



## IDENTIFYING DATA

### Rule-based quantum systems

|                     |                                                                                                                                                                                                                                                                                                                                           |          |      |            |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------|------------|
| Subject             | Rule-based quantum systems                                                                                                                                                                                                                                                                                                                |          |      |            |
| Code                | V05M198V01212                                                                                                                                                                                                                                                                                                                             |          |      |            |
| Study programme     | (*)Máster Universitario en Ciencia e Tecnoloxías de Información Cuántica                                                                                                                                                                                                                                                                  |          |      |            |
| Descriptors         | ECTS Credits                                                                                                                                                                                                                                                                                                                              | Choose   | Year | Quadmester |
|                     | 3                                                                                                                                                                                                                                                                                                                                         | Optional | 1st  | 2nd        |
| Teaching language   |                                                                                                                                                                                                                                                                                                                                           |          |      |            |
| Department          |                                                                                                                                                                                                                                                                                                                                           |          |      |            |
| Coordinator         |                                                                                                                                                                                                                                                                                                                                           |          |      |            |
| Lecturers           | Fernández Veiga, Manuel                                                                                                                                                                                                                                                                                                                   |          |      |            |
| E-mail              |                                                                                                                                                                                                                                                                                                                                           |          |      |            |
| Web                 | <a href="http://guiadocente.udc.es/guia_docent/index.php?centre=614&amp;ensenyament=614551&amp;assignatura=614551029&amp;any_academic=2023_24&amp;any_academic=2023_24">http://guiadocente.udc.es/guia_docent/index.php?centre=614&amp;ensenyament=614551&amp;assignatura=614551029&amp;any_academic=2023_24&amp;any_academic=2023_24</a> |          |      |            |
| General description |                                                                                                                                                                                                                                                                                                                                           |          |      |            |

## Training and Learning Results

|      |                                                                                                                                                                                                                                                                          |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Code |                                                                                                                                                                                                                                                                          |
| A9   | Know and know how to apply advanced aspects of quantum computing: quantum learning, efficient quantum architecture, mode of operation of two quantum accelerators, high-performance computing, quantum systems based on rules and applications to numerical calculation. |
| B3   | To know the physical bases that allow encoding and processing information. Understanding of the new rules that Quantum Mechanics imposes for its processing.                                                                                                             |
| B4   | To have knowledge of quantum computing, algorithms, circuits, its programming in different languages and accessible platforms.                                                                                                                                           |
| C1   | To analyze and break down a complex concept, examine each part and see how they fit together                                                                                                                                                                             |
| C2   | To classify and identify types or groups, showing how each category is different from the others                                                                                                                                                                         |
| C3   | To compare and contrast and point out similarities and differences between two or more topics or concepts                                                                                                                                                                |

## Expected results from this subject

| Expected results from this subject | Training and Learning Results |
|------------------------------------|-------------------------------|
| New                                | A14                           |
|                                    | A9                            |
|                                    | B18                           |
|                                    | B3                            |
|                                    | B4                            |
|                                    | B18                           |
|                                    | B18                           |
|                                    | C1                            |
|                                    | C2                            |
|                                    | C3                            |
|                                    | C18                           |
|                                    | C18                           |
|                                    | D18                           |
|                                    | D18                           |
|                                    | D18                           |
|                                    | D18                           |
|                                    | D18                           |

## Contents

|       |
|-------|
| Topic |
|-------|

| Planning                                                                                                                      |               |                               |             |
|-------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------|-------------|
|                                                                                                                               | Class hours   | Hours outside the classroom   | Total hours |
| *The information in the planning table is for guidance only and does not take into account the heterogeneity of the students. |               |                               |             |
| Methodologies                                                                                                                 |               |                               |             |
|                                                                                                                               | Description   |                               |             |
| Personalized assistance                                                                                                       |               |                               |             |
| Assessment                                                                                                                    |               |                               |             |
| Description                                                                                                                   | Qualification | Training and Learning Results |             |
| Other comments on the Evaluation                                                                                              |               |                               |             |
| Sources of information                                                                                                        |               |                               |             |
| Basic Bibliography                                                                                                            |               |                               |             |
| Complementary Bibliography                                                                                                    |               |                               |             |
| Recommendations                                                                                                               |               |                               |             |