

## Department of Electrical and Electronics Engineering

### COURSE MODULES OF THE SUBJECT TAUGHT FOR THE SESSION EVEN 2024-25

<b>Academic Year: 2024-25</b>							
<b>Department: Electrical &amp; Electronics Engineering</b>							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
BEEL404	Electric Motors Lab	Core	Knowledge of DC Machines, Induction motor and Synchronous Motor	-	-	2	32
<b>Objectives</b>	<ul style="list-style-type: none"> <li>To perform tests on dc machines to determine their characteristics.</li> <li>To control the speed of DC motor</li> <li>To conduct test for pre-determination of the performance characteristics of dc machines</li> <li>To conduct load test on single phase and three phase induction motor.</li> <li>To conduct test on induction motor to determine the performance characteristics</li> <li>To conduct test on synchronous motor to draw the performance curves</li> </ul>						
<b>EXPERIMENTS Covered as per Syllabus</b>							
1	Load test on dc shunt motor to draw speed – torque and horse power – efficiency characteristics.						
2	Speed control of dc shunt motor by armature and field control.						
3	Swinburne's Test on dc motor.						
4	Regenerative test on dc shunt machines.						
5	Load test on three phase induction motor.						
6	No load and Blocked rotor test on three phase induction motor to draw (i) equivalent circuit and (ii) circle diagram. Determination of performance parameters at different load conditions from (i) and (ii).						
7	Load test on induction generator.						
8	Load test on single phase induction motor to draw output versus torque, current, power and efficiency characteristics.						
9	Conduct suitable tests to draw the equivalent circuit of single phase induction motor and determine performance parameters.						
10	Conduct an experiment to draw V and $\Lambda$ curves of synchronous motor at no load and load conditions.						
11	Analyze current and load torque of DC Shunt Motor using Simscape.						
12	Model 3-phase induction motor using MATLAB and Simulink.						
<b>List of Text Books</b>							
1. Electrical Machinery by P S Bhimra							
2. Electrical Machines by I J Nagrath and Kothari							
<b>Reference Books</b>							
1. AC and DC machines by B L Thereja							
<b>List of URLs, Textbooks, Notes, Multimedia Content, etc</b>							
1. <a href="http://electrical-engineering-portal.com">http://electrical-engineering-portal.com</a>							
2. <a href="http://nptel.iitm.ac.in/courses.php">http://nptel.iitm.ac.in/courses.php</a>							
3. Experiments in Electrical Engineering by G.P.Chhalotra, Khanna Publishers Delhi							

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<b>Course Outcome</b>	<p><i>At the end of the course the student will be able to:</i></p> <p>CO-1 : Test dc machines to determine their characteristics and control the speed of DC motors.          CO-2 : Pre-determine the performance characteristics of dc machines by conducting suitable tests.          CO-3 : Perform load test on single phase and three phase induction motor to assess its performance.          CO-4 : Conduct test on induction motor to pre-determine the performance characteristics.          CO-5 : Conduct test on synchronous motor to draw the performance curves.</p>
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### The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Lab Code:	BEEL404 TITLE: Electric Motors Lab											
List of Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	3	3	-	2	-	-	-	-	3	3	-	-
CO-2	3	3	-	2	-	-	-	-	3	3	-	-
CO-3	3	3	-	2	-	-	-	-	3	3	-	-
CO-4	3	3	-	2	-	-	-	-	3	3	-	-
CO-5	3	3	-	2	-	-	-	-	3	3	-	-

**Note:** 3 = Strong Contribution    2 = Average Contribution    1 = Weak Contribution    '-' = No Contribution

Course Code:	BEEL404	TITLE: Electric Motors Lab	Faculty Name:	Raghavendra L
List of Course Outcomes	Program Specific Outcomes			
	PSO1		PSO2	
CO-1	2		2	
CO-2	2		2	
CO-3	2		2	
CO-4	2		2	
CO-5	2		2	