

Course Title : Engineering Mathematics I  
[Syllabus]

2022-1st Semester

Course	Category	전공필수(전공필수)	Instructor	Department or Division	School of Electrical and Computer Engineering
	Number(section)	30009(05)		Name	
	Title	Engineering Mathematics I		Phone	
	Credit(Hours)	3 Credit(3 Hours)		E-mail	
	Type	강의		Homepage	
	Time(Room)	Thu 02,03,04/19-B108		Office Hour	
	School Year	2 year	Assistant	name & Phone	

Grading	Evaluation Method	절대평가			
	<input type="checkbox"/> Attendance (0%)	<input type="checkbox"/> Portfolio (0%)	<input type="checkbox"/> Participation (0%)		
	<input type="checkbox"/> Assignment (0%)	<input type="checkbox"/> Quiz (60%)	<input type="checkbox"/> Midterm Report (0%)	<input type="checkbox"/> Midterm Exam (0%)	
	<input type="checkbox"/> Final Report (0%)	<input type="checkbox"/> Final Exam (40%)	<input type="checkbox"/> 기타(0%)		
Type	Foreign Language				
Teaching Method	Lecture				
Plagiarism Policy	It is considered plagiarism to draw any idea or any language from someone else without adequately crediting that source in your work. It doesn't matter whether the source is a published author, another student, a Web site without clear authorship, a Web site that sells academic papers, or any other person: Taking credit for anyone else's work is stealing, and it is unacceptable in all academic situations, whether you do it intentionally or by accident.				
Any student with a disability is welcome to contact the instructor to get academic accommodations, and may be in touch with the Student Accessibility Services by calling 02-6490-6273 to discuss the process for requesting accommodations.					

Course Objectives	
The purpose of the course is to cover the basic linear algebra, differential forms for multi-variable calculus, and elementary differential equations including the Laplace transform. There will be one-hour quizzes in every other week, several surprise quizzes, and a three-hour final exam.	
Course Description	Textbooks and Reference Materials
전자전기컴퓨터공학을 전공하는 학생들에게 회로이론, 제어, 신호처리, 통신, 전자장, 컴퓨터 등 전자전기컴퓨터공학 제 영역의 문제들을 수학적으로 해석하는 방법을 소개한다. 구체적으로 미분방정식의 여러 가지 해법, 라플라스 변환, 선형대수(대수방정식의 해, 역행렬, 벡터공간, 선형변환, 행렬, 특성치와 특성 벡터), 벡터 계산 등을 다룬다.	1. W. Kaplan, Advanced Calculus 2. F. B. Hildebrand, Advanced Calculus for Applications 3. H. F. Weinberger, A First Course in Partial Differential Equations with Complex variables and Transform methods
Specialty competency	Representative competency
Knowledge Application	Primary
Analysis Experiment	
Problem Definition	
Resource Utilization	Secondary
Planning Ability	
Cooperative Ability	
Communicative Skills	
Continuous Learning	
Effect Understanding	

Specialty competency	Representative competency
Vocational Ethics	

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Week	Contents	Teaching Method	Teaching Materials	Requirements, Assignments, etc.
1	Matrices and elementary row operations	lecture		
2	Determinant, minors, matrix inversion	lecture		
3	Solution of inhomogeneous linear equations, inverse matrix	lecture		
4	Eigenvalue problems	lecture		
5	Quadratic forms, spectral theorem	lecture		quiz
6	First order ordinary differential equations	lecture		
7	Second - order ordinary differential equations with constant coefficients	lecture		
8	inhomogeneous differential equations with variation of parameters	lecture		
9	Laplace transformations: fundamentals	lecture		
10	Operational properties of Laplace transforms	lecture		quiz
11	Partial Differential Equations	lecture		
12	Supplementary Week			
13	Partial Differential Equations	lecture		
14	Linear second - order partial differential equations in two variables	lecture		
15	Linear second - order partial differential equations in two variables	lecture		
16	Some properties of elliptic and parabolic equations	lecture		Final