
Subject: - ED PR-4	No of Days/per Week Class Allotted: 6p/week	Semester From: 04 th FEBRUARY 2025 to 17 th MAY 2025 No. of weeks:15 weeks
Week	Class Day	Practical Topics
1 st	1st	1. WIRING DIAGRAM AND CONTROL CIRCUIT 1.1 3 point D. C. motor starter.
	2nd	1.2 4 point D.C. motor starter.
2 nd	1st	1.3 DOL starter 1.4 Star delta starter.
	2nd	1.5 Auto Transformer Starter.
3 rd	1st	1.5 Auto Transformer Starter.
	2nd	1.6 Rotor resistance starter.
4 th	1st	2. DRAW D.C. M/C PARTS (Dimensional Drawing) 2.1. Pole with pole shoes.
	2nd	2.2. Commutator
5 th	1st	2.3. Armature
	2nd	2.4. DC. armature winding (a) Simple lap winding (b) Simple wave winding.
6 th	1st	2.4. DC. armature winding (a) Simple lap winding (b) Simple wave winding.
	2nd	3. DRAW 1-PHASE & 3-PHASE TRANSFORMER (Assembly Drawing) 3.1 Stepped core type.
7 th	1st	3.2 Plane shell type.
	2nd	5. DRAW SKETCHES OF THE FOLLOWING AS PER B.I.S AND REC SPECIFICATIONS 5.1 Earthing installation.
8 th	1st	5.2 Double pole structure for LT and HT distribution lines.
	2nd	5.2 Double pole structure for LT and HT distribution lines.
9 th	1st	6. DRAW SINGLE LINE DIAGRAM OF SUBSTATION 6.1 Single line diagram of 33/11kV distribution substation.
	2nd	6. DRAW SINGLE LINE DIAGRAM OF SUBSTATION 6.1 Single line diagram of 33/11kV distribution substation.
10 th	1st	6.2 Single line diagram of a 11/0.4 kV distribution substation.
	2nd	6.2 Single line diagram of a 11/0.4 kV distribution substation.

11 th	1st	8. COMPUTER AIDED ELECTRICAL DRAWING USING SOFT WARE 8.1 Draw Electrical symbols (take Print out)
	2nd	8.2 Draw D.C. m/c parts (take print out)
12 th	1st	8.2 Draw D.C. m/c parts (take print out)
13 th	2nd	8.3 Draw A. C. m/c parts (take print out)
	1st	8.3 Draw A. C. m/c parts (take print out)
	2nd	8.3 Draw A. C. m/c parts (take print out)
14 th	1st	8.3 Draw A. C. m/c parts (take print out)
	2nd	8.4 Draw electrical layout of diagram of Electrical Installation of a building.
15 th	1st	8.4 Draw electrical layout of diagram of Electrical Installation of a building.
	2nd	8.4 Draw electrical layout of diagram of Electrical Installation of a building.



