



Universidad
de Alcalá

Departamento de Automática
Arquitectura y Tecnología de Computadores

COMPUTER SCIENCE (INFORMÁTICA)
Grado en Ingeniería en Electrónica y Automática Industrial

Program for 2017/18 course

1. Introduction to computers

Basic definitions. Functional structure. Von Neumann machine. Machine and assembler languages. Compilers. Programs. Historical evolution.

2. Information representation

Number representation. Binary codification. Integers: sign, 1C, 2C. Reals: floating point, IEEE754. Alphanumeric Information.

3. Operating systems

Introduction to OS. Virtual machine. Processes. Virtual memory. File system.

4. C programming language

- Introduction to C language. Characteristics and elements. Example program.
- Data types.
- Input and Output.
- Operators and expression.
- Control flow.
- Functions.
- Vectors and chains.
- Pointers.
- Structures. Unions. Bit-fields, Typedef.
- Input and output with files.
- Dynamic memory allocation.
- C lenguaje preprocessor.

Program and contents of the laboratory will be given in a separate document in the first lab session.

Lecturer

- Dr. Álvaro Perales Eceiza
Office: E-321.
Email: alvaro.perales@uah.es.
Tutorships: Mondays 17-19h and Thursdays 15-17h

Timetable and venues

- **Theory:** Thursday 10-12h at SA5A
- **Laboratory:** Thursday 12-14h, at O-L24. Starting September 28th

Web page

- Class presentations, exercises, laboratory practices and all information related to the subject can be found in

<http://atc2.aut.uah.es/~alvaro/Informatics.html/>

Bibliography

Basic

- Brian W. Kernighan, Dennis M. Ritchie. *The C Programming Language*. 2nd Edition. Prentice-Hall Software series 1988.
- Alberto Prieto Espinosa, Antonio Lloris Ruiz, Juan Carlos Torres Cantero. *Introducción a la informática*. 4ª edición. McGraw-Hill, Madrid, 2006.

Complementary

- Francisco J. Ceballos Sierra. *C/C++. Curso de programación*. 3ª edición. Ra-Ma, Madrid, 2007.
- Félix García Carballeira, Jesús Carretero Pérez, José Daniel García Sánchez, David Expósito Singh. *Problemas Resueltos de Estructura de Computadores*. Paraninfo, Madrid, 2008.

For more available bibliography in English ask the lecturer.

Approximate academic planification

Week	Theory	Laboratory
1	Presentation	
2	Unit 1	
3	Unit 2	
4	Unit 3	
5	Unit 4.1	Practice 1
6	Unit 4.2	Practice 2
7	Unit 4.3	Practice 3
8	Unit 4.4	Practice 4, part 1
9	Unit 4.5	Practice 4, part 1
10	Unit 4.6	partial exam 1
11	Unit 4.7	Practice 4, part 2
12	Unit 4.8	Practice 4, part 2
13	Unit 4.9	Practice 4, part 3
14	Unit 4.10	Practice 4, part 4
15	Unit 4.11	Practice 4, part 5
16	Unit 4.12	partial exam 2
17	Exercises	partial exam 2
Final Exams		
Final exam: 11.01.2017		
Extraordinary exam: 27.06.2017		

Evaluation

- **Continuous evaluation**

Continuous evaluation will be the normal procedure to evaluate the student and will consist of

- **Theory grade** (50% of the final grade)
 - * Partial exam of units 1, 2 and 3 ($\approx 15\%$ of the final grade).
 - * Partial exam of unit 4 ($\approx 35\%$ of the final grade).
- **Laboratory grade** (50% of the final grade)

- **Final evaluation**

To qualify for the final evaluation, the student must write to the centre director in the first two weeks of the course, explaining the reasons by which he or she cannot follow the system of continuous evaluation. The director must assess the circumstances cited by the student and make a reasoned decision.

The final evaluation will consist as well of a theory part (50% of the final grade) and a laboratory one (50% of the final grade)