

R.G. Government Polytechnic Banikhet, Distt. Chamba (H.P)-176303
Department of Electrical Engineering
Lesson Plan

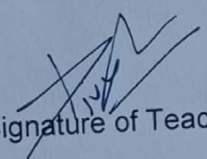
Name of Faculty	Ms. Divya
Discipline	Electrical Engineering
Semester	4 th
Subject	Electrical Machine - II (L-4 Hrs./week)
Lesson Plan Duration	February – June 2023

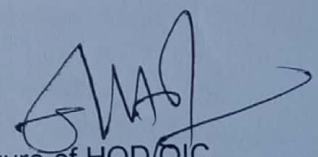
week	Topic	Theory
1 st (14 Feb. – 21 Feb.)	1. Rotating Machine: Basic Concepts	1.1 Principle of Energy conversion 1.2 Rotating Electrical Machine: definition of electrical machine, generator & motor
2 nd (22 Feb. – 28 Feb.)	1. Rotating Machine: Basic Concepts	1.3 Physical concept of torque production: electromagnetic torque reluctance torque and concept of torque angle
3 rd (01 Mar. – 07 Mar.)	2. DC Machines	2.1 Constructional features of DC Machine 2.2 Type of windings in DC machine: field and armature windings 2.3 Armature windings: lap & wave winding, armature winding terminologies (conductor, turn, coil
4 th (09 Mar. – 16 Mar.)	2. DC Machines	coil group, pole pitch, coil span, full-pitched coil, short pitched coil, back & front-pitch) 2.4 Function of the Commutator in Motoring and Generating action 2.5 Armature Reaction in DC machine
5 th (17 Mar. – 23 Mar.)	2. DC Machines	2.6 Commutation, cause of sparking, method to improve commutation 2.7 Power flow diagram of DC Machines
Class Test – 1	In third week of March 2023	
6 th (24 Mar. – 31 Mar.)	3. DC Generator	3.1 Working principle of DC generator 3.2 Induced EMF equation & factors determining the EMF of generator 3.3 Electromagnetic torque equation & factors determining the torque

<p style="text-align: center;">7th (01 Apr. – 10 Apr.)</p>	<p style="text-align: center;">3. DC Generator</p>	<p>3.4 Relationship between generated EMF and generator terminal voltage 3.5 Types of DC generator: separately excited, shunt wound, series wound and compound (differential or cumulative type) generator 3.6 Necessary conditions to build up induced EMF in a DC shunt generator</p>
<p style="text-align: center;">8th (11 Apr. – 19 Apr.)</p>	<p style="text-align: center;">3. DC Generator</p>	<p>3.7 Operating characteristics of separately excited, Shunt, Series and Compound DC generator 3.8 Losses in DC Generator, Efficiency of DC Generator</p>
<p style="text-align: center;">9th (20 Apr. – 27 Apr.)</p>	<p style="text-align: center;">4. DC Motor</p>	<p>4.1 Working principle of DC motor 4.2 Back EMF equation and its significance 4.3 Torque equation of DC motor 4.4 Equivalent Circuit diagram</p>
<p style="text-align: center;">10th (28 Apr. – 04 Apr. May)</p>	<p style="text-align: center;">4. DC Motor</p>	<p>4.5 Relationship between back EMF and terminal voltage 4.6 Types of DC motors: Series motor, Shunt motor and Compound motor (differential and cumulative)</p>
<p style="text-align: center;">11th (06 May – 12 May)</p>	<p style="text-align: center;">4. DC Motor</p>	<p>4.7 Need of Starter, 3-point Starter, 4-point Starter 4.8 Speed control of DC series and shunt motors: Armature & Field control methods and Ward Leonard method.</p>
<p style="text-align: center;">Class Test - 2</p>	<p>In third week of April 2023</p>	
<p style="text-align: center;">12th (15 May – 20 May)</p>	<p style="text-align: center;">4. DC Motor</p>	<p>4.9 Operating characteristics of DC motors: Shunt, Series and Compound motors. 4.10 Effect of armature resistance on Torque-speed curve,</p>

<p style="text-align: center;">13th (23 May-29 May)</p>	<p style="text-align: center;">4. DC Motor</p>	<p>4.11 Losses in DC motor, Efficiency of DC motor: Direct method (direct mechanical loading method), Indirect method (Swinburne's method) and regenerative method (Hopkinson's method)</p>
<p>House Test</p>	<p>In 2nd week of May 2023</p>	
<p style="text-align: center;">14th (30 May-05 June)</p>	<p style="text-align: center;">5 Applications and Maintenance of DC Machine</p>	<p>5.1 DC generator applications 5.2 DC motor applications 5.3 DC Machines (motor & generator) testing and maintenance</p>
<p style="text-align: center;">15th (06 June – 09 June)</p>	<p style="text-align: center;">Revision & Doubt clearance</p>	<p style="text-align: center;">Revision & Doubt Clearance</p>

NOTE: - Lesson Plan is Tentative, subject to availability of Time, Students & Faculty


 Signature of Teacher
 (Er. Divya)


 Signature of HOD/OIC
 (Er. Amit Attri)