COURSE DESCRIPTION FORM	
Course Code and Name	BM104 DISCRETE MATHEMATICS FOR COMPUTER SCIENCE
Course Semester	2
Catalogue Data of the Course (*Course Content*)	Propositional and predicate logic, proofs, discrete structures, number theory, graphs and trees, turing machine.
Course Textbooks	K. H. Rosen, "Discrete Mathematics and Its Applications", 7th edition, 2011.
Supplementary Textbooks	Szeliski R., Computer Vision: Discrete Mathematics with Applications 4th Edition, Susanna S. Epp, 2010. Discrete Mathematics 7th Edition by Richard Johnsonbaugh, 2007.and Applications, Springer, 2010
Credit (*ECTS*)	3
Prerequisites for the Course (*Attendance Requirements*)	-
Course Type	Compulsory
Language of Instruction	Turkish
Course Objectives	Teaching the usage of discrete structures, theories, techniques and approaches to solve problems, relating discrete mathematics with other courses.
Course Learning Outcomes	1. Explains the propositional and predicate logic. 2. Defines and applies proof methods. 3. Analyze discrete structures. 4. Reconcile discrete mathematics with computer applications. 5. Use counting methods and their applications 6. Defines graphs, trees, combinatorial circuits.
Instruction Method *(Face-to-face, Distance education etc.)*	Face-to-face
Weekly Schedule of the Course	Week 1: Propositional logic Week 2: Predicate logic Week 3: Rules of inference Week 4: Proof methods Week 5: Sets, relations, functions Week 6: Recurrence relations Week 7: Analysis of algorithms Week 8: Number theory Week 9: Graphs Week 10:Euler and hamilton cycles Week 11: Shortest path algorithm, planar graphs Week 12: Trees, isomorphism, huffman coding, decision trees, spanning trees Week 13: Boolean algebra and combinatorial circuits Week 14: Turing machine
Teaching Activities *(The time spent for the activities listed here will determine the amount of credit required)*	Weekly theoretical course hours: 3 Reading activities Internet search and library work Midterm and revision for midterm Final exam and revision for final exam
Assessment Criteria	

	Number(s)	**Weight (%)**
Midterm exam	1	30
Assignment	5	30
Application	0	0
Project	0	0
Practice	0	0
Quiz	0	0

	Final exam	1	40
	Total	7	100

Workload of the Course

Activity	Number of Weeks	Duration (Weekly Hour)	End of Semester Total Workload
Weekly theoretical course hours	14	3	42
Weekly practical course hours	0	0	0
Reading activities	5	1	5
Internet search and library work	5	2	10
Designing and implementing materials	0	0	0
Making a report	0	0	0
Preparing and making presentations	0	0	0
Midterm and revision for midterm	1	8	8
Final exam and revision for final exam	1	10	10
Total workload			75
Total workload/ 25			3
Course Credit (ECTS)			3

Contribution Level between Course Outcomes and Program Outcomes

No	Program Outcomes	1	2	3	4	5
1	Knowledge of mathematics, science, basic engineering, computing, and computer engineering; ability to use this knowledge in solving complex engineering problems.					X
2	Ability to define, formulate and analyze complex engineering problems using basic science, mathematics and engineering knowledge and considering the UN Sustainable Development Goals relevant to the problems addressed.					X
3	Ability to design creative solutions to complex engineering problems; ability to design complex systems, processes, devices, software, algorithms or products to meet current and future requirements, considering realistic constraints and conditions.					X
4	Ability to select, use and develop appropriate techniques, resources and modern engineering and informatics tools, including estimation and modeling, for the analysis and solution of complex engineering problems while being aware of their limitations.		X			
5	Ability to use research methods to examine complex engineering problems or research topics in computer engineering, including reviewing the literature, designing experiments, conducting experiments, collecting data, analyzing and interpreting results.		X			
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).					
	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	Lecturer's First/Last Name: Asst. Prof. Dr. Tuba ÇAĞLIKANTAR E-mail address: tubac@gazi.edu.tr						