

Course guide

280824 - 280824 - Research Project

Last modified: 27/05/2025

Unit in charge: Barcelona School of Nautical Studies
Teaching unit: 742 - CEN - Department of Nautical Sciences and Engineering.

Degree: MASTER'S DEGREE IN NAVAL AND OCEAN ENGINEERING (Syllabus 2017). (Optional subject).

Academic year: 2025 **ECTS Credits:** 15.0 **Languages:** Catalan, Spanish, English

LECTURER

Coordinating lecturer: JAVIER MARTINEZ GARCIA

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Transversal:

CT4. EFFECTIVE USE OF INFORMATION RESOURCES: Manage the acquisition, structuring, analysis and visualization of data and information in the field of specialty, and critically evaluate the results of this management.

CT5. THIRD LANGUAGE Learning a third language, preferably English, with adequate oral and written and in line with the future needs of the graduates.

Basic:

CB6. Possess knowledge and understanding that provide a basis or opportunity be original in the development and / or application of ideas, often in a research context.

CB7. That the students can apply their knowledge and ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their study area.

CB8. Students should be able to integrate knowledge and handle the complexity of making judgments based on information that, being incomplete or limited, includes reflections on the responsibilities social and ethical linked to the application of their knowledge and judgments.

CB9. That students can communicate their conclusions and the knowledge and Latest rationale underpinning to specialists and non Specialty clearly and unambiguously.

CB10. Students must possess the learning skills that enable them continue studying in a way that will be largely self-directed or autonomous.

TEACHING METHODOLOGY

Autonomous learning by solving exercises and problems

Problem / project based learning

LEARNING OBJECTIVES OF THE SUBJECT

The subject Master's Research Project consists of the student carrying out a specific research project. The content of the project must be unpublished and the research must have a direct and clear impact in the fields of Naval and Ocean engineering activity.

This research project carried out in the subject Master's Project may serve as a basis, or be complementary, to the final master's thesis carried out by the student. If this is the case, it must be attached as an appendix to the Final Master's Thesis.

By completing this course, the student is expected to achieve the following learning:

- Ability to perform a bibliographic search and analyze the state of the art of a discipline and, on this, conduct a research project.
- Ability to correctly propose a research study, formulating previous hypotheses that will be validated with the study and developing the appropriate methodologies.
- Ability to develop and describe a research project in the field of Naval and Ocean Engineering. Ability to capture research conducted concisely in a scientific paper.

CONTENTS

Topic 1 Objectives of the research project

Description:

Definition of the objectives pursued with the research project and the hypotheses on which it will be based. Definition of the different goals that must be achieved to achieve the set goal. The work carried out in this first phase will serve to define the work plan to be followed throughout the research project and to specify the face-to-face teaching that, if applicable, the student will carry out.

Full-or-part-time: 20h

Guided activities: 3h

Self study : 17h

Topic 2 State of the art

Description:

Exhaustive analysis of the state of the art in the field in which the research project will be carried out. This state of the art will be the basis on which the conducted research will be based. By performing this state of the art, the student will also learn to search scientific databases and to use and reference other scientific texts.

Full-or-part-time: 60h

Guided activities: 5h

Self study : 55h

Topic 3 Specialized training

Description:

Specialized training to cover the basic shortcomings that the student may have in some aspects of the subject of the work. This training will be based on specific courses, seminars, technical conferences or MOOCs.

Full-or-part-time: 75h

Guided activities: 10h

Self study : 65h

Topic 4 Development of the research project

Description:

Work aimed at validating the hypotheses formulated at the beginning of the project and achieving the defined objectives. In this work, the appropriate methodologies will have to be applied and a critical analysis of the results will have to be made.

Full-or-part-time: 200h

Guided activities: 15h

Self study : 185h

Topic 5 Conclusions

Description:

The research work must end with conclusions that summarize the work done and define the main results obtained in it. The conclusions must assess the degree of achievement of the different objectives set at the beginning of the research and the validity of the hypotheses raised.

Full-or-part-time: 20h

Guided activities: 3h

Self study : 17h

GRADING SYSTEM

The final grade is the sum of the following partial grades:

$$N_{\text{final}} = 0.3 \cdot N_{\text{ac}} + 0.7 \cdot N_{\text{tf}}$$

N_{final} : Final qualification

N_{ac} : Qualification of the continuous evaluation.

This will be done based on the progress of the student in the different phases of the research project by the director of the same. The director will have to fill in an evaluation template that will be provided by the Faculty of Nautical Studies of Barcelona and this will be attached to the final work of the subject.

N_{tf} : Qualification of the final work.

The final work of the subject must describe the research carried out and the results obtained with it. This work will take the form of a scientific article, following a format similar to that of scientific journals in the field in which the research has been conducted.

