COMPUTER ENGINEERING (LM55)

(Lecce - Università degli Studi)

Teaching SYSTEM AND NETWORK PROGRAMMING

GenCod A005789
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 12.0

Teaching hours Front activity hours: 108.0

For enrolled in 2019/2020

Taught in 2019/2020

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
Cybersecurity
(Disassembling an executable
Following the execution of a process at machine code level
Buffer overflows
Shellcode)

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

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.

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-

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.

FULL SYLLABUS	UNIX System Overview
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	(Disassembling an executable
	Following the execution of a process at machine code level
	Buffer overflows
	Shellcode)

REFERENCE TEXT BOOKS

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/