



University of Tehran
School of Electrical and Computer Engineering

Course:	8101268 – High Voltage and Insulation									
Course type:	EE*						CE*			Credit: 3
	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):	None.									
Prerequisite(s):	None.									
Prerequisite by topic:	None.									
Textbook(s):	[1] H. Mohseni, <i>Fundamentals of High Voltage Engineering</i> , University of Tehran Press, 2010 (in Persian)									
Coordinator:	H. Mohseni, Professor, School of ECE									
Goals:	The goal of the course is that students know the concepts of high electric fields, performance of dielectrics in high electric field, electric breakdown, generation and measurement of high voltage, and traveling waves.									
Outcome:	Upon successful completion of the course, students will be able <ol style="list-style-type: none"> 1. To calculate and simulate electric fields for common high voltage electrodes. 2. To describe the electric breakdown model in gaseous dielectric. 3. To employ methods of high voltage generation. 4. To employ methods of high voltage measurement. 5. To describe fundamental concept of dielectric behavior. 6. To utilize basic concepts of traveling waves. 									
Topics:	<ol style="list-style-type: none"> 1) Electric fields 2) Dielectrics 3) Electric breakdown 4) Generation and measurement of high voltages 5) Traveling waves 									
Computer usage:	MATLAB, COMSOL Multiphysics									
Assignments:	Include 5 Homework after each topic.									
Projects:	Simulating the high voltage fields using finite element method									
Grading:	Assignments:					10%				
	Quiz:					10%				

	Midterm exams: 30%
	Final exam: 50%
Further readings:	[1] E. Kuffel, W. S. Zaengl, J. Kuffel, <i>High Voltage Engineering: Fundamentals</i> , Elsevier, 2008.
Prepared by:	Amir Abbas Shayegani Akmal, Mohammad Hamed Smimi
Date:	September 02, 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		