

교과목번호	459.571	강좌번호	001	교과목명 (부제명)	방사선공학특강 (고전압펄스기기공학)			학점	3
담당교수	성명	정 경 재 (직 : 부교수)			Homepage				
	E-mail	jkjsh1@snu.ac.kr			전화번호	02-880-8338			
	면담방법(시간/장소) : 32-213								
첨부파일	(국문)								
	(영문)								
선이수교과목	전자기학, 방사선공학, 플라즈마기초								
* 1. 수업목표	본 강의에서는 매우 짧은 시간 동안 X-선 등의 인공 방사선을 발생시키는 장치인 고전압 펄스 기기 공학에 대하여 다룬다. 전송선, Marx 발생기 등의 고전압 펄스 발생장치의 핵심 원리를 비롯하여, 하전 입자와 관련된 고전압 절연 및 방전 기술 등에 대하여 학습한다.								
* 2. 교재 및 참고문헌	<p>[Main text] Jane Lehr and Pralhad Ron, Foundations of Pulsed Power Technology, IEEE Press (2017).</p> <p>[Reference] H. Bluhm, Pulsed Power Systems: Principles and Applications, Springer (2006). G. A. Mesyats, Pulsed Power, Springer (2005). P. W. Smith, Transient Electronics: Pulsed Circuit Technology, John Wiley & Sons (2002).</p>								
* 3. 평가방법	출석	과제	중간	기말	수시평가	태도	기타	합계	
	10	30	30	30	0	0	0	0	
	기타 :		※ 공지 후 변경 가능						
* 4. 강의계획	<p style="text-align: center;">강의내용</p> <ol style="list-style-type: none"> 1. Introduction 2. Marx generators 3. Pulse transformers 4. Pulse forming lines 5. Closing switches 6. Opening switches 7. High power systems 8. Energy storage systems 9. Electrical breakdown in gases 10. Electrical breakdown in solids and liquids 11. Vacuum breakdown 12. Insulation technique 13. Pulsed voltage and current measurements 14. Electromagnetic interference 15. EM topology for interference control 								
5. 수강생 참고사항									
6. 장애학생 지원사항	강의주강 관련								
	과제 및 평가 관련								
	비고								

◇ * 은 필수 입력 항목으로 반드시 입력.

◇ 강의계획서 미입력시 출석부 출력 제한, 계속강의 미승인 등 불이익 발생

Course No.	459.571	Lecture No.	001	Course Title (Subtitle)	Special issue on radiation engineering (high-voltage pulsed power engineering)	Credit	3	
Representative Instructor	Name	Kyoung-Jae Chung (post : Asso. Prof.)			Homepage			
	E-mail	jkjsh1@snu.ac.kr			Phone No.	02-880-8338		
	Interview Time/Place :							
Attachment	(Korean)							
	(English)							
Prerequisite Course	Electromagnetics, Radiation Engineering, Fundamentals of Plasma							
*1.Purpose of Course	This lecture covers high-voltage pulsed power engineering, which deals with a device that generates artificial radiation such as X-rays for a very short period of time. This course introduces core principles of high voltage pulse generators such as transmission lines and Marx generators as well as high voltage insulation and discharge techniques.							
*2.Materials and Reference	<p>[Main text] Jane Lehr and Pralhad Ron, Foundations of Pulsed Power Technology, IEEE Press (2017).</p> <p>[Reference] H. Bluhm, Pulsed Power Systems: Principles and Applications, Springer (2006). G. A. Mesyats, Pulsed Power, Springer (2005). P. W. Smith, Transient Electronics: Pulsed Circuit Technology, John Wiley & Sons (2002).</p>							
*3.Evaluation Method	Attendance	Task	Medium	Final	Random Evaluation	Attitude	Other	Total
	10	30	30	30	0	0	0	0
	Remark of Others							
*4.Lecture Plan	1. Introduction 2. Marx generators 3. Pulse transformers 4. Pulse forming lines 5. Closing switches 6. Opening switches 7. High power systems 8. Energy storage systems 9. Electrical breakdown in gases 10. Electrical breakdown in solids and liquids 11. Vacuum breakdown 12. Insulation technique 13. Pulsed voltage and current measurements 14. Electromagnetic interference 15. EM topology for interference control							
5.References to Course Registration								
6. Support Services for Students with Disabilities	For Lectures							
	For Assignments & Evaluations							
	Others							

◇ fields with * : required fields

◇ If you don't release the syllabus, you may have some disadvantages.