

Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
INF443	Distributed Systems and Applications	7	4	0	0	4	6

Prerequisites	INF103/INF223
Admission Requirements	INF103/INF223

Language of Instruction	
Course Type	Compulsory
Course Level	Bachelor Degree
Objective	<p>The aim of this course is to provide an understanding of the basic design principles of distributed systems.</p> <p>While achieving this aim, it is aimed to give both theoretical and practical approaches in a balanced way. Accordingly, in the context of computer networks, new methods are shown in which the communication methods that students have seen before will be applied in particular applications.</p> <p>It is aimed to reinforce their knowledge through the practice assignments given throughout the course.</p>
Content	<ol style="list-style-type: none">1 Definition of Distributed Systems and Introduction to Python2 Distributed System Architecture Models3 Programming with Threads I4 Multilayer structures in Distributed Systems.5 Parallel Programming with Processes6 Parallel Programming with Processes II7 Client-Server architectures, distribution of computation, horizontal and vertical deployments8 Midterm Exams9 Client-Server architectures II10 Architectures for horizontal computing distribution, load distribution11 Middleware design12 P2P systems: Requirements, Architectures, Applications13 Cloud Computing Systems: Definition, Architectures, Role in distributed systems and integration strategies14 Distributed AI Applications
References	<ol style="list-style-type: none">1. Distributed Systems: Concepts and Design, 4. basım, George Coulouris et al, Addison Wesley, 2006.2. Distributed Systems - Principles and Paradigms, 1. basım, Andrew S.Tanenbaum & Maarten van Steen, Prentice Hall, 2002.

Theory Topics

Week	Weekly Contents
1	Definition of Distributed Systems and and Introduction to Python
2	Distributed System Architecture Models
3	Programming with Threads
4	Multilayer structures in Distributed Systems.
5	Parallel Programming with Processes I
6	Parallel Programming with Processes II
7	Client-Server architectures, distribution of computation, horizontal and vertical deployments
8	Midterm exam
9	Client-Server architectures
10	Architectures for horizontal computational distribution, load distribution
11	Middleware design
12	P2P systems: Requirements, Architectures, Applications
13	Cloud Computing Systems: Definition, Architectures, Role in Distributed Systems and Integration Strategies
14	Distributed AI Applications