

## Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
INF443	Distributed Systems and Applications	7	3	0	0	3	4

Prerequisites	INF114/INF243
Admission Requirements	INF114/INF243

Language of Instruction	French
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"><li>1 Definition of Distributed Systems and Introduction to Python</li><li>2 Distributed System Architecture Models</li><li>3 Programming with Threads I</li><li>4 Multilayer structures in Distributed Systems.</li><li>5 Parallel Programming with Processes</li><li>6 Parallel Programming with Processes II</li><li>7 Client-Server architectures, distribution of computation, horizontal and vertical deployments</li><li>8 Midterm Exams</li><li>9 Client-Server architectures II</li><li>10 Architectures for horizontal computing distribution, load distribution</li><li>11 Middleware design</li><li>12 P2P systems: Requirements, Architectures, Applications</li><li>13 Cloud Computing Systems: Definition, Architectures, Role in distributed systems and integration strategies</li><li>14 Distributed AI Applications</li></ol>
References	<ol style="list-style-type: none"><li>1. Distributed Systems: Concepts and Design, 4. basım, George Coulouris et al, Addison Wesley, 2006.</li><li>2. Distributed Systems - Principles and Paradigms, 1. basım, Andrew S.Tanenbaum &amp; Maarten van Steen, Prentice Hall, 2002.</li></ol>

## 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

<b>Week</b>	<b>Weekly Contents</b>
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