

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	<p>1 Definition of Distributed Systems and Introduction to Python</p> <p>2 Distributed System Architecture Models</p> <p>3 Programming with Threads I</p> <p>4 Multilayer structures in Distributed Systems.</p> <p>5 Parallel Programming with Processes</p> <p>6 Parallel Programming with Processes II</p> <p>7 Client-Server architectures, distribution of computation, horizontal and vertical deployments</p> <p>8 Midterm Exams</p> <p>9 Client-Server architectures II</p> <p>10 Architectures for horizontal computing distribution, load distribution</p> <p>11 Middleware design</p> <p>12 P2P systems: Requirements, Architectures, Applications</p> <p>13 Cloud Computing Systems: Definition, Architectures, Role in distributed systems and integration strategies</p> <p>14 Distributed AI Applications</p>
References	<p>1. Distributed Systems: Concepts and Design, 4. basım, George Coulouris et al, Addison Wesley, 2006.</p> <p>2. Distributed Systems - Principles and Paradigms, 1. basım, Andrew S.Tanenbaum & Maarten van Steen, Prentice Hall, 2002.</p>

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

Week	Weekly Contents
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