Universidad de Alcalá

COMPUTER SCIENCE (INFORMÁTICA)

Grado en Ingeniería en Tecnologías Industriales

Program (2023-2024)

1. **Introduction to Computers**
   Basic definitions. Functional structure. Von Neumann machine. Machine and assembly languages. Compilers. Programs. Historical evolution.

2. **Representation of Information.**
   Representation of numbers. Binary codification. Integers: sign, 1-C, 2-C, biased representations. Reals: floating point, IEEE754. Rounding. Alphanumeric information.

3. **The C Programming Language.**
   - Introduction to the C programming language. Characteristics and elements. Sample program.
   - Data types.
   - Input and output.
   - Operators and expressions.
   - Control flow.
   - Functions.
   - Vectors and strings.
   - Pointers.
   - Structures. Unions. Bit-fields. `typedef`.
   - File input and output.
   - Dynamic memory.
   - The C-language preprocessor.

   The program and contents of the laboratory class will be made available in a separate document in the first lab session.

Web page

All info about, and support material for this course (including this document), both regarding the theory class and the lab work, will be available in the web page:

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http://atc2.aut.uah.es/~rduran/InfGITI/
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Students are advised to check there often, as last-minute announcements will be published on it.

Instructors

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Class hours

- Classroom: Wednesdays, 10-12h, room NA5.
- Lab:
  - Group A1: Mondays, 12–14h, in lab OL24
  - Group A2: Mondays, 10–12h, in lab NL5
  - Group A3: Wednesdays, 12–14h, in lab OL24
  - Group A4: Wednesdays, 12–14h, in lab EL7
  - Group A5: Thursdays, 12-14h, in lab OL24

Start of classes: January 22nd, 2024

End of classes: May 10th, 2024

Labs start in week 2024-05 (check schedule below)

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. 4ª edición. Ra-Ma, Madrid, 2015.
- Pearson Certification Team. Computer Structure and Logic. Pearson.
- Félix García Carballeira, Jesús Carretero Pérez, José Daniel García Sánchez, David Expósito Singh. Problemas resueltos de Estructura de Computadores. 2ª edición. Paraninfo, Madrid, 2015.

Tentative schedule

Week	Classroom	Lab
2023-04 (I)	Presentation, Unit 1	
2023-04 (II)	Unit 1, Unit 2	
2023-05	Unit 2, Unit 3.1	Assignment 1
2023-06	Unit 3.1	Assignments 2 and 3
2023-07	Unit 3.2	Assignment 4, section 1
2023-08	Unit 3.3 (*first quiz*)	Assignment 4, section 1
2023-09	Unit 3.4	Assignment 4, section 1
2023-10	Unit 3.5	Assignment 4, section 2
2023-11	Unit 3.6	*Partial exam 1*
2023-12	Unit 3.7	Assignment 4, section 2
2023-13	**Easter**	
2023-14	Unit 3.8	Assignment 4, section 2
2023-15	Unit 3.9	Assignment 4, section 3
2023-16	Unit 3.10	Assignment 4, section 3
2023-17	Unit 3.11	Assignment 4, section 3
2023-18	Unit 3.12	*Partial exam 2*
2023-19	Exercises, wrap-up	*Partial exam 2*
Final exams		
Ordinary call:	24.05.2022	
Extraordinary call	25.06.2022	

Grading

The course follows the standard '*continuous evaluation*' procedure, with the following exams:

- Classroom:
    - First quiz: units 1-2 (15% of the final grade)
    - Second quiz (final exam): unit 4 (35% of the final grade)
- Lab work:
    - Exams: assignment 4, sections 1-3 (50% of the final grade)

In accordance with current regulations, (students are advised to contact the *Secretaría de Alumnos* to this respect), students may apply for the non-standard '*single exam*' evaluation procedure. Should this application be accepted, the grading will result from a single exam consisting of three parts, very similar in nature and percentages to those described above under the '*continuous evaluation'* procedure: one quiz for units 1-2, one exam for unit 4, and one last part for the lab work. The exam for the *extraordinary call* has this same structure.