Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
INF113	Introduction to Computer Engineering	1	2	1	0	2.5	4

Prerequisites	
Admission Requirements	
Language of Instruction	Turkish
Course Type	Compulsory
Course Level	Bachelor Degree
Objective	This course provides a comprehensive and interdisciplinary introduction to the broad spectrum of computer science and engineering. The objective is to introduce students to the cornerstones of the field, ranging from data storage to algorithms, and from software engineering to the theory of computation. It aims to ensure that students grasp both the infrastructure and high-level applications of computer systems as a whole. Consequently, the course seeks to build the necessary academic foundation for students to understand the relationships between different sub-disciplines of computer engineering and to identify their own areas of specialization.
Content	Following the layered structure of a computer system, the course covers the following core topics: Information and Data Representation: Binary systems, data storage techniques, main memory, and mass storage architecture. Hardware and Execution: CPU architecture, machine language, and program execution processes. Software and Operating Systems: Functions of the operating system, process management, file systems, and networking fundamentals. Problem Solving and Algorithms: Algorithm design, iterative and recursive structures, and efficiency analysis. Programming and Abstraction: Evolution of programming languages, data structures, and data abstraction concepts. Databases and Software Engineering: Relational models, data mining, and software life cycle methodologies. Theoretical Limits and the Future: Theory of computation (Turing machines, complexity classes), artificial intelligence, and ethics.
References	Computer Science: An Overview, Global Edition, 13th edition, Brookshear & Brylow, Pearson (January 7th 2019)

Theory Topics

Week	Weekly Contents
1	Introduction
2	Data Storage
3	Data Manipulation
4	Operating Systems
5	Networking and the Internet
6	Algorithms I
7	Midterm Exam 1
8	Algorithms II / Programming Languages
9	Software Engineering
10	Data Abstraction
11	Database Systems
12	Theory of Computation
13	Midterm Exam 2
14	Review