

**Lesson Plan**

**Name of the Subject** : ELECTRICAL TECHNOLOGY (14BT30231)

**Class & Semester** : IIB. Tech (ECE& EIE) – I Semester

**Name(s) of the faculty Member(s)**: Mr. Venkatesh P

S. No.	Topic	No. of periods	Book(s) followed	Topics for self study	
<b>UNIT – I: DC MACHINES</b>					
1.	DC Generator: construction and working	1	T1	Comparison of DC generator and motor actions.	
2.	EMF equation and Types	2	T1		
3.	Losses in a DC Machine	1	T1		
4.	Open circuit and load characteristics of DC generators.	1	T1		
5.	DC Motor: working principle, Torque equation	1	T1		
6.	Characteristics of DC motors	1	T1		
7.	Speed control of DC shunt motor	1	T1		
8.	Swinburne's test	1	T1		
9.	Three point starter	1	T1		
10.	Formative Test				
<b>Total periods required:</b>		<b>10</b>			
<b>UNIT – II: SINGLE PHASE TRANSFORMER</b>					
11.	Principle of operation of single phase transformer	1	T1,R1	Three phase Transformer connections	
12.	Constructional features and types	1	T1,R1		
13.	EMF equation, equivalent circuit	2	T1,R1		
14.	Losses, efficiency and regulation of transformer	2	T1,R1		
15.	OC and SC test	2	T1,R1		
16.	Predetermination of efficiency and regulation	1	T1,R1		
17.	Problems	1	T1		
18.	Formative Test				
<b>Total periods required:</b>		<b>10</b>			
<b>UNIT -III: THREE PHASE CIRCUITS</b>					
19.	Introduction to poly phase systems, advantages of poly phase system	1	T2		
20.	generation of three phase voltages, phase sequence	1	T2		
21.	star and delta connections, relationship between phase and line quantities in three phase balanced circuits	2	T2		
22.	Problems on balanced star and delta connection systems	2	T2		
23.	power measurement in three phase systems using two wattmeter method	2	T2		
24.	Formative Test				
<b>Total periods required:</b>		<b>08</b>			

S. No.	Topic	No. of periods	Book(s) followed	Topics for self study
<b>UNIT – IV: THREE PHASE INDUCTION MOTORS AND ALTERNATOR</b>				
25.	Three phase Induction motor: principle of operation	1	T2,R1	Comparison of Induction motor and Transformer
26.	Construction and types	1	T2,R1	
27.	Slip, rotor frequency	1	T2,R1	
28.	Torque equation and torque-slip characteristics	1	T2,R1	
29.	Comparison between slipping and squirrel cage motors	1	T2,R1	
30.	Alternators: principle of operation	1	T2,R1	
31.	Constructional features	1	T2,R1	
32.	EMF equation	1	T2,R1	
33.	Formative Test			
<b>Total periods required:</b>		<b>08</b>		
<b>UNIT – V: SPECIAL MACHINES</b>				
34.	Introduction to Single phase induction motors	1	T1&R3	Select suitable machines for real time applications
35.	Construction, Principle of operation (Double field revolving theory).	2	T1 &R3	
36.	Construction and working of Split Phase Induction motor	1	T1 &R3	
37.	Construction and working of capacitor start and capacitor run motors and their applications	2	T1 &R3	
38.	Shaded-pole motor and its applications	1	T1 &R3	
39.	Construction, Principle of operation and applications of Universal motors and stepper motors	2	T1 &R3	
40.	Formative Test		T1 &R3	
<b>Total periods required:</b>		<b>9</b>		
<b>Grand total periods required:</b>		<b>45</b>		

**TEXT BOOKS:**

- T1. B.L. Theraja and A.K. Theraja, *A Text Book of Electrical Technology in S.I.Units*, Vol.2, S.Chand Company Ltd, New Delhi, 2012.  
T2. V.K.Mehta, Rohit Mehta, *Principles of Electrical Engineering and Electronics*, S.Chand Company Ltd, New Delhi, 2010

**REFERENCE BOOKS:**

- R1: H.Cotton, *Electrical Technology*, CBS Publishers & Distributors, 2004  
R2: M.S. Naidu and S. Kamakshaiyah, *Electrical Technology*, Tata McGraw-Hill Publishing company Ltd, New Delhi, 2007  
R3: A.Sudhakar and Shyammohan, *Principles of Electrical Engineering*, Tata McGraw - Hill Education Private Limited, New Delhi. 2012