

Assembly language

Introducing

Description

Definition and role of assembly language among programming tools.

Generic assembly language notions: data operations (arithmetic, logic), memory access (addressing modes), execution control (conditional processing).

Application to ARM architecture.

Subroutine calls and returns, role of the stack, interrupts, special case of ARM architecture.

Conventions for calling functions, passing arguments, return values, context preservation.

Development of mixed C-language and ARM-language applications

Objectives

At the end of this module, the student should have understood and be able to explain (main concepts):

- o Von Neuman model
- o Computation, storage, input-output circuits, control unit, interrupt mechanism, instruction-level pipeline execution
- o Instruction set and assembly language programming
 - o Elements of a development chain : compiler, assembler, linker, loader, debugger

The student should be able to:

- o Understand the principles of instruction set creation
 - o Develop an assembly language program on a microcontroller
- o Use cross-development tools

Necessary prerequisites

1st year Algorithms and Programming.

Évaluation

L'évaluation des acquis d'apprentissage est réalisée en continu tout le long du semestre. En fonction des enseignements, elle peut prendre différentes formes : examen écrit, oral, compte-rendu, rapport écrit, évaluation par les pairs...

Practical info

Location(s)

 Toulouse