

GOVERNMENT POLYTECHNIC, DHENKANAL
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGG.
LESSON PLAN- SUMMMER 2025 (4th Semester)
ACADEMIC YEAR 2024-25

Subject:- Electrical Machine (Th-1)	No of Days/per Week Class Allotted :-	Semester From:- :- <u>04.02.2025</u> To:- <u>17.05.2025</u>
	4	Name of the Faculty: Biswa Ranjan Behera
Week	Class Day	Theory
1st	1 st	Properties & uses of different conducting material.
	2 nd	Properties & use of various insulating materials used electrical engineering.
	3 rd	Properties & use of various insulating materials used electrical engineering.(Continue)
	4 th	Various magnetic materials & their uses.
2nd	1 st	Various magnetic materials & their uses (Continue)
	2 nd	Construction, Principle & application of DC Generator.
	3 rd	Construction, Principle & application of DC Generator (Continue)
	4 th	Classification DC generator including voltage equation.
3rd	1 st	Derive EMF equation & simple problems.
	2 nd	Derive EMF equation & simple problems (Continue)
	3 rd	Parallel operation of DC generators.
	4 th	Revision & QA
4th	1 st	Principle of working of a DC motor.
	2 nd	Concept of development of torque & back EMF in DC motor including simple problems.
	3 rd	Concept of development of torque & back EMF in DC motor including simple problems (Continue)
	4 th	Derive equation relating to back EMF, Current, Speed and Torque equation
5th	1 st	Derive equation relating to back EMF, Current, Speed and Torque equation (Continue)
	2 nd	Classify DC motors & explain characteristics, application.
	3 rd	Classify DC motors & explain characteristics, application. (Continue)
	4 th	Three point & four point stator/static of DC motor by solid State converter.
6th	1 st	Speed of DC motor by field control and armature control method.
	2 nd	Power stages of DC motor & derive Efficiency of a DC motor.
	3 rd	Revision & QA
	4 th	Mathematical representation of phasors, significant of operator "J"
7th	1 st	Addition, Subtraction, Multiplication and Division of phasor quantities.
	2 nd	AC series circuits containing resistance, capacitances, Conception of active, Reactive and apparent power and Q-factor of series circuits & solve related problems.
	3 rd	AC series circuits containing resistance, capacitances, Conception of active, Reactive and apparent power and Q-factor of series circuits & solve related problems. (Continue)
	4 th	Find the relation of AC Parallel circuits containing Resistances, Inductance and Capacitances Q-factor of parallel circuits.

8th	1 st	Find the relation of AC Parallel circuits containing Resistances, Inductance and Capacitances Q-factor of parallel circuits (Continue)
	2 nd	Revision & QA
	3 rd	Class Test/SAT
	4 th	Ideal transformer. Construction & working principle of transformer
9th	1 st	Derive of EMF equation of transformer, voltage transformation ratio.
	2 nd	Discuss Flux, Current, EMF components of transformer and their phasor diagram under no load Condition.
	3 rd	Discuss Flux, Current, EMF components of transformer and their phasor diagram under no load Condition (Continue)
	4 th	Phasor representation of transformer flux, current EMF primary and secondary Voltages under loaded condition
10th	1 st	Phasor representation of transformer flux, current EMF primary and
	2 nd	Types of losses in Single Phase (1- ϕ) Transformer.
	3 rd	Open circuit & short-circuit test (simple problems)
	4 th	Parallel operation of Transformer.
11th	1 st	Auto Transformer
	2 nd	Revision & QA
	3 rd	Construction feature, types of three-phase induction motor.
	4 th	Principle of development of rotating magnetic field in the stator.
12th	1 st	Establish relationship between synchronous speed, actual speed and slip of induction motor.
	2 nd	Establish relation between torque, rotor current and power factor.
	3 rd	Explain starting of an induction motor by using DOL and Star-Delta stator. State industrial use of induction motor.
	4 th	Explain starting of an induction motor by using DOL and Star-Delta stator. State industrial use of induction motor (Continue)
13th	1 st	Revision & QA Construction features and principle of operation of capacitor type and shaded pole type of single-phase induction motor.
	2 nd	Construction features and principle of operation of capacitor type and shaded pole type of single-phase induction motor (Continue)
	3 rd	Construction features and principle of operation of capacitor type and
	4 th	Explain construction & operation of AC series motor.
14th	1 st	Explain construction & operation of AC series motor (Continue)
	2 nd	Explain construction & operation of AC series motor (Continue)
	3 rd	Concept of alternator & its application
	4 th	Concept of alternator & its application(Continue)
15th	1 st	Concept of alternator & its application(Continue)
	2 nd	Revision & QA
	3 rd	Revision & QA
	4 th	Class Test/SAT

Signature of Faculty

Signature of HOD