COURSE DESCRIPTION FORM	
Course Code and Name	CENG472 SECURE CODING (TECH.ELECT.)
Course Semester	8
Catalogue Data of the Course (*Course Content*)	This course aims to provide students with fundamental knowledge and practical skills in software security to contribute to secure software development processes.
Course Textbooks	Secure Coding in C and C++ (2nd Edition) (SEI Series in Software Engineering) by Robert C. Seacord (Author), Addison-Wesley Professional, 2013
Supplementary Textbooks	Web Application Security: Exploitation and Countermeasures for Modern Web Applications 1st Edition by Andrew Hoffman, O'Reilly Media; 1st edition (April 7, 2020) Bug Bounty Bootcamp: The Guide to Finding and Reporting Web Vulnerabilities by Vickie Li │ Dec 7, 2021
Credit (*ECTS*)	6
Prerequisites for the Course (*Attendance Requirements*)	There is no prerequisite or co-requisite for this course
Course Type	Elective
Language of Instruction	English
Course Objectives	This course provides students with fundamental knowledge and skills to prevent security vulnerabilities in software development processes and secure software applications. Students will develop the ability to understand security threats, design secure software, and practice secure coding to ensure the security of software development processes. The course content covers topics such as security vulnerabilities, authentication, authorization, session management, database security, network security, and secure coding principles.
Course Learning Outcomes	1. Develop the ability to identify and analyze security vulnerabilities. 2. Understand secure software design and security principles. 3. Learn secure coding practices and code review techniques. 4. Gain expertise in authentication, authorization, and session management. 5. Acquire knowledge in database security and network security. 6. Apply secure software development processes through project-based activities. 7. Enhance skills in secure coding practices.
Instruction Method (*Face-to-face, Distance education etc.*)	*Face-to-face*
Weekly Schedule of the Course	Week 1: Basic Information Security Concepts Week 2: Introduction to Secure Coding Week 3: Identifying and Managing Risks in Application Ecosystems Week 4: Security Integration into Software Development Life Cycle (SDLC) Week 5: Security Threats and Attacks Week 6: Authentication and Authorization Week 7: Midterm Exam Week 8: Establishing Application Security Standards Week 9: Security Testing and Vulnerability Management Techniques Week 10: Network Security Practices Week 11: Data and Query Security Week 12: Mobile and Cloud Security Week 13: Incident Response and Remediation Strategies Week 14: OWASP (Open Web Application Security Project) Week 15: Advanced Topics
Teaching Activities (*The time spent for the activities listed here will determine the amount of credit required*)	Weekly theoretical course hours Reading activities Internet search and library work Designing and implementing materials Preparing and making presentations

	Midterm and revision for midterm Final exam and revision for final exam							

		Number(s)		**Weight (%)**				
Assessment Criteria	Midterm exam	1		30				
	Assignment							
	Application							
	Project	1		30				
	Practice							
	Quiz							
	Final exam	1		40				
	Total	3						

	Activity	**Number of Weeks**	**Duration (Weekly Hour)**	**End of Semester Total Workload**				
Workload of the Course	Weekly theoretical course hours	14	3	45				
	Weekly practical course hours							
	Reading activities	14	2	28				
	Internet search and library work	14	3	42				
	Designing and implementing materials	3	8	24				
	Making a report							
	Preparing and making presentations	1	7	7				
	Midterm and revision for midterm	1	2	2				
	Final exam and revision for final exam	1	2	2				
	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.					
	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

			1	2	3	4	5
	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.		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).					
	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	Lecturer's First/Last Name: Assist. Prof. Dr. Uraz Yavanoğlu E-mail address: uraz@gazi.edu.tr