

# COMPUTER ENGINEERING (LM55)

(Lecce - Università degli Studi)

## Teaching SYSTEM AND NETWORK PROGRAMMING

GenCod A006441

**Owner professor** Francesco TOMMASI

**Teaching in italian** SYSTEM AND NETWORK PROGRAMMING

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**SSD code** ING-INF/05

**Reference course** COMPUTER ENGINEERING

**Course type** Laurea Magistrale

**Credits** 9.0

**Teaching hours** Front activity hours: 81.0

**For enrolled in** 2021/2022

**Taught in** 2021/2022

**Course year** 1

**Language** ENGLISH

**Curriculum** PERCORSO COMUNE

**Location** Lecce

**Semester** First Semester

**Exam type** Oral

**Assessment** Final grade

**Course timetable**

<https://easyroom.unisalento.it/Orario>

### BRIEF COURSE DESCRIPTION

UNIX System Overview  
UNIX Standardization and Implementations  
File I/O  
Files and Directories  
System Data Files and Information  
Process Environment  
Process Control  
Process Relationships  
Signals  
Threads  
Thread Control  
Daemon Processes  
Advanced I/O  
Interprocess Communication  
Network IPC: Sockets  
Terminal I/O

### REQUIREMENTS

All the concepts presented in the "Sistemi Operativi" course in the first level degree "Ingegneria dell'Informazione". Namely, a good knowledge of: UNIX® basic concepts, the UNIX® bash shell, bash scripting, main UNIX® commands

<b>COURSE AIMS</b>	<p>Overview</p> <p>The course aims at starting the students off on programming system applications (e.g. a server) on a UNIX® System.</p> <p>Learning Outcomes; after the course the student should</p> <ul style="list-style-type: none"> <li>* Know the most important functionalities and facilities offered by a UNIX® system, the System Calls (and, more generally, the APIs) offered to access them.</li> <li>* Be able to write efficient CLI (Command Line Interface) system and network applications in the C language.</li> <li>* Know how to write interoperable applications by complying with the UNIX® standards (SUSv3, SUSv4).</li> <li>* Know which are the main differences between the MacOS and the Linux varieties and how to cope with them.</li> </ul>
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<b>TEACHING METHODOLOGY</b>	The course is strongly oriented towards an hands-on methodology. Students must follow lectures in front of a computer which must be used to reproduce and test what is explained by the teacher-
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<b>ASSESSMENT TYPE</b>	Writing a C program aimed at solving a given problem within a given time. Students are free to consult (paper and digital) texts and to use Internet search engines.
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<b>FULL SYLLABUS</b>	<p>UNIX System Overview</p> <p>UNIX Standardization and Implementations</p> <p>File I/O</p> <p>Files and Directories</p> <p>System Data Files and Information</p> <p>Process Environment</p> <p>Process Control</p> <p>Process Relationships</p> <p>Signals</p> <p>Threads</p> <p>Thread Control</p> <p>Daemon Processes</p> <p>Advanced I/O</p> <p>Interprocess Communication</p> <p>Network IPC: Sockets</p> <p>Terminal I/O</p>
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<b>REFERENCE TEXT BOOKS</b>	<p>F. Tommasi "Alla Scoperta di UNIX - Esplorare GNU/Linux e macOS con la linea di comando", Marzo 2021, ISBN: 9791220082204</p> <p>Stevens, Rago, Advanced Programming in the UNIX Environment, 3rd Edition, Addison-Wesley, 2013 ISBN 978-0321637734</p> <p>Stevens, Fenner, Rudoff, Unix Network Programming, Volume 1: The Sockets Networking API (3rd Edition), Addison-Wesley, 2003 ISBN 978-0131411555</p> <p>Kerrisk, The Linux Programming Interface, NO STARCH PRESS, 2010 ISBN 978-1593272203</p> <p>Handouts delivered by the teacher through <a href="http://moodliis.unisalento.it/">http://moodliis.unisalento.it/</a></p>
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