

강 의 계 획 서

[2015년도 1 학기]

교과목명	공학수학1	학점	3
교과목코드	312540-2016	이수영역	학부기초
주수강대상	국제학부 모바일시스템공학전공	교과목영역	
강의형태	강의, 문제풀이, 유인물	강의실	수1,2,3,4,5,6(자연102(촬영))
시간구분	이론(3)실험(0)실습(0)실기(0)설계(0)	사이버강의	웹보조수업
학점구분	이론(3)실험(0)실습(0)실기(0)설계(0)		
권장선수과목	일반수학1, 일반수학1		

담당교수	성명	최수한	직급	조교수	최종학위	공학박사
	소속			연구실	국제관 601	
	전화번호	후		e-mail		
	관심분야					

교과목 개요	
교과목개요	<p>This course, Calculus, deals with limits, functions, derivatives, integrals, and infinite series. Calculus is a major part of modern mathematics, and has two major branches, differential calculus and integral calculus.</p> <p>Applications of differential calculus include computations involving velocity and acceleration, the slope of a curve, and optimization. Applications of integral calculus include computations involving area, volume, arc length, center of mass, work.</p> <p>Calculus has various applications in science, economics, and engineering. It is used in every branch of the physical sciences, computer science, statistics, engineering, economics, business, medicine, and in other fields wherever a problem can be mathematically modeled and an optimal solution is desired.</p>
교과목연계	<p>This course is related to various courses such as:</p> <ul style="list-style-type: none"> - algorithms, - probability and statistics, - digital signal processing, - digital communications, - wireless communications. - communication networks, - optimization theory.

교육목표 및 학습효과	
교육목표	<ul style="list-style-type: none"> - Students can understand the basic concept of calculus. - Students can understand functions and models. - Students can understand differentiation and integrals with single variable. - Students can understand applications of differentiation and integration. - Students can understand vectors, dot product and cross product. - Students can understand differentiation and integrals with multiple variables.

학습효과	<ul style="list-style-type: none"> - Students know the basic concepts and ideas in calculus. - Students understand functions and models. - Students understand differentiation and integrals with single variable and multiple variables. - Students understand applications of differentiation and integration. - Students understand vectors, dot product and cross product.
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차시	강의주제	강의목표	강의방법	연구과제 및 준비물	강의일자
1	Course Syllabus (Overview)	Course Syllabus	Lecture		
2	1. FUNCTIONS AND MODELS.	<ul style="list-style-type: none"> - Four Ways to Represent a Function. - Mathematical Models: A Catalog of Essential Functions. - New Functions from Old Functions. 	Lecture		
3	3. DIFFERENTIATION RULES.	<ul style="list-style-type: none"> - Derivatives of Polynomials and Exponential Functions. - The Product and Quotient Rules. - Derivatives of Trigonometric Functions - The Chain Rule. 	Lecture		
4	3. DIFFERENTIATION RULES.	<ul style="list-style-type: none"> - Implicit Differentiation - Inverse Trigonometric Functions and their Derivatives. 	Lecture		
5	3. DIFFERENTIATION RULES. 5. INTEGRALS.	<ul style="list-style-type: none"> - Derivatives of Logarithmic Functions - Areas and Distances. - The Definite Integral. 	Lecture		
6	5. INTEGRALS.	<ul style="list-style-type: none"> - Evaluating Definite Integrals - The Fundamental Theorem of Calculus. - The Substitution Rule 	Lecture		
7	5. INTEGRALS.	<ul style="list-style-type: none"> - Integration by Parts. - Additional Techniques of Integration 	Lecture		
8	6. APPLICATIONS OF INTEGRATION.	<ul style="list-style-type: none"> - More about Areas - Volumes - Volumes by Cylindrical Shells. 	Lecture		
9	6. APPLICATIONS OF INTEGRATION.	<ul style="list-style-type: none"> - Arc Length - Average Value of a Function 	Lecture		
10	Midterm Exam	Exam	Exam		
11	* Midterm Exam Solution 11. PARTIAL DERIVATIVES.	<ul style="list-style-type: none"> * Solution of Midterm Exam - Functions of Several Variables - Limits and Continuity - Partial Derivatives 	Lecture		
12	11. PARTIAL DERIVATIVES.	<ul style="list-style-type: none"> - Partial Derivatives 	Lecture		
13	12. MULTIPLE INTEGRALS.	<ul style="list-style-type: none"> - Double Integrals over Rectangles 	Lecture		
14	12. MULTIPLE INTEGRALS.	<ul style="list-style-type: none"> - Iterated Integrals - Double Integrals over General Regions - Applications of Double Integrals 	Lecture		
15	Final Exam	Exam	Exam		

성적평가방법		
구분	비율	비고
중간고사	30 %	
기말고사	40 %	
수시시험	0 %	
과제물	15 %	
실험실습보고서	0 %	
발표 및 토론	0 %	
출석	10 %	
기타	5 %	수업태도

교재 및 참고문헌			
항목	교재명	출판사	저자
교재	Calculus 4e: Concepts and Contexts (International Edition)	Brooks/Cole Cengage Learning	James Stewart
참고문헌	Calculus Early Transcendentals	Wiley	Anton
참고문헌	대학미적분학, 제4판 Calculus concepts & Contexts	경문사	James Stewart

참 고 사 항
※ Office Hours: - Mon (10:30~11:30) : Might not be available in some special cases such as important meetings, sickness, etc. - Pre-appointment through emails, messages or phone calls