



University of Tehran
School of Electrical and Computer Engineering

Course:	8101016 Electrical Machines Lab 2									
Course type:	EE*						CE*			Credit: 1
	Com	E	P	B	Con	D	SW	HW	IT	
	Required	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Elective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Level:	Undergraduate <input checked="" type="checkbox"/> Graduate <input type="checkbox"/>									
Co-requisite(s):	Electrical machines 3									
Prerequisite(s):	Electrical machines 2									
Prerequisite by topic:	Being introduced to 1. Single-phase and three-phase transformers 2. Induction motor 3. Synchronous machines									
Textbook(s):	1. P. S. Bimbhra, Generalized Theory of Electrical Machines, Khanna Publishers, India, 2007. 2. J. Nagrath, D. P. Kothari, Electrical Machines, McGraw Hill, 2006 3. Stephan J. Chapman, Electric Machinery Fundamentals, McGraw Hill, 2004 4. P. C. Sen, Principles of Electric Machines and Power Electronics, John Wiley & Sons, 2013 5. A.E.Fitzgerald, Electric Machinery, McGraw Hill, 2003									
Coordinator:	Hamid Lesani, Professor, School of ECE.									
Goals:	1. Introduction to construction, winding, characteristics, performance, and starting of Induction motors. 2. Introduction to construction, winding, characteristics, performance, and starting of synchronous machines. 3. Introduction to single-phase and three-phase transformers									
Outcome:	Upon successful completion of the course, students will: 1. Apply different types of single-phase and three-phase transformers 2. Understand different applications of various types of induction motors and synchronous machines. 3. Wind coils for stator of single-phase induction motors									
Topics:	1. Introduction to electrical risks at workplace and electrical safety solutions 2. Introduction to construction and components of induction motors and winding of single-phase induction motors 3. Carrying out some experiments on three-phase transformer including no-load, short-circuit, phase-angle indicator.									

	<ol style="list-style-type: none"> 4. Introduction to operating three-phase transformers in parallel 5. Introduction to parameters of induction motor and conducting no-load and blocked-rotor tests 6. Characteristic of synchronous generator and carrying out no-load and short circuit experiments. 7. Introduction to synchronizing a synchronous generator to electrical power network. 8. Introduction to methods of induction-motor starting and making comparisons among them. 9. Introduction to induction motor drive 				
Computer usage:					
Assignments:	Every session includes a pre report of current session and report of previous session				
Projects:					
Grading:	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Pre reports and reports</td> <td style="width: 50%; text-align: right;">50 %</td> </tr> <tr> <td>Written exam:</td> <td style="text-align: right;">50 %</td> </tr> </table>	Pre reports and reports	50 %	Written exam:	50 %
Pre reports and reports	50 %				
Written exam:	50 %				
Further readings:	Prepared textbook including experiments instructions				
Prepared by:	Hamid Lesani, Professor, School of ECE.				
Date:	December 9. 2017				

*EE: Electrical Engineering		CE: Computer Engineering	
Com	Communications	SW	Software
E	Electronics	HW	Hardware
P	Power	IT	Information Technology
B	Bioelectronics		
Con	Control		
D	Digital System		