[GJD101] FUNDAMENTALS OF COMPUTING SCIENCE

GENERAL INFORMATION

Studies	DEGREE IN MECHATRONICS ENGINEERING			**Subject**	?
Semester	1	**Course**	1	**Mention / Field of specialisation**	
Character	BASIC TRAINING				
Plan	2020	**Modality**	Face-to-face	**Language**	CASTELLANO
Credits	6	**Hours/week**	5	**Total hours**	90 class hours + 60 non-class hours = **150 total hours**

PROFESSORS

ARKAUZ ARABAOLAZA, JAVIER
ALACANO LOITI, ARGIÑE

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
(No specific previous subjects required)	*(No previous knowledge required)*

SKILLS

VERIFICA SKILLS

SPECIFIC

GJCE03 - To have basic knowledge of computer use and programming, operating systems, databases and engineering software.

CROSS

GJCTR2 - To be able to understand and apply knowledge to problem solving in complex work situations or specialised and professional environments calling for creative and innovative ideas, using self-developed arguments and procedures;

BASIC

G_CB5 - To have developed learning abilities required to embark on subsequent studies with a high level of autonomy.

LEARNING RESULTS

RGJ121 They develop and structure programs to solve problems using structures for flow control, variables and logical operators.

LEARNING ACTIVITIES	CH	NCH	TH
Development, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams	3 h.	1 h.	4 h.
Individual study and work, tests and evaluations and check points	2 h.		2 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	8 h.	7 h.	15 h.
Individual and team exercises	8 h.	7 h.	15 h.

EVALUATION SYSTEM	W
Individual written and oral tests to assess technical skills of the subject	90%
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	10%

MAKE-UP MECHANISMS

Individual written and oral tests to assess technical skills of the subject

CH - Class hours: 21 h.
NCH - Non-class hours: 15 h.
TH - Total hours: 36 h.

RGJ122 They automate operations and organize the source code in functions to improve the development of programs and to solve the given generic problems.

LEARNING ACTIVITIES	CH	NCH	TH
Development, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams	7 h.	4 h.	11 h.
Individual study and work, tests and evaluations and check points	2 h.		2 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and	9 h.	7 h.	16 h.

procedures associated with the subjects			
Individual and team exercises	9 h.	7 h.	16 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and oral tests to assess technical skills of the subject	90%	Individual written and oral tests to assess technical skills of the subject
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	10%	

CH - Class hours: 27 h.
NCH - Non-class hours: 18 h.
TH - Total hours: 45 h.

RGJ123 **They design and make use of arrays and data structures in the correct way to solve problems through programs.**

LEARNING ACTIVITIES	CH	NCH	TH
Development, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams	8 h.	6 h.	14 h.
Individual study and work, tests and evaluations and check points	2 h.		2 h.
Presentation of the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	11 h.	8 h.	19 h.
Individual and team exercises	12 h.	7 h.	19 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and oral tests to assess technical skills of the subject	90%	Individual written and oral tests to assess technical skills of the subject
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	10%	

CH - Class hours: 33 h.
NCH - Non-class hours: 21 h.
TH - Total hours: 54 h.

RGJ181 **They communicate, search and structure written information: they write a clear and concise project report following the criteria established in the guide for written reports using the appropriate software.**

LEARNING ACTIVITIES	CH	NCH	TH
Development, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams	3 h.	1 h.	4 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%	Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence **Comments:** Corrección de la memoria escrita del proyecto de semestre

CH - Class hours: 3 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 4 h.

RGJ182 **They communicate, search and structure orally the information correctly: they make a clear and concise oral presentation and defense of the project, considering the aspects gathered in the oral communication guide and using the proper software approp**

LEARNING ACTIVITIES	CH	NCH	TH
Development, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams	2 h.	2 h.	4 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%	Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence **Comments:** With the oral presentation of the project of the second semester

CH - Class hours: 2 h.
NCH - Non-class hours: 2 h.
TH - Total hours: 4 h.

RGJ191 They use the right methodology to find solutions to problems and to develop projects: analyse problems properly, look for meaningful information to face them and propose solutions.

LEARNING ACTIVITIES	CH	NCH	TH
Development, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams	2 h.	1 h.	3 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%	Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence **Comments:** With the project of the second semester

CH - Class hours: 2 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 3 h.

RGJ192 They use the right methodology to find solutions to problems and to develop projects: analyse problems properly, look for meaningful information to face them and propose solutions.

LEARNING ACTIVITIES	CH	NCH	TH
Development, writing and presentation of memorandums, reports, audiovisual material, etc. Relating to projects/POPBLs carried out individually or in teams	2 h.	2 h.	4 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence	100%	Technical skills, involvement in the project, finished work, obtained results, handed documentation, presentation and technical defence **Comments:** With the project of the second semester

CH - Class hours: 2 h.
NCH - Non-class hours: 2 h.
TH - Total hours: 4 h.

CONTENTS

1. Presentation of the subject

2. Installation and configuration of the development environment

3. Introduction to the subject

4. Development of basic programs in the C language

5. Functions and decomposition of the algorithm and code

6. Array-s (number vectors)

7. Characters and strings (String)

8. Data structures and array-s of data structures

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Subject notes Moodle Platform Class presentations Computer practical training	El lenguaje de programación C, 2ª Ed. (1991) / Brian W. Kernighan, Dennis M. Ritchie, ISBN: 968-880-205-0. Programazioaren oinarriak. (1999) / Iñaki Goirizelaia, EHUko argitalpen zerbitzua, ISBN: ISBN: 978-84-8373-139-0 Curso de programación C/C++, 3ª Ed. (2007) / Francisco Javier Ceballos, Edit. Ra-Ma, ISBN: 84-7897-762-7 http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_lnk.pl?grupo=MECATRONICA11&ejecuta=15&_ST