



NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)



LESSON PLAN

SUBJECT: EEPC207(DC MACHINES AND TRANSFORMERS)

Name Of The Faculty :- Er. Niranjan Barik

Branch :- Electrical Engineering

Academic Year : 2025-26

Semester :- 3rd

Examination :- 2025 (W)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	DC Generators	9	12
2	D.C. Motors	9	12
3	Single Phase Transformers	10	14
4	Three Phase Transformers	9	12
5	Special Purpose Transformers	8	10
Total Period:		45	60

Sign of Faculty

Sign of H.O.D.


Name of the programme: Diploma in Electrical Engineering	Semester: 3rd	Name of the Teaching Faculty: Er. Niranjan Barik	
		Academic Year : 2025-26	Examination : 2025 (W)
Course Code: EEPC207 TH-4	Course Year: Second Year	No. of Classes Alloted Per Week :	4
		Planned Classes Required to Complete the Course	60
Week	Class Day	Topics to be Covered	
1 st	1 st	1.0 Interduction D.C. generator	
	2 nd	1.1 D.C. generator: construction, parts, materials and their functions	
	3 rd	1.2 Principle of operation of DC generator	
	4 th	1.2.1 Fleming'sright hand rule 1.2.2 Derive the emf equation of DC Generator	
2 nd	1 st	1.2.3 Schematic diagrams of different types of DC generator	
	2 nd	1.2.3 Schematic diagrams of different types of DC generator	
	3 rd	1.2.4 Armature reaction	
	4 th	1.2.4 Armature reaction	
3 rd	1 st	1.2.5 Commutation	
	2 nd	1.2.5 Commutation	
	3 rd	1.2.6 Applications of D.C. generators	
	4 th	1.2.6 Applications of D.C. generators	
4 th	1 st	2.0 Interduction of D.C. Motors	
	2 nd	2.1 D.C. motor: Types of DC motors	
	3 rd	2.1 D.C. motor: Types of DC motors	
	4 th	2.1.1 Fleming's left hand rule	
5 th	1 st	2.1.2 Principle of operation of Back e.m.f. and its significance	
	2 nd	2.1.2 Principle of operation of Back e.m.f. and its significance	
	3 rd	2.1.3 Voltage equation of DC motor Torque and Speed; Armature torque, Shaft torque, BHP, Brake test, losses, efficiency	
	4 th	2.1.4 Torque and Speed; Armature torque, Shaft torque, BHP, Brake test, losses, efficiency	

Week	Class Day	Topics to be Covered
6 th	1 st	2.2 DC motor starters: Necessity, two point and three point starters
	2 nd	2.3 Speed control of DC shunt and series motor: Flux and Armature control
	3 rd	2.3 Speed control of DC shunt and series motor: Flux and Armature control
	4 th	2.4 Brushless DC Motor: Construction and working
7 th	1 st	3.0 Interduction Single Phase Transformers
	2 nd	3.1 Types of transformers: Shell type and core type
	3 rd	3.2 Construction: Parts and functions
	4 th	3.3 Materials used for different parts: CRGO, CRNGO, HRGO, amorphous cores?
8 th	1 st	3.4 Transformer: Principle of operation?
	2 nd	3.4 Transformer: Principle of operation?
	3 rd	3.5 EMF equation of transformer: Derivation, Voltage transformation ratio?
	4 th	3.5 EMF equation of transformer: Derivation, Voltage transformation ratio?
9 th	1 st	3.6 Significance of transformer ratings
	2 nd	3.7 Transformer No-load and on-load phasor diagram, Leakage reactance
	3 rd	3.7 Transformer No-load and on-load phasor diagram, Leakage reactance
	4 th	3.7 Transformer No-load and on-load phasor diagram, Leakage reactance
10 th	1 st	3.8 Equivalent circuit of transformer: Equivalent resistance and reactance
	2 nd	3.9 Voltage regulation and Efficiency: Direct loading, OC/SC method, All day efficiency
	3 rd	3.9 Voltage regulation and Efficiency: Direct loading, OC/SC method, All day efficiency
	4 th	4.0 Interductin of Three Phase Transformers
11 th	1 st	4.1 Bank of three single phase transformers,(Y-Y, Δ - Δ , Δ -Y, Y- Δ)?
	2 nd	4.2 Single unit of three phase transformer
	3 rd	4.3 Distribution and Power transformers: Construction and cooling,

Week	Class Day	Topics to be Covered
11 th	4 th	4.3 Distribution and Power transformers: Construction and cooling,
12 th	1 st	4.4 Criteria for selection of distribution transformer, and power transformer.
	2 nd	4.4 Criteria for selection of distribution transformer, and power transformer.
	3 rd	4.5 Need of parallel operation of three phase transformer
	4 th	4.5 Need of parallel operation of three phase transformer
13 th	1 st	4.6 Conditions for parallel operation
	2 nd	4.6 Conditions for parallel operation
	3 rd	4.7 Polarity tests on mutually inductive coils and single phase transformers
	4 th	4.7 Polarity tests on mutually inductive coils and single phase transformers
14 th	1 st	4.7 Polarity tests on mutually inductive coils and single phase transformers
	2 nd	4.8 Polarity test, Phasing out test on Three-phase transformer
	3 rd	4.8 Polarity test, Phasing out test on Three-phase transformer
	4 th	5.0 Interduction pecial Purpose Transformers
15 th	1 st	5.1 Single phase and three phase autotransformers: Construction, working and applications.
	2 nd	5.1 Single phase and three phase autotransformers: Construction, working and applications.
	3 rd	5.2 Isolation transformer: Constructional Features and applications
	4 th	5.2 Isolation transformer: Constructional Features and applications



Sign of Faculty



Sign of H.O.D.