



**University of Tehran**  
**School of Electrical and Computer Engineering**

<b>Course:</b>	<b>8101653 – High Voltage Theory and Application of Circuit Breaker</b>		
<b>Course type:</b>	Elective	EE*	Credit: 3
<b>Level:</b>	Graduate		
<b>Co-requisite(s):</b>			
<b>Prerequisite(s):</b>			
<b>Prerequisite by topic:</b>	Fundamentals of electromagnetics and circuit analysis		
<b>Textbook(s):</b>	[1] K. Niayesh, M. Runde, <i>Power Switching Components, Theory, Applications and Future Trends</i> , Springer, 2017. [2] R.D. Garzon, <i>High Voltage Circuit Breakers: Design and Application</i> , Taylor & Francis, 2005.		
<b>Coordinator:</b>	Amir Abbas Shayegani Akmal		
<b>Goals:</b>	To know circuit breaker types and mechanisms of operation. To identify problems and challenges of high voltage circuit breaker.		
<b>Outcome:</b>	Upon successful completion of the course, students will be able <ol style="list-style-type: none"> <li>1. To describe phenomena relate to circuit breakers.</li> <li>2. To evaluate influence of circuit on operation of circuit breaker.</li> <li>3. To know trend of circuit breaker technology.</li> </ol>		
<b>Topics:</b>	<ol style="list-style-type: none"> <li>1- Electric arc Fundamentals</li> <li>2- Short circuit currents</li> <li>3- Transient recovery voltage</li> <li>4- Switching overvoltage</li> <li>5- Type of circuit breakers</li> <li>6- Mechanical design</li> <li>7- Dielectric design</li> <li>8- Circuit Breaker applications</li> </ol>		
<b>Computer usage:</b>	EMTP - PSCAD		
<b>Assignments:</b>	2 computer assignment and 3 analytic assignment		
<b>Projects:</b>	Computer Simulation.		
<b>Grading:</b>	Assignments:	25%	

	Quiz: 5% Midterm exams: 20% Final exam: 50%
<b>Further readings:</b>	
<b>Prepared by:</b>	Amir Abbas Shayegani Akmal
<b>Date:</b>	November 12, 2017

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