	COURSE DESCRIPTION FORM					
Course Code and Name	MATH201 DIFFERENTIAL EQUATIONS					
Course Semester	3					
Catalogue Data of the Course (Course Content)	Classification of Differential Equations, Separable Equations, Types of homogeneous differential equations, Exact differential equations and integral multiplier, Linear equations, Bernoulli and Riccati differential equations, Engineering and Physical Applications, High-order linear equations and the theory, Solutions of the homogeneous equations with constant coefficients, Solution techniques for non-homogeneous linear equations: method of undetermined coefficients, Variation of parameters, Linear differential equations with variable coefficients: Cauchy-Euler equation, Serial Method, Introducing the Laplace transform and the Laplace transforms of certain functions, Inverse Laplace transform and convolution, Solutions of linear differential equations with constant coefficients using Laplace transformation, Linear systems of linear differential equations with the Laplace transform solutions					
Course Textbooks	A First Course in Differential Equations: The Classic Fifth Edition (Classic Edition) 5th Edition by Dennis G. Zill, 2000.					
Supplementary Textbooks	Ordinary Differential Equations (Dover Books on Mathematics) Revised ed. Edition by Morris Tenenbaum, 1985. Elementary Differential Equations 10th Edition by William E. Boyce, Richard C. DiPrima, 2012.					
Credit (ECTS)	5					
Prerequisites for the						
Course (Attendance Requirements)	There is no prerequisite or co-requisite for this course.					
Course Type	Compulsory					
Language of Instruction	English					
Course Objectives	To teach special type of equations and their solutions, engineering and physical applications, methods of solution for non-homogeneous equations, sequential solution method to solve differential equations, Laplace transforms and Laplace transforms of some functions					
Course Learning Outcomes	<ol> <li>Explains the basic concepts of differential equations</li> <li>Explains special type of equations and their solutions</li> <li>Defines engineering and physical applications</li> <li>Solves non-homogeneous equations</li> <li>Applies sequential solutions to solve differential equations</li> <li>Applies Laplace transforms and Laplace transforms of some functions</li> </ol>					
Instruction Method (Face-to-face, Distance education etc.)	The mode of delivery of this course is face to face					
Weekly Schedule of the Course	<ol> <li>Week Classification of Differential Equations, Separable Equations</li> <li>Week Types of homogeneous differential equations</li> <li>Week Exact differential equations and integral multiplier</li> <li>Week Linear equations, Bernoulli and Riccati differential equations</li> <li>Week Engineering and Physical Applications</li> <li>Week High-order linear equations and the theory</li> <li>Week Solutions of the homogeneous equations with constant coefficients</li> <li>Week Solution techniques for non-homogeneous linear equations: method of undetermined coefficients</li> <li>Week Variation of parameters</li> <li>Week Linear differential equations with variable coefficients: Cauchy-Euler equation, Serial Method</li> <li>Week Introducing the Laplace transform and the Laplace transforms of certain functions</li> <li>Week Inverse Laplace transform and convolution</li> <li>Week Solutions of linear differential equations with constant coefficients using Laplace transformation</li> <li>Week Linear systems of linear differential equations with the Laplace transform</li> </ol>					

	solutions									
Teaching Activities (The time spent for the activities listed here will determine the amount of credit required)	Weekly theo Reading acti Midterm and	retical course h vities I revision for m and revision for	idterm							
credit required)	Number(			(s) Weight (%)						
	Midterm ex	 cam	1		40					
	Assignmen		1		20					
Assessment Criteria	Application Project									
	Project Practice									
	Quiz									
	Final exam 1 Total 3		40							
	Total		3		100 End of				f	
		Activity		Number of Weeks	(V	Weekly Hour)		Semester Total Workload		
	Weekly the	Weekly theoretical course hours			4			56		
	<del>                                   </del>	actical course he	ours							
	Reading ac			14		3		42		
	Internet search and library work  Designing and implementing									
Workload of the Course	materials									
Working of the course	Making a report									
	Preparing and making presentations									
	Midterm and revision for midterm			1		13		13		
	Final exam and revision for final exam			1		14		14		
	Total workload							125		
	Total work	Total workload/ 25						5		
	Course Credit (ECTS)								5	
Contribution Level	No		Program Ou			1	2	3	4	5
between Course Outcomes and Program Outcomes		Knowledge of mathematics, science, basic engineering, computing, and computer								
and Fregram Outcomes	1	engineering; ability to use this knowledge			in					X
		solving complex engineering problems.								
		Ability to define, formulate and analyze complex engineering problems using basic			;					
	2	science, math	engineering						X	
		knowledge an	ng the UN t Goals relevant to	0					11	
		the problems addressed.		Godis Televant t						
		Ability to design creative solutions to								
	3	complex engineering problems; ability to design complex systems, processes, devices,		es,						
		software, algorithms or products to n		roducts to meet					X	
		current and future requirem			ng					
		realistic constraints and conditions.  Ability to select, use and develop appropriate								
		techniques, re	techniques, resources and modern							
	4				s tools, including or the analysis and					X
		solution of co	mation and modeling, for the analysis and ation of complex engineering problems							
	while being		ware of thei	heir limitations.				1		
	5	Ability to use research methods to examine complex engineering problems or research								
				eering, including						

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		reviewing the literature, designing experiments, conducting experiments, collecting data, analyzing and interpreting results.				
	6	Knowledge of the effects of engineering practices and the standards used in these practices on society, health and safety, economy, sustainability and environment within the scope of the UN Sustainable Development Goals; awareness of the consequences of engineering solutions in the fields of information security and law.				
	7	Acting in accordance with engineering professional principles and knowledge on ethical responsibility; awareness of acting impartially, without discrimination on any issue, and being inclusive of diversity.				
	8	Ability to work effectively individually and as a team member or leader in intradisciplinary and multidisciplinary teams (face-to-face, remote, or hybrid).				
	9	Ability to conduct effective verbal and written communication on technical issues in Turkish or English, prepare reports, make effective presentations and prepare software documentation, considering the various differences of the target audience (such as education, language, profession).		X		
	10	Knowledge of business practices such as project, risk and change management and economic feasibility analysis; awareness of entrepreneurship and innovation.				
	11	Lifelong learning skill that includes the ability to learn independently and continuously, to adapt to new and developing scientific practices and technologies, and to think inquisitively about technological changes.				
Lecturer(s) and Contact Information	Computer Er bmbb@gazi.	ngineering Department Chair edu.tr				