



University of Tehran
School of Electrical and Computer Engineering

Course:	8101036 – Insulators and High Voltage Lab.									
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):	High Voltage and Insulation (8101268)									
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 the students see different dielectric phenomena, which they have been dealt with in High Voltage and Insulation course, within physical experiments to learn them better.									
Outcome:	Upon successful completion of the course, students will be able 1. To work with different high voltage devices. 2. To describe the effect of different environmental factors on high voltage phenomena. 3. To generate and measure the high voltages. 4. To test different high voltage apparatuses such as transformers, insulators, surge arresters, etc.									
Topics:	1) Introduction to safety and high voltage test devices. 2) Measurement of AC and DC high voltage. 3) Measurement the peak of the AC high voltage. 4) DC electrical breakdown in non-uniform fields. 5) Surface discharge and effect of pollutions on it. 6) Generation and measurement of high impulse voltage. 7) Paschen law. 8) Measurement of insulation resistance, dielectric constant, capacity and dielectric factor. 9) Breakdown voltage and miscellaneous tests of transformer oil. 10) Partial discharge. 11) Traveling waves.									
Computer usage:	MATLAB									
Assignments:	10 experiment reports									

Projects:	None
Grading:	Assignments: 50 % Projects: 0 % Quizzes: 0 % Midterm exams: 0% Final exam: 50 %
Further readings:	[1] E. Kuffel, W. S. Zaengl, J. Kuffel, <i>High Voltage Engineering: Fundamentals</i> , Elsevier, 2008.
Prepared by:	Mohammad Hamed Samimi
Date:	September 03. 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		