ISTANBUL SEHIR UNIVERSITY - University Courses

SYLLABUS

MATH 104 Calculus II - Integration

2019 Fall Semester

Course Code	Course Name	Course Typ	Weekly T	Weekly A	Weekly L	Credits	ECTS	Weekly Class Schedule
MATH 104	Calculus II - Integration	Required	3	2	0	4	6	TTTh 121 AB 4302
Prerequisite	Math 103	Prerequisite to						
Course Lecturers	Naci Inci					Office Hours Schedule		
E-mail	naciinci@sehir.edu.tr							
Phone						Office No		
Course Assistants	Şeyma Nur Altay					Phones		
E-mail	seymaaltay@std.sehir.edu.tr					Office No		

Course Objectives	Continuation of MATH 103 to cover further methods and applications of calculus. To understand, practice, apply and communicate calculus concepts, skills and techniques as needed by engineering students.
Textbook	Thomas' Calculus (12th edition or later) by Maurice D. Weir, Joel Hass, Frank Giordano. Pearson.
	After successful completion of the course, the student will be able to:
Learning Outcomes	1 see why integral is important and needed in engineering applications.
	2 calculate integrals of many types of functions using different techniques; use appropriate integral tables in practice
	3 use integration to calculate area, volume, and apply them in different physical applications.
	4 employ advanced integration tools as well as numerical integration techniques.
	5 use infinite series in engineering applications and apply various tests to see convergence of these series.
Teaching Methods	Class discussions with examples. Active tutorial sessions. Continuous assessment.

WEEK	Work to be done in that week	Reference No - Section
Week 1	Antiderivatives, Area and estimating with finite sums, sigma notation and limits of finite sums, the definite integral	4.7, 5.1, 5.2, 5.3
Week 2	Fundamental theorem of calculus, indefinite integrals and substitution method	5.4, 5.5
Week 3	Substitution and area between curves	5.6
Week 4	Volumes using cross-sections, volumes using cylindrical shells	6.1, 6.2
Week 5	Inverse functions and their derivatives, natural logarithms, exponential functions	7.1, 7.2, 7.3
Week 6	Indeterminate forms & L'Hospital Rule, Inverse trigonometric functions	7.5, 7.6
Week 7	Integration by parts, trigonometric integrals	8.1, 8.2
Week 8	Trigonometric substitutions, integration of rational functions by partial fractions	8.3, 8.4
Week 9	Improper integrals, Sequences	8.7, 10.1
Week 10	Infinite series, the integral test	10.2, 10.3
Week 11	Comparison tests, The ratio and root tests	10.4, 10.5
Week 12	Alternating series, absolute and conditional convergence, Power series	10.6, 10.7
Week 13	Taylor and Maclaurin series, Convergence of Taylor series	10.8, 10.9
Week 14	Binomial series	10.10

Assessment Methods and Criteria	Evaluation Tool	Quantity	Weight in Total (%)	
	Final Exam	1		30
	Semester Evaluation Consists of the Following Components:			70
	Active tutorials	12		
	In-term exams	2		70

*** ECTS Credit Calculation ***

Language of Instruction: English

Activity	Hours	Weeks	Student Workload Hours	Activity	Hours	Weeks	Student Workload Hours
Lecture/tutorial hours	5	14	70,0	Final exam study	9	1	9,0
Weekly self study	3	14	42,0				
In-term exam study	8	3	24,0				
				Total Workload Hours =			145,0
				ECTS Credit (Total Workload Hours /25) =			6