

## SYLLABUS COURSE DESCRIPTION 2023-2024

<b>COURSE TITLE</b>	<b>Computer Networks</b>
<b>COURSE CODE</b>	76207
<b>SCIENTIFIC SECTOR</b>	ING-INF/05
<b>DEGREE</b>	Bachelor in Computer Science
<b>SEMESTER</b>	1st
<b>YEAR</b>	3rd
<b>CREDITS</b>	6
<b>TOTAL LECTURING HOURS</b>	40
<b>TOTAL LAB HOURS</b>	20
<b>PREREQUISITES</b>	Basic data structures and algorithms Basic Java programming skills
<b>COURSE PAGE</b>	<a href="https://ole.unibz.it">https://ole.unibz.it</a>
<b>SPECIFIC EDUCATIONAL OBJECTIVES</b>	<p>Type of course: "caratterizzante"          Scientific area: „discipline informatiche“</p> <p>This course aims at providing a solid background in computer networks with special emphasis on the aspects of concurrency, coordination and agreement. Theory will be intertwined with discussions about how the notions introduced are exploited in practice, taking the Java framework as reference. This will allow to see in real contexts why distributed systems are important and how underlying issues can be addressed.</p>
<b>LECTURER</b>	<a href="#">Florian Hofer</a>
<b>SCIENTIFIC SECTOR OF THE LECTURER</b>	
<b>TEACHING LANGUAGE</b>	Italian
<b>OFFICE HOURS</b>	By appointment writing an email a couple of days in advance, either on Tuesdays 13:00-14:00 or at another time by arrangement., Room POS 1.14 Faculty of Computer Science, Piazza Domenicani 3
<b>TEACHING ASSISTANT</b>	Same as lecturer

<b>OFFICE HOURS</b>	By appointment writing an email a couple of days in advance, either on Tuesdays 13:00-14:00 or at another time by arrangement., Room POS 1.14 Faculty of Computer Science, Piazza Domenicani 3
<b>LIST OF TOPICS COVERED</b>	<ul style="list-style-type: none"> <li>• Introduction to computer networks</li> <li>• ISO OSI reference model</li> <li>• Internet applications and application protocols (HTTP, SMTP, DNS)</li> <li>• Network protocols: TCP/IP, Ethernet</li> <li>• Sockets and RPCs</li> <li>• Failure robustness, security</li> </ul>
<b>TEACHING FORMAT</b>	Frontal lectures Lab exercises

<b>LEARNING OUTCOMES</b>	<p><b>Knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>- Know in detail the principles of computer networks and distributed systems;</li> <li>- Know in detail the internet fundamental principles and the methodologies for their design and development.</li> </ul> <p><b>Applying knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>- Be able to plan and program in distributed programming environments and in digital networks.</li> </ul> <p><b>Making judgments</b></p> <ul style="list-style-type: none"> <li>- be able to collect useful data and to judge information systems and their applicability;</li> <li>- Be able to work autonomously according to the own level of knowledge and understanding.</li> </ul> <p><b>Communication skills</b></p> <ul style="list-style-type: none"> <li>- be able to use one of the three languages English, Italian and German, and be able to use technical terms and communication appropriately;</li> <li>- Be able to use modern communication systems, even at a distance.</li> </ul> <p><b>Ability to learn</b></p> <ul style="list-style-type: none"> <li>- Have developed learning capabilities to pursue further studies with a high degree of autonomy;</li> <li>- be able to follow the fast technological evolution and to learn cutting edge IT technologies and innovative aspects of last generation information systems.</li> </ul>
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<b>ASSESSMENT</b>	<p>Oral exam and lab reports.</p> <p>The aim of the oral exam and the lab reports is to assess whether students 1) have understood basic computer network concepts, 2) can reason on and can solve computer networking problems, and 3) are capable of using the notions they learned during the course in a practical context.</p>
<b>ASSESSMENT LANGUAGE</b>	Italian

<p><b>EVALUATION CRITERIA AND CRITERIA FOR AWARDING MARKS</b></p>	<p>Marks are distributed as follows:</p> <ul style="list-style-type: none"> <li>• 30% for the lab reports (attending the lab is not required but recommended and it is a way to improve the oral exam grade);</li> <li>• 70% for the oral exam.</li> </ul> <p>The final grade will be a weighted average between the marks of the lab reports (30%) and the oral exam (70%). The marks of lab reports are only considered if their grade is higher than the grade of the written exam. The 30% weight for the lab reports is valid for 3 delivered assignments only. If less assignments are delivered, the weight is scaled accordingly.</p>
<p><b>REQUIRED READINGS</b></p>	<p>J. Kurose, K. Ross: "Computer Networking: A Top-Down Approach", 7th Edition, Pearson, 2017</p>
<p><b>SUPPLEMENTARY READINGS</b></p>	<p>Andrew S. Tanenbaum, "Computer Networks", Prentice Hall          Distributed Systems: Principles and Paradigms, A.S. Tanenbaum, M. van Steen, Prentice Hall, 2007</p>
<p><b>SOFTWARE USED</b></p>	<p>Wireshark, Java</p>