<table>
<tr><th colspan="2">COURSE DESCRIPTION FORM</th></tr>
<tr><td>Course Code and Name</td><td>CENG356 ASSEMBLY LANGUAGES (TECH.ELECT.)</td></tr>
<tr><td>Course Semester</td><td>6</td></tr>
<tr><td>Catalogue Data of the Course (Course Content)</td><td>The details of the assembler language with basic computer architecture, programming with Assembly language, command formats, different addressing techniques and applications</td></tr>
<tr><td>Course Textbooks</td><td>Assembly Language for x86 Processors, Kip R. Irvine, Pearson.</td></tr>
<tr><td>Supplementary Textbooks</td><td>Assembly Language Step-by-Step: Programming with Linux, Jeff Duntemann.
MIPS Assembly Language Programming, Robert Britton.
80x86 Assembly Dili, Ahmet Tevfik İnan, Seçkin Yayıncılık.
Basic, Pascal ve Cobol ile Assembly, Bahattin Bayburan, Beta Basın Yayın.
The Art of Assembly Language, Randall Hyde, 2nd Edition, No Starch Press.</td></tr>
<tr><td>Credit (ECTS)</td><td>6</td></tr>
<tr><td>Prerequisites for the Course (Attendance Requirements)</td><td>-</td></tr>
<tr><td>Course Type</td><td>Elective</td></tr>
<tr><td>Language of Instruction</td><td>English</td></tr>
<tr><td>Course Objectives</td><td>It is aimed to learn the details and design of basic computer architecture and programming languages. The aim is to understand machine language and learn command formats by programming in Assembler language.</td></tr>
<tr><td>Course Learning Outcomes</td><td>1. Learning the details of basic computer architecture and programming languages
2. Being able to use Assembler language
3. Learning the instruction types and different addressing technique</td></tr>
<tr><td>Instruction Method
(Face-to-face, Distance education etc.)</td><td>The mode of delivery of this course is face to face</td></tr>
<tr><td>Weekly Schedule of the Course</td><td>Week 1: Basic computer architecture and programming languages
Week 2: X86-based programming: assembly language and format
Week 3: Addressing modes
Week 4: Addressing modes
Week 5: Command structure and formats
Week 6: Compiler usage and basic examples
Week 7: Assembly instruction set
Week 8: Conditions and loops
Week 9: Screen and keyboard operations
Week 10: Arithmetic operations
Week 11: String operations
Week 12: Procedures
Week 13: Macros
Week 14: Binding and Installation</td></tr>
<tr><td>Teaching Activities
(The time spent for the activities listed here will determine the amount of credit required)</td><td>Weekly theoretical course hours
Reading activities
Internet search and library work
Midterm and revision for midterm
Final exam and revision for final exam</td></tr>
<tr><td>Assessment Criteria</td><td>
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<tr><th></th><th>Number(s)</th><th>Weight (%)</th></tr>
<tr><td>Midterm exam</td><td>1</td><td>30</td></tr>
<tr><td>Assignment</td><td>5</td><td>30</td></tr>
<tr><td>Application</td><td>0</td><td></td></tr>
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Project	0	
Practice	0	
Quiz	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
Reading activities	10	4	40
Internet search and library work	10	4	40
Designing and implementing materials			0
Making a report			0
Preparing and making presentations			0
Midterm and revision for midterm	1	12	12
Final exam and revision for final exam	1	16	16
Total workload			150
Total workload/ 25			6
Course Credit (ECTS)			6

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		X			

		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).			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.		X			
	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. Yılmaz Atay yilmazatay@gazi.edu.tr						