

COURSE DESCRIPTION FORM

Course Code and Name	MATH 101 Mathematics I
Course Semester	1
Catalog Data of the Course (Course Content)	The concepts of function, limit, continuity, derivative and integral.
Textbook of the Course	Genel Matematik-1, Anar, İ.E., 2013
Supplementary Textbooks	Thomas' Calculus, 12 th Edition, Volume 1 / George B. Thomas, Maurice D. Weir, Joel R. Hass, 2011
Credit (ECTS)	6
Prerequisites of the Course	There is no prerequisite or co-requisite for this course.
Type of the Course	Compulsory
Instruction Language of the Course	English
Course Objectives	To learn the concept of function and to operate with functions, to learn the concepts of limit, continuity, derivative and integral.
Learning Outcomes	<ol style="list-style-type: none"> 1. Students can know definition of functions and some special functions. 2. Students can calculate limit of function and some special trigonometric limits. 3. Students can take the derivative of function. 4. Students can solve problems of absolute and local extremums, maxima and minima. 5. Students can take defined and indefinite integrals of the some special functions.
Instruction Method	The type of this course is face to face.
Weekly Schedule of the Course	<ol style="list-style-type: none"> 1. Week: Introduction: Sets, Real numbers, intervals, inequalities, neighbourhoods, coordinates 2. Week: Functions: Definition function, definition and image of sets, injections, surjections and inverse functions, combinations of functions. 3. Week: Special Functions: Definitions of rational, irrational, trigonometric, inverse trigonometric, exponential, logarithmic and hyperbolic functions. 4. Week: Limit of Function: Definition of limit, right and left-hand limit, fundamental theorems about limits, some special and trigonometric limits. 5. Week: Continuity of Functions: Definition of continuity, fundamental properties of continuous functions, discontinuities and its types 6. Week: Concept of derivative: Definition and presence, rules of derivative, derivative of composite, inverse, and trigonometric functions. 7. Week: Differentiation of exponential, logarithmic, hyperbolic and inverse hyperbolic functions, closed and parametric functions, higher order derivatives. 8. Week: Midterm Exam, Application of Differentiation: Geometrical interpretation of differentiation, absolute and local extremums, maxima and minima problems. 9. Week: Physical interpretation of differentiation, concavity Rolle's theorem and mean value theorems. Elimination of uncertainties by using l'Hospital rule, asymptotes of an curve. 10. Week: Graphic Drawing: Graphs of rational, irrational, exponential, logarithmic, trigonometric, hyperbolic and parametric functions. 11. Week: The Definition of Riemann Integrals and their properties 12. Week: Indefinite Integral : Differentiation of a function, definition of indefinite integral, properties, basic integration formulas. 13. Week: Methods of Computing Integral : Integration by substitution, parts. 14. Week: Integral of Partial fractions, trigonometric and hyperbolic functions, integration by some special substitution. 15. Week: Final Exam

Assesment Tasks <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	
	Reading Activities	44
	Internet browsing, library work	22
	Designing and implementing materials	
	Report preparing	
	Preparing a Presentation	
	Presentations	
Preparation of Midterm and Midterm Exam	12	
Final Exam and Preparation for Final Exam	24	

	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		

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 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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