LESSON PLAN

SUB:-ELECTRICAL MEASUREMENT & INSTRUMENTATION

BRANCH:- ELECTRICAL ENGG.

SEMESTER:-4TH

NAME OF FACULTY:- DHARMENDRA SAHOO

GOVERNMENT POLYTECHNIC, BHADRAK

Sl. No.	Topic	Expected Date of Completion	Actual Date of Completion	Teaching Learning Process
1.	**CHAPTER-01(MEASURING INSTRUMENTS)**			
1	Define Accuracy, precision, Errors, Resolutions Sensitivity and tolerance.			white board & marker
2	Resolutions Sensitivity and tolerance. Classification of measuring instruments.			white board & marker
3	Classification of measuring instruments.			white board & marker
4	Explain Deflecting, controlling and damping arrangements in indicating type of instruments			white board & marker
5	Calibration of instruments.			Video Lecture & Smart board
CHAPTER-02(ANALOG AMMETERS AND VOLTMETERS)				
1	Describe Construction, principle of operation, of Moving iron type instruments.			Video Lecture & Smart board
2	Errors, ranges merits and demerits of: Moving iron type instruments.			Video Lecture & Smart board
3	Describe Construction, principle of operation of: Permanent Magnet Moving coil type instruments			Video Lecture & Smart board
4	Errors, ranges merits and demerits of: Permanent Magnet Moving coil type instruments			Video Lecture & Smart board

5	Describe Construction, principle operation of Dynamometer type instruments			white board & marker
6	errors, ranges merits and demerits of: Dynamometer type instruments			white board & marker
7	Describe Construction, principle of operation, errors, ranges merits and demerits of: Rectifier type instruments			white board & marker
8	Describe Construction, principle of operation, errors, ranges merits and demerits of Induction type instruments			Video Lecture & Smart board
9	Extend the range of instruments by use of shunts and Multipliers.			white board & marker
10	Solve Numerical			white board & marker
LMS	**HOME WORK**			**LectureNotes**
CHAPTER-03(WATTMETERS AND MEASUREMENT OF POWER)				
1	Describe Construction, principle of Dynamometer type wattmeter. (LPF type)			Video Lecture &smart board
2	Working of Dynamometer type wattmeter. (LPF type)			white board & marker
3	Describe Construction, principle of Dynamometer type wattmeter. (UPF type)			white board & marker

4	Working of Dynamometer type wattmeter. (UPF type)			white board & marker
5	The Errors in Dynamometer type wattmeter			white board & marker
6	Dynamometer type wattmeter: methods of their correction.			white board & marker
7	Discuss Induction type watt meters			white board & marker
8	Induction type watt meters.			white board & marker
CHAPTER-04 (ENERGYMETERS AND MEASUREMENT OF ENERGY)				
1	Introduction Single Phase Induction type Energy meters			white board & marker
2	Construction of Single Phase Induction type Energy meters			white board & marker
3	Construction of Single Phase Induction type Energy meters			Video Lecture & Smart board
4	Working principle of Single Phase Induction type Energy meters			white board & marker
5	Working principle of Single Phase Induction type Energy meters			Video Lecture &

				Smart board
6	Compensation of Single Phase Induction type Energy meters			Video Lecture & Smart board
7	Adjustments of Single Phase Induction type Energy meters			white board & marker
8	Adjustments of Single Phase Induction type Energy meters			white board & marker
LMS	**ASSIGNEMENT-1**			**LectureNotes**
CHAPTER-05 (MEASUREMENT OF SPEED, FREQUENCY AND POWER FACTOR)				
1	Tachometers, types and working principles			Video Lecture & Smart board
2	Principle of operation of Mechanical Type frequency meters			white board & marker
3	construction of Mechanical Type frequency meters			white board & marker
4	Principle of operation construction of Electrical resonance Type frequency meters .			Video Lecture & Smart board
5	Principle of operation of Dynamometer type single phase power factor meters			white board & marker
HOME WORK				
6	Working of Dynamometer type single phase power factor meters. Principle of operation Dynamometer type three phase power factor meters			white board & marker

7	Working of Dynamometer type three phase power factor meters			white board & marker
HOME WORK				
CHAPTER-06(Measurement of Resistance, Inductance& Capacitance)				
1	Measurement of low resistance by potentiometer method			white board & marker
2	Measurement of medium resistance by wheat Stone bridge method. Measurement of high resistance by loss of charge method			white board & marker
3	Construction, principle of operations of Megger for insulation resistance.			white board & marker
4	Construction, principle of operations of Earth tester for insulation resistance of earth resistance measurement.			Video Lecture & Smart board
5	Construction and principles of Multimeter. (Analog and Digital)			Video Lecture & Smart board
6	Measurement of inductance by Maxwell's Bridge method .			white board & marker
7	Measurement of capacitance by Schering Bridge method			white board & marker
8	Solving various types of problems			white board & marker
	HOME WORK			

CHAPTER-07(Sensors And Transducer)				
1.	Transducer, sensing element or detector element and transduction elements. Classify transducer. Give examples of various class of transducer.			Video Lecture & Smart board
2.	Resistive transducer Linear and angular motion potentiometer.			Video Lecture & Smart board
3.	Thermistor and Resistance thermometers. Wire Resistance Strain Gauges			white board & marker
4.	Wire Resistance Strain Gauges Inductive Transducer			Video Lecture & Smart board
5.	Principle of linear variable differential Transformer (LVDT) Uses of LVDT			Video Lecture & Smart board
6.	General principle of capacitive transducer .			Video Lecture & Smart board
7.	Variable area capacitive transducer.			white board & marker
8.	Change in distance between plate capacitive transducer.			white board & marker
9.	Piezoelectric Transducer and Hall Effect Transducer with their applications.			Video Lecture & Smart board

	ASSIGNEMENT-2			
CHAPTER-08(OSCILLOSCOPE)				
1.	Principle of operation of Cathode Ray Tube.			Video Lecture & Smart board
2.	Principle of operation of Oscilloscope (with help of block diagram)			Video Lecture & Smart board
3.	Measurement of DC Voltage & current			white board & marker
4.	Measurement of AC Voltage, current			white board & marker
5.	Measurement of phase & frequency.			white board & marker
	REVISION			white board & marker
	Total No of Hrs Required For The Course: 60			