Signature of the Faculty

ACADEMIC LESSON PLAN OF SUMMER 2025

Discipline: Electrical	Semester: 4 th (Section-A)	Name of the Teaching Faculty: JASOBANTA BARIK
Subject: Electrical measurement & instrumentation	No. of days/per week class allotted: 4p/week Tutorial: 1p/week	Semester From: : 04 th FEBRUARY 2025 to 17 th MAY 2025 No. of weeks: 15 weeks
Week	Class Day	Theory Topics
1 st	1 st	1. MEASURING INSTRUMENTS 1.1. Definition of accuracy, precision, errors, resolution sensitivity and tolerance
	2 nd	1.2. Classification of measuring instruments.
	3 rd	1.3. Explaining Deflecting, controlling and damping arrangements in indicating type of instruments
	4 th	1.4. Explaining Deflecting, controlling and damping arrangements in indicating type of instruments
	5 th	Tutorial
2 nd	1 st	1.5. Calibration of instruments.
	2 nd	2. ANALOG AMMETERS AND VOLTMETERS Describe Construction, principle of operation, errors, ranges merits and demerits of:
	3 rd	2.1 Moving iron type instruments.
	4 th	2.1 Moving iron type instruments.(contd.)
	5 th	2.2 Permanent Magnet Moving coil type instruments.
3 rd	1 st	Tutorial
	2 nd	2.3 Dynamometer type instruments
	3 rd	2.4 Rectifier type instruments
	4 th	2.5 Induction type instruments
	5 th	2.6 Extend the range of instruments by use of shunts and Multipliers
4 th	1 st	Tutorial
	2 nd	2.6 Extend the range of instruments by use of shunts and Multipliers(contd.)
	3 rd	2.7 Solving numerical
	4 th	2.7 Solve Numerical(contd.)
	5 th	3. WATTMETERS AND MEASUREMENT OF POWER
5 th	1 st	3.1 Described Construction Dynamometer type wattmeter. (LPF and UPF type)
	2 nd	Tutorial
	3 rd	3.2 Described principle of working of Dynamometer type wattmeter. (LPF and UPF type)
	4 th	3.2 Described principle of working of Dynamometer type wattmeter. (LPF and UPF type)(contd.)
	5 th	3.2 Described principle of working of Dynamometer type wattmeter. (LPF and UPF type)(contd.)
6 th	1 st	3.3 The Errors in Dynamometer type wattmeter and methods of their correction.
	2 nd	Tutorial
	3 rd	3.3 The Errors in Dynamometer type wattmeter and methods of their correction. (contd)
	4 th	3.5 Discuss Induction type watt meters
	5 th	3.5 Discuss Induction type watt meters(contd.)
7 th	1 st	4. ENERGYMETERS AND MEASUREMENT OF ENERGY
	2 nd	4.1. Introduction
	3 rd	Tutorial
	4 th	4.2. Single Phase Induction type Energy meters – construction.
	5 th	4.3. Single Phase Induction type Energy meters – working principle
8 th	1 st	4.3. Single Phase Induction type Energy meters – working principle (contd.)
	2 nd	4.4 Single Phase Induction type Energy meters – their compensation and adjustment
	3 rd	Tutorial
	4 th	4.4 Single Phase Induction type Energy meters – their compensation and adjustment(contd.)
	5 th	4.5. Testing of Energy Meters.
	1 st	4.5. Testing of Energy Meters.(contd.)
	2 nd	5. MEASUREMENT OF SPEED, FREQUENCY AND POWER FACTOR
	3 rd	5.1 Tachometers, types and working principles
	4 th	5.2 Principle of operation and construction of Mechanical resonance Type frequency meters.
	5 th	

	5 th	Tutorial
9 th	1 st	5.3 Principle of operation and construction of Electrical resonance Type frequency meters.
	2 nd	5.3 Principle of operation and construction of Electrical resonance Type frequency meters.(contd)
	3 rd	5.4.Principle of operation and working of Dynamometer type single phase and three phase power factor meters.(contd.)
	4 th	5.5.Principle of operation and working of Dynamometer type single phase and three phase power factor meters.(contd.)
	5 th	Tutorial
10 th	1 st	6. MEASUREMENT OF RESISTANCE, INDUCTANCE& CAPACITANCE 6.1. Classification of resistance 6.2 Measurement of low resistance by potentiometer method. .
	2 nd	6.3 Measurement of medium resistance by wheat Stone bridge method.
	3 rd	6.4 Measurement of high resistance by loss of charge method
	4 th	6.5 Construction, principle of operations of Megger & Earth tester for insulation resistance and earth resistance measurement respectively
	5 th	Tutorial
11 th	1 st	6.6 Construction and principles of Multimeter. (Analog and Digital)
	2 nd	6.6 Construction and principles of Multimeter. (Analog and Digital)
	3 rd	6.7 Measurement of inductance by Maxewell’s Bridge method
	4 th	6.8 Measurement of capacitance by Schering Bridge method
	5 th	Tutorial
12 th	1 st	7.SENSORS AND TRANSDUCER 7.1. Define Transducer, sensing element or detector element and transduction elements
	2 nd	7.2. Classify transducer. Give examples of various class of transducer
	3 rd	7.3 Linear and angular motion potentiometer.
	4 th	7.3 Linear and angular motion potentiometer..(contd)
	5 th	Tutorial
13 th	1 st	7.4Thermistor and Resistance thermometers
	2 nd	7.5 Wire Resistance Strain Gauges
	3 rd	7.6 Principle of linear variable differential Transformer (LVDT) AND USES OF LVDT
	4 th	7.6 Principle of linear variable differential Transformer (LVDT) AND USES OF LVDT
	5 th	Tutorial
14 th	1 st	General principle of capacitive transducer AND 7.7 Variable area capacitive transducer.
	2 nd	7.8 Change in distance between plate capacitive transducer.
	3 rd	7.9 Piezo electric Transducer and Hall Effect Transducer with their applications.
	4 th	8.OSCILLOSCOPE 8.1. Principle of operation of Cathode Ray Tube.
	5 th	Tutorial
15 th (Extra class)	1 st	8.2. Principle of operation of Oscilloscope (with help of block diagram)
	2 nd	8.2. Principle of operation of Oscilloscope (with help of block diagram)(contd.).
	3 rd	8.3Measurement of DC Voltage and current
	4 th	8.4 Measurement of AC voltage,current,phase and frequency
	5 th	Tutorial

