Course Description Form	
Course Code and Name	CENG458 COMPILERS AND CODE GENERATION (TECH.ELECT.)
Course Semester	8
Catalog Content	Phases of Compiling, Lexical Analysis, Syntax Analysis, Semantic Analysis, Intermediate Code Generation, Target Code Generation, Code Optimization
Textbook	Compilers: Principles, Techniques, and Tools (2nd Edition) by Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman, Addison-Wesley, 2006.
Supplementary Textbooks	Compiler Design: Analysis and Transformation, Seidl, Helmut, Wilhelm, Reinhard, Hack, Sebastian, Springer, 2012. Engineering a Compiler 2nd Edition, Keith Cooper Linda Torczon, 2011
Credit	6
Prerequisites of the Course **(** *Attendance Requirements***)**	-
Type of the Course	Elective
Instruction Language	English
Course Objectives	Basic knowledge of fundamentals of programming languages, compiler functions and stages, interaction between compilers and programs/programming languages.
Course Learning Outcomes	1. Learning the logical development of compiler design 2. Gaining information about the concepts of programming languages, translators, grammar, classification, language design and finite state automata 3. Being able to design for code generation 4. Being able to make code optimization
Instruction Methods	The mode of delivery of this course is face to face
Weekly Schedule	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

<table>
<tr><td>Teaching and Learning Methods

(These are examples. Please fill which activities you use in the course)</td><td colspan="4">Weekly theoretical course hours: 3
Reading Activities
Internet browsing, library work
Report Preparing
Preparation of Midterm and Midterm Exam
Final Exam and Preparation for Final Exam</td></tr>
<tr><td rowspan="10">Assessment Criteria</td><td></td><td>Numbers</td><td>Total Weighting (%)</td><td rowspan="10"></td></tr>
<tr><td>Midterm Exams</td><td>1</td><td>20</td></tr>
<tr><td>Assignment</td><td>2</td><td>20</td></tr>
<tr><td>Application</td><td>0</td><td></td></tr>
<tr><td>Projects</td><td>1</td><td>20</td></tr>
<tr><td>Practice</td><td>0</td><td></td></tr>
<tr><td>Quiz</td><td>0</td><td></td></tr>
<tr><td>Percent of In-term Studies (%)</td><td></td><td>60</td></tr>
<tr><td>Percentage of Final Exam to Total Score (%)</td><td></td><td>40</td></tr>
<tr><td>Attendance</td><td></td><td>-</td></tr>
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Workload

Activity	Total Number of Weeks	Duration (weekly hour)	Total Period Work Load
Weekly Theoretical Course Hours	14	3	42
Weekly Tutorial Hours			0
Reading Tasks	10	3	30
Studies	10	3	30
Material Design and Implementation			0
Report Preparing	3	6	18
Preparing a Presentation			0
Presentations			0
Midterm Exam and Preparation for Midterm Exam	1	12	12
Final Exam and Preparation for Final Exam	1	18	18
Other (should be emphasized)			0
Total Workload			150
Total Workload / 25			6
Course Credit (ECTS)			6

Contribution Level Between Course Learning Outcomes and Program Outcomes

No	Program Outcomes	1	2	3	4	5
1	Sufficient knowledge on mathematics, science and computer engineering; ability to apply theoretical and practical knowledge in these areas to model and solve engineering problems					X
2	Ability to identify, define, formulate and solve complex engineering problems; ability to choose and apply appropriate analysis and modelling methods for these purposes					X
3	Ability to design a complex system, process, device, software, algorithm, or product under realistic constraints and circumstances to meet certain requirements; ability to apply modern design techniques for this purpose				X	
4	Ability to choose, develop and use modern techniques and tools necessary for engineering applications; ability to effectively use computing technologies					X
5	Ability to design and implement systems or experiments to solve engineering problems, collect and interpret data to evaluate and analyze the results of solutions				X	

6	Ability to work effectively in intradisciplinary and interdisciplinary teams or individually					X
7	Ability to efficiently prepare, evaluate and interpret reports				X	
8	Ability to make presentations and conduct effective verbal and written communication in Turkish and English	X				
9	Awareness of the necessity of lifelong learning; ability to access information, follow scientific and technological developments; ability to perpetually renew oneself			X		
10	Awareness of professional and ethical responsibility, ability to act in accordance with ethical principles		X			
11	Ability to apply knowledge on project management, risk management and change management		X			
12	Awareness of entrepreneurship and innovation, ability to design and build sustainable systems			X		
13	Ability to devise local and global solutions to contemporary issues considering the effects of engineering applications on health, environment and security		X			
14	Awareness of the legal consequences of engineering solutions	X				
15	Ability to apply knowledge on software development process and documentation rules		X			
16	Knowledge on standards used in engineering applications			X		
17	Awareness of occupational health and security, information security and privacy	X				

The Course's Lecturer(s) and Contact Information	Computer Engineering Department Chair bmbb@gazi.edu.tr