Aims: To introduce the student to programming on Unix Systems. The student will learn the general issues of the Unix system and how to use them to build adequate and efficient programs. The student will learn how to program shell-scripts, how to program in C using all the facilities Unix can offer. Furthermore, the student will also learn to program network applications in a client/server way.

Learning Outcomes: Learn how to program in C using all the needed features of UNIX. Learn how to program network applications in a client/server way. Assessable Learning Outcomes: Writing efficient C code for solving practical problem using advanced Unix facilities. Additional Outcomes: Be able to transfer and apply programming approaches and techniques for solving specific problems using C and advanced Unix facilities.

Duration: One week
Contact hours: 15 hours lectures ; 15 hours tutorials
Assessed: Coursework 100% (individual project)
Reassessment: Coursework
Number of credits: 10
Lecturer: Prof. Josep Herrero (UPC Barcelona, Spain)

Outline content:
1. Unix: general issues
2-3. User commands, shell and shell-scripts
4-5. C: Basic programming
6. Using the debugger
7-8. C: Advanced programming
9-11. Unix system calls
12-15. Sockets: crossing the network

Laboratory Work:
1. Using the shell and programming shell scripts
2. Making some basic programs in C which will be tested using the debugger
3. Making a C program using complex structures
4. Making a C program using system calls
5. Making a C program that communicates through sockets

Key Texts: The course notes freely distributed