



University of Tehran
School of Electrical and Computer Engineering

Course:	8101615 – Advanced High Voltage Engineering		
Course type:	Major	EE*	Credit: 3
Level:	Graduate		
Co-requisite(s):			
Prerequisite(s):			
Prerequisite by topic:	Fundamentals of electromagnetics and advanced mathematics		
Textbook(s):	[1] D. Xiao, <i>Gas Discharge and Gas Insulation</i> , Springer, 2016 [2] A. Haddad and D. Warne, <i>Advances in High Voltage Engineering</i> , IEE Power & Energy Series, 2007. [3] Mohseni, <i>Advanced high voltage engineering</i> , University of Tehran, 1998 (in Persian).		
Coordinator:	Amir Abbas Shayegani Akmal		
Goals:	Electrical breakdown of insulation materials is one the important area of high voltage engineering. In the course breakdown of gaseous, liquid and solid insulation are presented and the analytic and experimental models are investigated.		
Outcome:	Upon successful completion of the course, students will be able <ol style="list-style-type: none"> 1. To describe electrical breakdown process in insulation materials. 2. To describe influence of important parameters on electrical breakdown. 3. To use models of electrical breakdown. 		
Topics:	<ol style="list-style-type: none"> 1. Electrical breakdown in gaseous dielectric 2. Electrical current in gaseous dielectric 3. Movability of charged particles 4. Townsend breakdown criterion 5. Electrical breakdown in mixed gaseous 6. Electrical breakdown patterns 7. Delay in electrical breakdown 8. Insulators breakdown voltage 9. Influence of barriers in electrical breakdown 10. Liquid and solid dielectric breakdown 		

	11. Liquid dielectric breakdown 12. Solid dielectric breakdown
Computer usage:	MATLAB
Assignments:	4
Projects:	1
Grading:	Assignments: 30% Quiz: 10% Midterm exams: 20% Final exam: 40%
Further readings:	
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Date:	November 12, 2017

*EE: Electrical Engineering CE: Computer Engineering IT: Information Technology