# Goi Eskola Politeknikoa | Mondragon Unibertsitatea
Course: 2024 / 2025 - Course planning

# [GIH301] DATABASES

## GENERAL INFORMATION

| | | | |
|---|---|---|---|
| **Studies** | DEGREE IN COMPUTER ENGINEERING | **Subject** | SOFTWARE ENGINEERING, INFORMATION SYSTEMS AND SMART SYSTEMS |
| **Semester** 2 | **Course** 2 | **Mention / Field of specialisation** | |
| **Character** COMPULSORY | | | |
| **Plan** 2022 | **Modality** Face-to-face | **Language** | EUSKARA/CASTELLANO |
| **Credits** 6 | **Hours/week** 5.39 | **Total hours** | 97 class hours + 53 non-class hours = **150 total hours** |

## 2030 AGENDA GOALS



## PROFESSORS

ARKAUZ ARABAOLAZA, JAVIER

## REQUIRED PREVIOUS KNOWLEDGE

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

## LEARNING RESULTS

| LEARNING RESULTS | KC | SK | AB | ECTS |
|---|---|---|---|---|
| **GIR209** - To apply the necessary tools for storage, processing and access to databases and information systems, including web-based ones | | | 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*

## SECONDARY LEARNING RESULTS

### RGI220 [!] *Diseñar la estructura de datos persistentes de una aplicación haciendo uso de un SGBD*

| LEARNING ACTIVITIES | CH | NCH | TH |
|---|---|---|---|
| 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 | 3 h. | 2 h. | 5 h. |
| Carrying out exercises and solving problems individually and/or in teams | 23 h. | 15 h. | 38 h. |

| EVALUATION SYSTEM | W | MAKE-UP MECHANISMS |
|---|---|---|
| Individual written and/or oral tests or individual coding/programming tests | 100% | Individual written and/or oral tests or individual coding/programming tests |
| **Comments:** Minimum grade: 5 | | **Comments:** Students with less than 5 in the Control point must retake the exam. Control point value will be 25% and retake 75%. |

**CH - Class hours:** 28 h.
**NCH - Non-class hours:** 17 h.
**TH - Total hours:** 45 h.

### 2RGI292 (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

| | CH | NCH | TH |
|---|---|---|---|
| | 2,25 h. | ,75 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% | |
| **Comments:** Continuous assessment. | | |

**CH - Class hours:** 2,25 h.
**NCH - Non-class hours:** ,75 h.
**TH - Total hours:** 3 h.

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## 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 | 2,25 h. | ,75 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% | |
| **Comments:** Continuous assessment. It may be asked to redo the document. | | |

**CH - Class hours:** 2,25 h.
**NCH - Non-class hours:** ,75 h.
**TH - Total hours:** 3 h.

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## RGI221 [!] *Implementa, consulta y manipula bases de datos relacionales que hacen uso de un SGBD*

| LEARNING ACTIVITIES | CH | NCH | TH |
|---|---|---|---|
| Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning | 6 h. | 3 h. | 9 h. |
| Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints | 2 h. | | 2 h. |
| Carrying out exercises and solving problems individually and/or in teams | 21 h. | 13 h. | 34 h. |

| EVALUATION SYSTEM | W | MAKE-UP MECHANISMS |
|---|---|---|
| Individual written and/or oral tests or individual coding/programming tests | 100% | Individual written and/or oral tests or individual coding/programming tests |
| **Comments:** Minimum grade: 5 | | **Comments:** Students with less than 5 in the Control point must retake the exam. Control point value will be 25% and retake 75%. |

**CH - Class hours:** 29 h.
**NCH - Non-class hours:** 16 h.
**TH - Total hours:** 45 h.

**RGI222** [!] *Desarrolla una aplicación gráfica haciendo uso de patrones de diseño con acceso a datos persistentes en un SGBD instalado, configurado y administrado de forma segura*

| 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 h. | 2 h. | 6 h. |
| Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints | 1 h. | | 1 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 | 3 h. | 2 h. | 5 h. |
| Carrying out exercises and solving problems individually and/or in teams | 6 h. | 3 h. | 9 h. |

| EVALUATION SYSTEM | W |
|---|---|
| Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems | 13% |
| 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 | 33% |
| Individual written and/or oral tests or individual coding/programming tests | 35% |
| Prototype / Product | 19% |

**Comments:** Minimum grade: 5 Project evaluation based on technical rubric

**MAKE-UP MECHANISMS**

Individual written and/or oral tests or individual coding/programming tests
**Comments:** 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.

**CH - Class hours:** 29 h.
**NCH - Non-class hours:** 16 h.
**TH - Total hours:** 45 h.

**2RGI290** (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 | 2,25 h. | ,75 h. | 3 h. |

| EVALUATION SYSTEM | W |
|---|---|
| Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems | 20% |
| 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.

**MAKE-UP MECHANISMS**

*(No mechanisms)*

**CH - Class hours:** 2,25 h.
**NCH - Non-class hours:** ,75 h.
**TH - Total hours:** 3 h.

**2RGI294** (2 sem)

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Mondragon
Unibertsitatea

Goi Eskola
Politeknikoa
Escuela Politécnica
Superior

| 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 | 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.

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**2RGI291** **(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 | 2,25 h. | ,75 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% | |
| **Comments:** Continuous assessment. | | |

**CH - Class hours:** 2,25 h.
**NCH - Non-class hours:** ,75 h.
**TH - Total hours:** 3 h.

## CONTENTS

1. Relational database design    1.1 Entity-Relationship Model    1.2 Relational Model    1.3 Normalization2. Creation, Manipulation and Query of databases with SQL language.    2.1 Creation of databases with DDL    2.2 Manipulation of databases with DML    2.3 Querying databases with SQL3. Installation, configuration and administration of a relational database server.    3.1 Installation of a DBMS    3.2 DBMS architecture    3.3 User management    3.4 Backup copies    3.5 Graphical tools4. Development of graphical database access applications.    4.1 Development of a visual application with connection to the database.    4.2 Use of the library to connect to the DB (JDBC).    4.3 Development based on design patterns (DAO).    4.4 Database programming (PL./SQL)

## LEARNING RESOURCES AND BIBLIOGRAPHY

| Learning resources | Bibliography |
|---|---|
| Subject notes | https://labur.eus/biblio-gih301 |
| Moodle Platform | |

Topic related web quires
Video projections
Specific Master Software