



Teaching Guide

| Identifying Data | | | | | 2019/20 |
|--------------------------|---|--------|------------|-----------|---------|
| Subject (*) | Master's Thesis | | Code | 614473111 | |
| Study programme | Mestrado Universitario en Computación de Altas Prestacións / High Performance Computing (Mod. Presencial) | | | | |
| Descriptors | | | | | |
| Cycle | Period | Year | Type | Credits | |
| Official Master's Degree | 2nd four-month period | First | Obligatory | 15 | |
| Language | | | | | |
| Teaching method | Face-to-face | | | | |
| Prerequisites | | | | | |
| Department | Enxeñaría de Computadores | | | | |
| Coordinador | | E-mail | | | |
| Lecturers | , | E-mail | | | |
| Web | aula.cesga.es | | | | |
| General description | <p>The objective of the TFM is the analysis, design, implementation and validation of a project, carried out individually, related to High Performance Computing and in which some of the competences acquired are emphasized. It can be developed in a company or entity with proven experience in R&D projects, being co-supervised by a professional in the field. In any case, the project must integrate innovation components that go beyond the mere parallelization of an application. The TFM must promote the contribution of added value by the student in innovative projects, and its direct relationship with the labor market or with some aspect of research.</p> <p>The objective of the Final Master's Project (TFM) is to introduce the student to a research or development topic with concrete and achievable objectives in a short space of time.</p> | | | | |
| Contingency plan | | | | | |

Study programme competences

| Code | Study programme competences |
|------|--|
| A8 | CE8 - Be able to apply the acquired knowledge, capabilities and aptitudes to the profesional environment, planning, managing and evaluating project in the high performance computing field |
| A9 | CE9 - Be able to state, model and solve problems that require high performance computing techniques |
| B1 | CB6 - Possess and understand the knowledge that give a baseline or opportunity to be original in the development and/or application of ideas, often in a research environment |
| B2 | CB7 - The students have to know how to apply the acquired knowledge and their capacity to solve problems in new or hardly explored environment inside wider contexts (or multidisciplinary) related to its area of development |
| B3 | CB8 - The students have to be able to integrate knowledge and face the complexity to make judgments from information, despite being partial and limited, includes reflexions about the social and ethical responsibilities linked to the application of their judgements and knowledge |
| B4 | CB9 - The students have to be able to communicate their conclusions, their knowledge and the reasons that hold them to specialized and non specialized audience in a clear and unambiguous manner |
| B5 | CB10 - The students have to possess learning skills that allows them to continue to study in a mainly self-driven or autonomous manner |
| B6 | CG1 - Be able to search and select useful information to solve complex problems, using the bibliographic sources of the field |
| B7 | CG2 - Elaborate adqueately and originally written essays or motivated reasonings, write planings, work projects, scientific papers and formulate reasonable hypothesis |
| B8 | CG3 - Be able to maintain and extend properly funded theoretical hypothesis to allow the introduction and exploitation of novel and advanced technologies in the field |
| B9 | CG4 - Be able to plan and do research, development and innovation tasks in high performance computing related environments |
| C1 | CT1 - Use the basic technologies of the information and computing technology field required for the professional development and the long-life learning |
| C3 | CT3 - Be able to manage time and resources: develop plannings, prioritize activities, identify criticism, establish and meet deadlines |



| | |
|----|---|
| C4 | CT4 - Value the importance of research, innovation and the technological development in the socioeconomical and cultural advance of the society |
| C5 | CT5 - Understand the importance of the enterpeneurship culture and know the resources available for entrepreneurs |

| Learning outcomes | | | |
|--|-----------------------------|--|------------|
| Learning outcomes | Study programme competences | | |
| Integrate the knowledge acquired to apply them to a specific research or development work. | AJ8 AJ9 | BJ1 BJ2 BJ3 | CJ1 CJ3 |
| Present and defend the results of the work in front of a specialized audience. | | BJ4 BJ5 BJ6 BJ7 BJ8 BJ9 | CJ4 CJ5 |

| Contents | |
|---|-----------|
| Topic | Sub-topic |
| <p>Analysis, design, implementation and validation of a project related to High Performance Computing.</p> <p>The work will consist in the study of a research and/or development subject in the field of HPC with concrete objectives achievable in a short space of time.</p> <p>For its development two options will be available:</p> <p>a) The realization linked to a practice developed in the period of professional practices in institutions or companies.</p> <p>b) The independent realization of these practices, which typically allow the student to be introduced in a practical way in a research work in any of the lines of the groups to which the teaching team belongs.</p> <p>In any case, at the end of the work the student must present a final report and defend the work before a specialized commission.</p> | |

| Planning | | | | |
|------------------------|--|----------------------|-------------------------------|-------------|
| Methodologies / tests | Competencies | Ordinary class hours | Student?s personal work hours | Total hours |
| Supervised projects | A8 A9 B1 B2 B3 B4 B5 B6 B7 B8 B9 C1 C3 C4 C5 | 0 | 300 | 300 |
| Personalized attention | | 75 | 0 | 75 |

(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

| Methodologies | |
|---------------|-------------|
| Methodologies | Description |
| | |



| | |
|---------------------|--|
| Supervised projects | Personal work of the student: consultation of bibliography, autonomous study, development of programmed activities, preparation of presentations and works |
|---------------------|--|

Personalized attention

| Methodologies | Description |
|---------------------|--|
| Supervised projects | Follow-up office hours with project tutors to make contact with the TFM, planning, advice, practical work supervised in the laboratory, review of documentation, memory and presentation |

Assessment

| Methodologies | Competencies | Description | Qualification |
|---------------------|--|--|---------------|
| Supervised projects | A8 A9 B1 B2 B3 B4 B5 B6 B7 B8 B9 C1 C3 C4 C5 | Continuous monitoring by the tutors of the work and approval in the memory of the project. Evaluation of the work by a commission made up of specialist teachers from the area. The qualification system will be the one indicated for the master's degree in the regulations. | 100 |

Assessment comments

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Sources of information

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|----------------------|--|
| Basic | Dadas as peculiaridades desta materia, resulta imposible especificar unha bibliografía xeral válida para todos os TFM que se van a desenvolver. A bibliografía específica de cada proxecto estará especificada en cada un das diferentes propostas de proxectos aprobadas pola Comisión Académica do máster. |
| Complementary | |

Recommendations

Subjects that it is recommended to have taken before

Subjects that are recommended to be taken simultaneously

Subjects that continue the syllabus

Other comments

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.