It is not necessary for the research paper to be submitted to a journal for publication, as it is not necessary to carry out such a high-level research to achieve the subject. However, if the article is submitted for publication, it will need to be reported and evaluated very positively.

The qualification of the final research work will be carried out by the person in charge of the subject as vice-dean of international relations and research, the tutor and a member agreed between the tutor and the person in charge of the subject.

EXAMINATION RULES.

The person in charge of the Master's Research Project subject will ensure that all the projects carried out are carried out correctly. However, the direction of the research project will correspond to a professor of the Faculty of Nautical of Barcelona in the field of conducted research.

In order to enroll in this subject, the student must submit an application. This must be accompanied by a standard document stating the title of the research project and describing the research to be carried out and its main objectives. This document will be provided by the Barcelona Nautical Faculty and must be signed by the student and the director of the research project. The request will be resolved by consensus between the Head of Studies of the Faculty and responsible for the subject.

BIBLIOGRAPHY

Basic:

- Amat Salas, Oriol; Rocafort Nicolau, Alfredo; Rodrigo de Larrucea, Jaime. Cómo investigar : trabajo de final de grado, tesis de máster, tesis doctoral y otros trabajos de investigación. Barcelona: Profit Editorial, 2017. ISBN 9788416904693.
- Rigo, Antònia; Genescà, Gabriel; Alsius, Salvador. Tesis i treballs : aspectes formals. Vic: Eumo, 2000. ISBN 8476023359.
- Coromina i Pou, Eusebi; Casacuberta, Xavier; Quintana, Dolors. El Treball de recerca : procés d'elaboració, memòria escrita, exposició oral i recursos. Vic: Eumo, 2000. ISBN 8476025963.

Complementary:

- Lannon, John M; Gurak, Laura J. Technical communication [on line]. Fifteenth edition, Global edition. Harlow: Pearson Education Limited, 2021 [Consultation: 01/09/2022]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=6504034>. ISBN 9781292363646.
- Bombardó Solés, Carmen; Aguilar, Marta; Barahona Fuentes, Clàudia. Technical writing : a guide for effective communication [on

line]. Barcelona: Edicions UPC, 2007 [Consultation: 19/07/2021]. Available on: <http://hdl.handle.net/2099.3/36667>. ISBN 9788483019276.

- Rabinowitz, Harold; Vogel, Suzanne. The Manual of scientific style : a guide for authors, editors, and researchers [on line]. Amsterdam : Boston: Academic Press/Elsevier, cop. 2009 [Consultation: 01/09/2022]. Available on: <https://www.sciencedirect-com.recursos.biblioteca.upc.edu/book/9780123739803/the-manual-of-scientific-style> . ISBN 9780123739803.

- Russell, Daniel. The Joy of search : a Google insider's guide to going beyond the basics [on line]. Cambridge, Massachusetts: The MIT Press, [2019] [Consultation: 01/09/2022]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=5894155>. ISBN 9780262354721.

- DePoy, Elizabeth; Gitlin, Laura N. Introduction to research : understanding and applying multiple strategies [on line]. Fifth edition. St. Louis, Missouri: Elsevier, [2016] [Consultation: 01/09/2022]. Available on: <https://www.sciencedirect-com.recursos.biblioteca.upc.edu/book/9780323261715/introduction-to-research> . ISBN 9780323261715.

- Interuniversity style guide for writing institutional texts in English= Manual d'estil interuniversitari per a la redacció de textos institucionals en anglès [on line]. 3a. [Barcelona]: Xarxa Vives d'Universitats, 2017 [Consultation: 19/07/2021]. Available on: <https://www.uv.es/llengues/mei>. ISBN 9788484246299.

RESOURCES

Other resources:

Eines per buscar informació. A: Bibliotècnica [online]. Universitat Politècnica de Catalunya, Servei de Biblioteques, Publicacions i Arxius, Data d'actualització 3/05/2021. Available at <<https://biblioteca.upc.edu/formacio/informat/eines-buscar-informacio>> />

6 passos perquè el teu TFG/TFM sigui un èxit. A: Bibliotècnica [online]. Universitat Politècnica de Catalunya, Servei de Biblioteques, Publicacions i Arxius, Data d'actualització 29/05/2019. Available at <<https://biblioteca.upc.edu/estudiants/6-passos-que-teu-tfg/tfm-sigui-exit>> />

Referències bibliogràfiques. A: Bibliotècnica [online]. Universitat Politècnica de Catalunya, Servei de Biblioteques, Publicacions i Arxius, Data d'actualització 4/02/2021. Available at <<https://biblioteca.upc.edu/investigadors/referencies-bibliografiques>>