

[GON301] FUNDAMENTALS OF COMPUTING SCIENCE

GENERAL INFORMATION

Studies	DEGREE IN INDUSTRIAL ORGANIZATION ENGINEERING	Subject	COMPUTING
Semester	1	Course	1
Character	BASIC TRAINING	Mention / Field of specialisation	
Plan	2022	Modality	Face-to-face
Credits	6	Language	EUSKARA/CASTELLANO
		Hours/week	4.89
		Total hours	88 class hours + 62 non-class hours = 150 total hours

2030 AGENDA GOALS



PROFESSORS

EREÑO INCERA, ANA MONSERRAT
PEREZ REGUERA, ITZIAR

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
G-RA04 - To know the use and programming of computers, operating systems, databases and computer programs with applications in engineering		x		5,4
G-RTR1 - To develop interdisciplinary projects specific to their specialty and of gradual complexity, - becoming aware of respect for human rights and fundamental rights, and analyzing and assessing the impact of the proposed solutions on the SDGs - to acquire and/or apply basic, advanced and/or avant-garde, demonstrating the ability to work in multidisciplinary teams and/or undertake further studies with a high degree of autonomy		x		0,36
G-RTR2 - To express information, ideas and the arguments that support them in an orderly, clear and coherent manner, orally and in writing, based on quality information, self-made or obtained from different sources, using inclusive and non-discriminatory language		x		0,24

Total: 6

KC: Knowledge or Content / SK: Skills / AB: Abilities

ENAE LEARNING RESULTS

ENAE LEARNING RESULTS	ECTS
ENAE01 - Knowledge and understanding: Knowledge and understanding of the underlying scientific and mathematical principles in their branch of engineering.	2
ENAE04 - Knowledge and understanding: To be aware of the multidisciplinary context of engineering.	0,52
ENAE05 - Analysis in engineering: Ability to apply their knowledge and understanding in identifying, formulating and solving engineering problems using established methods.	1,4
ENAE08 - Engineering projects: Ability to apply their knowledge in the development and completion of projects which meet specific requirements.	0,07
ENAE12 - Research & innovation: Technical and lab competences.	0,94
ENAE13 - Practical application of engineering: Ability to select and use suitable equipment, tools and methods.	0,94
ENAE17 - Transversal competences: To work effectively, both individually and in a team.	0,07
ENAE18 - Transversal competences: To use different methods to communicate effectively with the engineering community and society in general.	0,07

Total: 6

SECONDARY LEARNING RESULTS

RG0108 [I] *Automatiza operaciones y organiza el código fuente en funciones para mejorar el proceso de desarrollo de programas y dar solución a problemas genéricos que se les plantea*

LEARNING ACTIVITIES	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams		4,5 h.	4,5 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.

Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	13 h.	5 h.	18 h.
Carrying out exercises and solving problems individually and/or in teams	10 h.	10,5 h.	20,5 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

10%

(No mechanisms)

Individual written and/or oral tests or individual coding/programming tests

90%

CH - Class hours: 25 h.

NCH - Non-class hours: 20 h.

TH - Total hours: 45 h.

1RGO190 (1 sem)

LEARNING ACTIVITIES

CH

NCH

TH

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

2 h.

1 h.

3 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

100%

(No mechanisms)

CH - Class hours: 2 h.

NCH - Non-class hours: 1 h.

TH - Total hours: 3 h.

1RGO194 (1 sem)

LEARNING ACTIVITIES

CH

NCH

TH

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

2 h.

1 h.

3 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

100%

(No mechanisms)

CH - Class hours: 2 h.

NCH - Non-class hours: 1 h.

TH - Total hours: 3 h.

1RGO193 (1 sem)

LEARNING ACTIVITIES

CH

NCH

TH

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

2 h.

1 h.

3 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

100%

(No mechanisms)

CH - Class hours: 2 h.

NCH - Non-class hours: 1 h.

TH - Total hours: 3 h.

1RGO192 (1 sem)

LEARNING ACTIVITIES

Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams

CH

2 h.

NCH

1 h.

TH

3 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

100%

MAKE-UP MECHANISMS

(No mechanisms)

CH - Class hours: 2 h.

NCH - Non-class hours: 1 h.

TH - Total hours: 3 h.

1RGO191 (1 sem)

LEARNING ACTIVITIES

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

CH

2 h.

NCH

1 h.

TH

3 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

100%

MAKE-UP MECHANISMS

(No mechanisms)

CH - Class hours: 2 h.

NCH - Non-class hours: 1 h.

TH - Total hours: 3 h.

RGO107 [!] *Desarrolla y estructura programas para resolver problemas haciendo uso de estructuras de control de flujo, variables y operadores lógicos*

LEARNING ACTIVITIES

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

CH

NCH

3,6 h.

TH

3,6 h.

Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints

2 h.

2 h.

Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects

13 h.

2,4 h.

15,4 h.

Carrying out exercises and solving problems individually and/or in teams

10 h.

5 h.

15 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory

10%

MAKE-UP MECHANISMS

(No mechanisms)

exercises, term projects, challenges and problems
Individual written and/or oral tests or individual
coding/programming tests 90%

CH - Class hours: 25 h.
NCH - Non-class hours: 11 h.
TH - Total hours: 36 h.

RG0109 [!] *Diseña y hace uso de arrays de forma correcta para resolver problemas mediante programas*

LEARNING ACTIVITIES

	<i>CH</i>	<i>NCH</i>	<i>TH</i>
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams		5,4 h.	5,4 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	13 h.		13 h.
Carrying out exercises and solving problems individually and/or in teams	13 h.	20,6 h.	33,6 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems
Individual written and/or oral tests or individual coding/programming tests 90%

MAKE-UP MECHANISMS

(No mechanisms)

CH - Class hours: 28 h.
NCH - Non-class hours: 26 h.
TH - Total hours: 54 h.

CONTENTS

1. Presentation of the subject
Installation and configuration of the development environment
3. Introduction to the course
4. Development of basic programs in the C language
5. Functions and algorithm and code decomposition
6. Handling of array-s (number vectors)
7. Characters and character strings (String)
8. Data structures and array-s of data structures.
9. POPBL

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

- [!] *Apuntes de la asignatura*
- [!] *Plataforma Moodle*
- [!] *Presentaciones en clase*
- [!] *Realización de prácticas en ordenador*

Bibliography

Programazioaren Oinarriak, Iñaki Goirizelaia Ordorika, ISBN: 978-84-8373-139-0
The C Programming Language, Brian W. Kernighan, Dennis M. Ritchie, ISBN: 978-9688802052
C/C++ : curso de programación / Fco. Javier Ceballos Sierra Autor: Ceballos Sierra, Francisco Javier Editorial o distribuidor Ra-Ma Año de impresión: 2019 ISBN: 9788499648125 9788468610610 9788468610627 (e book)