# 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

**Teaching** SYSTEM AND NETWORK PROGRAMMING

**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

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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

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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

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| COURSE AIMS | Overview |
| | The course aims at starting the students off on programming system applications (e.g. a server) on a UNIX® System. |
| | Learning Outcomes; after the course the student should |
| | * Know the most important functionalities and facilities offered by a UNIX® system, the System Calls (and, more generally, the APIs) offered to access them. |
| | * Be able to write efficient CLI (Command Line Interface) system and network applications in the C language. |
| | * Know how to write interoperable applications by complying with the UNIX® standards (SUSv3, SUSv4). |
| | * Know which are the main differences between the MacOS and the Linux varieties and how to cope with them. |
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| TEACHING METHODOLOGY | 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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| ASSESSMENT TYPE | 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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| FULL SYLLABUS | 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 |
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| REFERENCE TEXT BOOKS | F. Tommasi "Alla Scoperta di UNIX - Esplorare GNU/Linux e macOS con la linea di comando", Marzo 2021, ISBN: 9791220082204 |
| | Stevens, Rago, Advanced Programming in the UNIX Environment, 3rd Edition, Addison-Wesley, 2013 ISBN 978-0321637734 |
| | Stevens, Fenner, Rudoff, Unix Network Programming, Volume 1: The Sockets Networking API (3rd Edition), Addison-Wesley, 2003 ISBN 978-0131411555 |
| | Kerrisk, The Linux Programming Interface, NO STARCH PRESS, 2010 ISBN 978-1593272203 |
| | Handouts delivered by the teacher through http://moodliis.unisalento.it/ |