

## [GIH302] SOFTWARE ANALYSIS AND DESIGN

### GENERAL INFORMATION

<b>Studies</b>	DEGREE IN COMPUTER ENGINEERING		<b>Subject</b>	SOFTWARE ENGINEERING, INFORMATION SYSTEMS AND SMART SYSTEMS	
<b>Semester</b>	2	<b>Course</b>	2	<b>Mention / Field of specialisation</b>	
<b>Character</b>	COMPULSORY		<b>Language</b>	EUSKARA/CASTELLANO	
<b>Plan</b>	2022	<b>Modality</b>	Face-to-face	<b>Total hours</b>	73.52 class hours + 38.98 non-class hours = <b>112.5 total hours</b>
<b>Credits</b>	4,5	<b>Hours/week</b>	4.08		

### 2030 AGENDA GOALS



### PROFESSORS

EREÑO INCERA, ANA MONSERRAT  
CUENCA ARIZA, JAVIER

### REQUIRED PREVIOUS KNOWLEDGE

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

### LEARNING RESULTS

#### LEARNING RESULTS

	KC	SK	AB	ECTS
<b>GIR210</b> - To conceive projects, services and computer systems, ensuring their reliability, security and quality, taking into account ethical aspects and assessing their economic and social impact		x		4,02
<b>G-RTR1</b> - 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		0,32
<b>G-RTR2</b> - 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		0,16

**Total:** 4,5

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

### SECONDARY LEARNING RESULTS

#### 2RGI292 (2 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** 1,34 h. **NCH** ,66 h. **TH** 2 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

20%

(No mechanisms)

Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems

50%

Prototype / Product

30%

**Comments:** Continuous assessment.

**CH - Class hours:** 1,34 h.

**NCH - Non-class hours:** ,66 h.

**TH - Total hours:** 2 h.

#### 2RGI293 (2 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		1,34 h.	,66 h.	2 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	20%	(No mechanisms)		
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	50%			
Prototype / Product	30%			
<b>Comments:</b> Continuous assessment. It may be asked to redo the document.				
<b>CH - Class hours:</b> 1,34 h.				
<b>NCH - Non-class hours:</b> ,66 h.				
<b>TH - Total hours:</b> 2 h.				

RG1224 [!] *Diseña soluciones apropiadas utilizando métodos de la ingeniería del software y aplicando patrones de diseño*

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	3 h.	1,4 h.	4,4 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning	2 h.	1 h.	3 h.
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	11 h.	6,6 h.	17,6 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	8 h.	4 h.	12 h.
Carrying out exercises and solving problems individually and/or in teams	8,5 h.	5 h.	13,5 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	9%	Individual written and/or oral tests or individual coding/programming tests	
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	58%	<b>Comments:</b> Students with less than 5 in the Control point must retake the exam. Control point value will be 25% and retake 75%. Project: There will not be any retake of the individual defense.	
Individual written and/or oral tests or individual coding/programming tests	20%		
Prototype / Product	13%		
<b>Comments:</b> Minimum grade: 5 Project evaluation based on technical rubric			

CH - Class hours: 32,5 h.  
NCH - Non-class hours: 18 h.  
TH - Total hours: 50,5 h.

<b>2RG1290</b> (2 sem)				
LEARNING ACTIVITIES		CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, 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	20%	(No mechanisms)
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	50%	
Prototype / Product	30%	
<b>Comments:</b> Continuous assessment.		

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

#### 2RGI294 (2 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		1,34 h.	,66 h.	2 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	20%	(No mechanisms)		
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	50%			
Prototype / Product	30%			
<b>Comments:</b> Continuous assessment.				

**CH - Class hours:** 1,34 h.  
**NCH - Non-class hours:** ,66 h.  
**TH - Total hours:** 2 h.

#### RGI223 [!] *Aplica procesos de desarrollo en la fase de análisis de requisitos basados en los ciclos de vida de la ingeniería del software*

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.		2 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		5 h.	3 h.	8 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints		2 h.		2 h.
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams		15 h.	9 h.	24 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects		6 h.	4 h.	10 h.
Carrying out exercises and solving problems individually and/or in teams		3 h.	1 h.	4 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		50%	Individual written and/or oral tests or individual coding/programming tests	
Individual written and/or oral tests or individual coding/programming tests		50%	<b>Comments:</b> Students with less than 5 in the Control point must retake the exam. Control point value will be 25% and retake 75%.	

**Comments:** Minimum grade: 5

**CH - Class hours:** 33 h.

**NCH - Non-class hours:** 17 h.

**TH - Total hours:** 50 h.

## 2RGI291 (2 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**

### MAKE-UP MECHANISMS

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

20%

(No mechanisms)

Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems

50%

Prototype / Product

30%

**Comments:** Continuous assessment.

**CH - Class hours:** 2 h.

**NCH - Non-class hours:** 1 h.

**TH - Total hours:** 3 h.

## CONTENTS

1. Software development life cycles and processes
  - 1.1 Introduction to software applications
  - 1.2 Life Cycles
  - 1.3 Development process
    - 1.3.1 Unified Process
2. Analysis Phases
  - 2.1 Requirements Analysis
  - 2.2 Analysis Techniques
  - 2.3 Software Architecture
  - 2.4 UML Modelling
3. Design Phase
  - 3.1 Design Patterns
  - 3.2 Interface Design

## LEARNING RESOURCES AND BIBLIOGRAPHY

### Learning resources

Subject notes  
 Moodle Platform  
 Specific Master Software  
 Topic related web quires

### Bibliography

<https://labur.eus/biblio-gih302>