COURSE DESCRIPTION FORM	
Course Code and Name	CENG458 COMPILER AND CODE GENERATION (TECH. ELECT.)
Course Semester	8
Catalogue Data of the Course (*Course Content*)	The fundamentals of compiler theory and practice.
Course Textbooks	1.Compilers: Principles, Techniques, and Tools (2nd Edition) by Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman, Addison-Wesley, 2006.
Supplementary Textbooks	1.Compiler Design: Analysis and Transformation, Seidl, Helmut, Wilhelm, Reinhard, Hack, Sebastian, Springer, 2012. 2.Engineering a Compiler 2nd Edition, Keith Cooper Linda Torczon, 2011
Credit (*ECTS*)	6
Prerequisites for the Course (*Attendance Requirements*)	Attendance mandatory
Course Type	Technical Elective
Language of Instruction	English
Course Objectives	To teach the fundamentals of programming languages, compiler functions, and stages, and to explain the interaction between compilers and programming languages and programs.
Course Learning Outcomes	1.Examines the evolution of the logical design of the compiler. 2.Explains programming languages, compilers, grammar classification, language design, and finite state automata. 3.Designs for code generation. 4.Performs code optimization.
Instruction Method (*Face-to-face, Distance education etc.*)	Face-to-face
Weekly Schedule of the Course	1.Week: Logical development of compiler design 2. Week: Programming languages 3. Week: Programming languages 4. Week: Converters 5. Week: Converters 6. Week: Grammatical classification 7. Week: Language design 8. Week: Finite state automata 9. Week: Lexical parsers 10. Week: Bottom-up parsing 11. Week: Top-down parsing 12. Week: Symbol table processing 13. Week: Code generation, processing and optimization 14. Week: Code generation, processing and optimization
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 Making a report Midterm and revision for midterm Final exam and revision for final exam

Assessment Criteria		Number(s)	Weight (%)
	Midterm exam	1	30
	Assignment	1	10
	Application		
	Project	1	20
	Practice		
	Quiz		

Final exam			40		
Total	3		100		

	Activity	Number of Weeks	Duration (Weekly Hour)	End of Semester Total Workload
Workload of the Course	Weekly theoretical course hours	14	3	42
	Weekly practical course hours			
	Reading activities	10	3	30
	Internet search and library work	10	3	30
	Designing and implementing materials			
	Making a report	3	6	18
	Preparing and making presentations			
	Midterm and revision for midterm	1	12	12
	Final exam and revision for final exam	1	18	18
	Total workload			150
	Total workload/ 25			6
	Course Credit (ECTS)			6

	No	Program Outcomes	1	2	3	4	5
Contribution Level between Course Outcomes and Program Outcomes	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		X			

							X	
	8	Ability to work effectively individually and as a team member or leader in intradisciplinary and multidisciplinary teams (face-to-face, remote, or hybrid).					X	
	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.				X		
Lecturer(s) and Contact Information	Assist. Prof. Dr. Çağrı Şahin cagrisahin@gazi.edu.tr							

Note: The first row continues from the previous page: "ethical responsibility; awareness of acting impartially, without discrimination on any issue, and being inclusive of diversity."