



HANYANG UNIVERSITY

Hanyang International Summer School

Faculty Information	Name	Kim Min-Hee				
	E-mail	minhee0111@gmail.com				
	Home University	Hanyang University				
	Department	Department of mathematics				
	Homepage					
Course Information	Class No.	18100	Course Code	GEN2052	Credits	3
	Course Name	Calculus 1(미분적분학 1)				
	Lecture Schedule	Mon-Thu / 16:00~19:00				
	Course Description	<p>Calculus is an essential knowledge for natural sciences and engineering. This course present the part of calculus which include taking limits, differentiating and integrating functions including a few transcendental ones and also deals with polar coordinate system, sequences and series. The aim of the course is to teach the students the basic concepts of mathematics and to train them so that they may be able to apply these basic concepts to various situations and may get used to scientific thinking.</p>				
	Course Objective	understanding mathematical terms, calculating differentiation and integration of one variable functions, calculating the area and volume, understanding the various theorems.				
	Prerequisite					
	Materials/Textbooks	Essential Calculus (2/e) (Early Transcendentals), James Stewart				
Evaluation	Attendance	10	Quiz	%		
	Assignment	10	Mid-term Exam	35		
	Presentation	%	Final Exam	45		
	Group Project	%	Participation	%		
	Etc.	Evaluation Item			Ratio	
				%		



			%
Daily Lecture Plan	Week 1	Day 1	Opening Ceremony, 2.3 Basic Differentiation Formulas, 2.5 The Chain Rule
		Day 2	2.6 Implicit Differentiation / 2.8 Linear Approximations and Differentials
		Day 3	3.5 Inverse Trigonometric Functions / 3.6 Hyperbolic Functions
		Day 4	3.7 Indeterminate Forms and L'Hospital Rule / 4.6 Newton's Method / 5.2 The Definite Integral
	Week 2	Day 1	5.3 Evaluating Definite Integrals (Net Change Theorem 제외) / 5.4 The Fundamental Theorem of Calculus / 5.5 The Substitution Rule
		Day 2	6.1 Integration by Parts / 6.2 Trigonometric Integrals and Substitution
		Day 3	6.3 Partial Fractions / 6.6 Improper Integrals
		Day 4	7.2 Volumes / 7.3 Volumes by Cylindrical Shells
	Week 3	Day 1	Midterm Exam
		Day 2	7.4 Arc Length / 7.5 Area of a Surface of Revolution
		Day 3	8.1 Sequences (From Monotonic and Bounded Sequences) / 8.2 Series (Summary) / 8.3 The Integral and Comparison Tests
		Day 4	8.4 Other Convergence Tests / 8.5 Power Series
	Week 4	Day 1	8.6 Representing Functions as Power Series / 8.7 Taylor and Maclaurin series
		Day 2	9.2 Calculus with Parametric Curves / 9.3 Polar Coordinates / 9.4 Areas and Lengths in Polar Coordinates
		Day 3	10.3 The Dot Product (Definition of Dot Product and Concepts of Projection only) / 10.4 The Cross Product 10.5 Equations of Lines and Planes
		Day 4	Final Exam