

강 의 계 획 서(Syllabus)

[1] 기본 정보(Basic Information)

■ 강의 정보(Course Information)

교과목명 (Course Title)	고급전자기학 (Advanced Electromagnetics)	강의유형 (Course Type)	이론
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[2] 학습 목표/성과(Learning Objectives/Outcomes)

■ 과목 설명(Course Description)

This course is an introductory class in engineering electromagnetics. The course will cover fundamental static electromagnetics theory: vector algebra and vector calculus including the concepts of vector operators (gradient, divergence, and curl), and the mathematical description of static electric and magnetic fields and electric potential in homogeneous media such as free-space, perfect metal, and dielectric materials.

■ 학습 목표(Learning Objectives)

The goal of this course is to introduce students to the concept and mathematics of classical electromagnetic theory

■ 학습 성과(Learning Outcomes)

On completion of the course, students would be able to:

- learn a basic knowledge of static electromagnetic theory involving Coulomb's law, Gauss's law, Biot-Savart law, and Maxwell's equations so on
- formulate potential problems within electrostatics, magnetostatics, and stationary current distributions in linear isotropic media
- explicitly explain the static electromagnetic phenomena in nature and in engineering to people
- be at least familiar and confident to electromagnetics

[3] 강의 진행 정보(Course Methods)

■ 강의 진행 방식(Teaching and Learning Methods)

강의 진행 방식	추가 설명
Lecture	A main textbook and lecture notes will be utilized for teaching. Students are required to download the lecture notes posted online site prior to class.

■ 수업 자료(Textbooks, Reading, and other Materials)

수업 자료	제목	저자	출판일/게재일	출판사/학회지
Textbook	Field of Wave Electronics	David K. Cheng	1998	Addison-Wesley

[4] 수업 일정(Course Schedule)

차시	강사명	수업주제 및 내용	제출 과제	추가 설명
1	Woo June Choi	Chap. 1 Introduction 1.1-1.3 Electromagnetic Model, SI units		
2	Woo June Choi	Chap. 2 Vector Analysis 2.1-2.4 Orthogonal Coordinate systems		
3	Woo June Choi	2.5-2.8 Vector Integral, Divergence, Curl		
4	Woo June Choi	2.9-2.11 Stokes's Theorem, Helmholtz's Theorem		
5	Woo June Choi	Chap 3. Static Electric Field 3.1-3.5 Coulomb's Law, Gauss's Law, Electric Potential		
6	Woo June Choi	3.6-3.8 Conductors, Dielectrics, Electric Flux Density		
7	Woo June Choi	3.9-3.11 Boundary Conditions, Capacitor, Electrostatic Energy and Forces		
8	Woo June Choi	Chap. 4 Solution of Electrostatic Problems		
9	Woo June Choi	Chap. 5 Steady Electric Currents		
10	Woo June Choi	Chap 6 Static Magnetic Fields 6.1-6.3 Magnetostatics and Magnetic Potential		

[5] 수강생 학습 안내 사항

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