

Network

C language programming

IDENTIFICATION

CODE : IF-3-S1-EC-PRC
ECTS : 2.0

HOURS

Lectures : 9.0 h
Seminars : 0.0 h
Laboratory : 16.0 h
Project : 0.0 h
Teacher-student
contact : 25.0 h
Personal work : 25.0 h
Total : 50.0 h

ASSESSMENT METHOD

Exam:
- 1h30 of written exam
- Allowed document: one sided A4
of lecture notes

TEACHING AIDS

- Lecture slides
- Lab exercises

TEACHING LANGUAGE

French

CONTACT

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AIMS

The goal of this module is to understand the fundamentals of the C language. On one hand the language constructions, on the other hand the underlying concepts (independantly of the syntactic aspects). Links with the operating system, the architecture and the compiler are briefly detailed.

CONTENT

- C control structures: if, while, for, switch, appels de fonction
- Integer types :
- arithmetic operations
- bitwise operations
- implicit and explicit types
- Type definition via typedef
- Enumerations
- Priorities between operators
- The sizeof operator
- Pointers :
- references
- dereferences
- pointer arithmetics
- NULL
- explicit type casting
- Operations on arrays
- Handling character strings
- Input/output functions
- Static and dynamic allocations
- Compiling and executing a C program
- Basic understanding of the structure of an executable file, of a process in memory
- Role of the libC vs. role of a system call
- Debug a C program thanks to GDB

PRE-REQUISITE

Experience of programming with a procedural imperative language (use of function calls, conditional statements, for and while loops)