

<b>COURSE DESCRIPTION FORM</b>	
<b>Course Code and Name</b>	MATH 102 Mathematics II
<b>Course Semester</b>	2
<b>Catalog Data of the Course ( Course Content)</b>	The applications of definite integral, sequences, convergence tests for series and positive series, limits and derivatives of multivariable functions, double integral
<b>Textbook of the Course</b>	Genel Matematik-1, Anar, İ.E., 2013 Genel Matematik-2, Anar, İ.E., 2013
<b>Supplementary Textbooks</b>	Thomas' Calculus, 12 <sup>th</sup> Edition, Volume 1 / George B. Thomas, Maurice D. Weir, Joel R. Hass, 2011 Thomas' Calculus, 12 <sup>th</sup> Edition, Volume 2 / George B. Thomas, Maurice D. Weir, Joel R. Hass, 2012
<b>Credit (ECTS)</b>	6
<b>Prerequisites of the Course</b>	There is no prerequisite or co-requisite for this course.
<b>Type of the Course</b>	Compulsory
<b>Instruction Language of the Course</b>	English
<b>Course Objectives</b>	To be able to learn and apply the concept of integral, to apply convergence tests for positive quadratic series, to be able to calculate limits and derivatives of multivariable functions and calculate double integral.
<b>Learning Outcomes</b>	1. Learn applications of definite integral. 2. Students will learn the sequence and series concept and examine their convergence with some tests. 3. Learn to find limits, continuity and derivatives of multivariable functions. 4. Learn to calculate double integral
<b>Instruction Method</b>	The type of this course is face to face.
<b>Weekly Schedule of the Course</b>	1. Week: Applications of definite integral: Calculation of area 2. Week: Calculation of volume (cross section, disc and shell methods). 3. Week: Calculation of length of an arc and surface area of revolution. 4. Week: Polar Coordinates : Definition, drawing of an arc, calculation of area, length of an arc and surface area of revolution. 5. Week: Improper integrals and its rules of convergence. 6. Week: Sequences : Definition, types, monotone and finite sequences, subsequence, convergence and divergence of sequences. 7. Week: Series : Definition, convergence and divergence, positive series and convergence tests. 8. Week: Midterm Exam, Alternating series, absolute and conditional convergence, power series, radius and interval of convergence 9. Week: Power Series, Taylor and Maclaurin Series 10. Week: Multivariable functions : Definition, domain of definition, graphs, limit and continuity of functions of two variables, partial differentiation 11. Week: Transformation of the region and jacobians. 12. Week: Double integrals : Definition, properties, computation, bölge dönüşümleri. 13. Week: Fubini's theorems 14. Week: Double Integrals in Polar coordinates 15. Week: Final Exam
<b>Assesment Tasks</b> <i>(The time spent for the activities listed here will determine the amount of credit required.)</i>	Weekly theoretical course hours 4 Hours per week 0 Reading Activities 44 Internet browsing, library work 22 Designing and implementing materials 0 Report preparing 0 Preparing a Presentation 0 Presentations 0 Preparation of Midterm and Midterm Exam 12 Final Exam and Preparation for Final Exam 24

Assesment Criteria		Sayısı	Toplam Katkısı (%)
	Midterm Exams	1	40
	Assignment	0	0
	Practice	0	0
	Projects	0	0
	Practise	0	0
	Quizes	0	0
	Percent of In-term Studies to Year- to Year (%)	0	40
	Percentage of Final Exam to Total Score (%)	1	60
Attendance			

Workload of the Course	Efficiency	Total Number of Weeks	Duration (weekly hour)	Total Period Work Load
	Weekly Theoretical Course Hours	14	4	56
	Hours Per Week	0	0	0
	Reading Tasks	11	4	44
	Internet Browsing, Library Work	11	2	22
	Designing and Implementing Materials			0
	Report Preparing	0	0	0
	Preparing a Presentation			0
	Presentations	0	0	0
	Midterm Exam and Preperation for Midterm Exam	1	12	12
	Final Exam and Preperation for Final Exam	1	24	24
	Other			0
	Total Workload			158
	Total Workload / 25			6,32
	Course Credit (ECTS)			6

Contribution Level Between Course Outcomes and Program Outcomes	No	Program Learning Outcomes	1	2	3	4	5
	1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems.				X	
	2	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.				X	
	3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.					
	4	Ability to devise, select, and use modern techniques and tools needed for					

	analyzing and solving complex problems encountered in engineering practice; ability to employ information technologies effectively.					
5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.					
6	Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.					
7	Ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language; ability to write effective reports and comprehend written reports, prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.					
8	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.					
9	Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice.					
10	Knowledge about business life practices such as project management, risk management, and change management; awareness in entrepreneurship, innovation; knowledge about sustainable development.					
11	Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions.					

**Names of Lecturers and e-mails of Lecturers**

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