Jasobanta Barik

Signature of Teaching Faculty

ACADEMIC LESSON PLAN OF SUMMER 2025

Discipline: Electrical	Semester: 6 th (sec-B)	Name of the Teaching Faculty: JASOBANTA BARIK
Subject: Renewable Energy (TH-4)	No. of days/per week class allotted: 4p/week Tutorial: 1p/week	Semester From: 04 th FEBRUARY 2025 to 17 th MAY 2025 No. of weeks: 15 weeks
Week	Class/week	Theory Topics
1 st	1 st	1.1. Environmental consequences of fossil fuel use.
	2 nd	1.2. Importance of renewable sources of energy.
	3 rd	1.3 Sustainable Design and development.
	4 th	1.4. Types of RE sources.
	5 th	Tutorial
2 nd	1 st	1.5. Limitations of RE sources
	2 nd	1.6. Present Indian and international energy scenario of conventional and RE sources
	3 rd	2.1. Solar photovoltaic system-Operating principle.
	4 th	2.2. Photovoltaic cell concepts
	5 th	Tutorial
3 rd	1 st	2.2.1. Cell, module, array, Series and parallel connections.
	2 nd	2.3. Classification of energy Sources.
	3 rd	2.4. Extra-terrestrial and terrestrial Radiation.
	4 th	2.5. Azimuth angle, Zenith angle, Hour angle, Irradiance, Solar constant.
	5 th	Tutorial
4 th	1 st	2.6. Solar collectors, Types, and performance characteristics,
	2 nd	2.6. Solar collectors, Types, and performance characteristics,
	3 rd	2.7. Applications: Photovoltaic - battery charger, domestic lighting, street lighting.
	4 th	2.7. Applications: Photovoltaic - water pumping, solar cooker, Solar Pond.
	5 th	Tutorial
5 th	1 st	3.1. Introduction to Wind energy.
	2 nd	3.2. Wind energy conversion.
	3 rd	3.3. Types of wind turbines
	4 th	3.3. Types of wind turbines
	5 th	Tutorial
6 th	1 st	3.4. Aerodynamics of wind rotors.
	2 nd	3.5. Wind turbine control systems; conversion to electrical power:
	3 rd	3.6. Induction and synchronous generators.
	4 th	3.7. Grid connected and self-excited induction generator operation.
	5 th	Tutorial
7 th	1 st	3.8. Constant voltage and constant frequency generation with power electronic control.
	2 nd	3.9. Single and double output systems.
	3 rd	3.10. Characteristics of wind power plant.
	4 th	4.1. Energy from Biomass.
	5 th	Tutorial
8 th	1 st	4.2. Biomass as Renewable Energy Source
	2 nd	4.3. Types of Biomass Fuels - Solid, Liquid and Gas.
	3 rd	4.3. Types of Biomass Fuels - Solid, Liquid and Gas.
	4 th	4.4. Combustion and fermentation.
	5 th	Tutorial
9 th	1 st	4.5. Anaerobic digestion
	2 nd	4.6. Types of biogas digester.
	3 rd	4.6. Types of biogas digester.
	4 th	4.6. Types of biogas digester.
	5 th	Tutorial
10 th	1 st	4.7. Wood gasifier.
	2 nd	4.8. Pyrolysis,.
	3 rd	4.9. Applications: Bio gas, Bio diesel

	4 th	5.1. Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems.
	5 th	Tutorial
11 th	1 st	5.1. Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems.
	2 nd	5.1. Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems.
	3 rd	5.2. Ocean Thermal Energy Conversion (OTEC).
	4 th	5.2. Ocean Thermal Energy Conversion (OTEC).
	5 th	Tutorial
12 th	1 st	5.3. Geothermal Energy – Classification.
	2 nd	5.3. Geothermal Energy – Classification.
	3 rd	5.3. Geothermal Energy – Classification.
	4 th	5.4. Hybrid Energy Systems.
	5 th	Tutorial
13 th	1 st	5.3. Geothermal Energy – Classification.
	2 nd	5.4. Hybrid Energy Systems.
	3 rd	5.6. Diesel-PV, Wind-PV, Microhydel-PV.
	4 th	5.6. Diesel-PV, Wind-PV, Microhydel-PV.
	5 th	Tutorial
14 th	1 st	5.6. Diesel-PV, Wind-PV, Microhydel-PV.
	2 nd	5.7. Electric and hybrid electric vehicles.
	3 rd	5.7. Electric and hybrid electric vehicles.
	4 th	5.7. Electric and hybrid electric vehicles.
	5 th	Tutorial
15 th	1 st	5.4. Hybrid Energy Systems.
	2 nd	5.5. Need for Hybrid Systems.
	3 rd	Revision - Biomass Power
	4 th	Revision - Biomass Power
	5 th	Tutorial

Jasobanta Barik

Signature of Teaching Faculty

