



## IDENTIFYING DATA

### Final Year Dissertation

Subject	Final Year Dissertation			
Code	P52G381V01991			
Study programme	Grado en Ingeniería Mecánica			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	12	Mandatory	5th	2nd
Teaching language	Spanish English			
Department				
Coordinator	Núñez Nieto, Xavier			
Lecturers	Núñez Nieto, Xavier			
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**General description** The Final Year Project (TFG) forms part, like module, of the curriculum of the Mechanical Engineering Bachelor Degree. It is an original and personal work that each student will make under lecturer supervision, allowing him/her to show in an integrated way the acquisition of the formative contents and the competences associated to the degree.

With this work the student applies the knowledges acquired during his/her training, so much of the module of specific mechanical technology as of other fields of knowledge related with the mechanical engineering necessary to carry out the TFG, which reflects its multidisciplinary character. Moreover, it is pretended that the student acquire or reinforce some capacities that allow him/her to project, design and develop complex products, processes and systems of the speciality; have consciousness of the social appearances, of health and security, environmental, economic and industrial; select and apply methods of appropriate project; and look for solutions from a technical point of view as well as its implementation and adequation to the environment.

Its definition and contents are explained more extensively in the regulations for the completion of the Final Year Project approved by Centre Board, in its first version, in session celebrated on 2/9/2014, and whose updated content is shown in the website of CUD-ENM, in the section dedicated to the TFG (Studies Section -> Mechanical Engineering Degree ->Student -> Final Year Project).

## Training and Learning Results

Code	
B1	Skills for writing, signing and developing projects in the field of industrial engineering, whose purpose is, specializing in Mechanics, construction, alteration, repair, maintenance, demolition, manufacturing, installation, assembly or operation of: structures, mechanical equipments, energy facilities, electrical systems and electronic installations and industrial plants, and manufacturing processes and automation.
B2	Ability to manage the activities object of the engineering projects described in B1.
B3	Knowledge in basic and technological subjects that will enable students to learn new methods and theories, and provide them the versatility to adapt to new situations.
B4	Ability to solve problems with initiative, decision making, creativity, critical thinking and the ability to communicate and transmit knowledge and skills in the field of Industrial Engineering in Mechanical speciality.
B10	Ability to work in a multidisciplinary and multilingual environment.
B12	Original exercise to realise individually and present and defend in front of a university committee, consistent in a project in the field of the specific technologies of the Industrial Engineering in the Mechanical speciality of professional nature in which the skills and competences acquired in the educations are summarised and integrated.
D4	Oral and written proficiency in a foreign language.
D12	Research skills.

## Expected results from this subject

Expected results from this subject	Training and Learning Results
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Research and structuring of information on any subject	B1 B2 B3 B4 B10 B12	D12
Preparation of a project report which collects : introduction, problematic or state of the art, aims, phases of the project, development of the project, conclusions and future lines.	B1 B2 B3 B4 B10 B12	D4 D12
Design of equipments, prototypes, programs of simulation, etc, according to specifications.	B1 B2 B3 B4 B10 B12	D12
ENAAE LEARNING OUTCOME. KNOWLEDGE AND UNDERSTANDING LO1.3.- awareness of the wider multidisciplinary context of engineering (level of development of this learning outcome - Intermediate (2)).	B10 B12	
ENAAE LEARNING OUTCOME. ENGINEERING ANALYSIS LO2.1.- The capacity to analyse products, processes and complex systems in his field of study; choose and apply of pertinent form analytical methods, of calculation and experimental already established and interpret properly resulted of said analysis (Intermediate (2))	B1 B2 B4	
ENAAE LEARNING OUTCOME. ENGINEERING ANALYSIS LO2.2.- ability to identify, formulate and solve engineering problems in their field of study; to select and apply relevant methods from established analytical, computational and experimental methods; to recognise the importance of non-technical societal, health and safety, environmental, economic and industrial constraints (Intermediate (2))	B4	
ENAAE LEARNING OUTCOME. ENGINEERING DESIGN LO3.1.- ability to develop and design complex products (devices, artefacts, etc.), processes and systems in their field of study to meet established requirements, that can include an awareness of non-technical societal, health and safety, environmental, economic and industrial considerations; to select and apply relevant design methodologies (Intermediate (2))	B4 B12	
ENAAE LEARNING OUTCOME. ENGINEERING DESIGN LO3.2.- ability to design using some awareness of the forefront of their engineering specialisation (Intermediate (2))	B1 B4 B12	
ENAAE LEARNING OUTCOME. INVESTIGATIONS LO4.1.- ability to conduct searches of literature, to consult and to critically use scientific databases and other appropriate sources of information, to carry out simulation and analysis in order to pursue detailed investigations and research of technical issues in their field of study (Intermediate (2))		D12
ENAAE LEARNING OUTCOME. INVESTIGATIONS LO4.3.- laboratory/workshop skills and ability to design and conduct experimental investigations, interpret data and draw conclusions in their field of study (Intermediate (2))	B12	D12
ENAAE LEARNING OUTCOME. ENGINEERING PRACTICE LO5.2.- practical skills for solving complex problems, realising complex engineering designs and conducting investigations in their field of study (Intermediate (2))	B4	D12
ENAAE LEARNING OUTCOME. MAKING JUDGEMENTS LO6.2.- ability to manage complex technical or professional activities or projects in their field of study, taking responsibility for decision making (Advanced (3))	B1 B2	
ENAAE LEARNING OUTCOME. COMMUNICATION AND TEAM WORKING LO7.1.- ability to communicate effectively information, ideas, problems and solutions with engineering community and society at large (Advanced (3))	B1 B4 B12	D4
ENAAE LEARNING OUTCOME. COMMUNICATION AND TEAM WORKING LO7.2.- ability to function effectively in a national and international context, as an individual and as a member of a team and to cooperate effectively with engineers and non-engineers (Intermediate (2))	B1	D4

## Contents

Topic

It tries to tackle the resolution of an original and individual exercise in which the student confronts to a real problem of the field of the engineering, uses the methodology acquired during his/her training and proposes a technically valid and viable solution.

The contents of each TFG will be defined in the individual proposals offered by the lecturers and approved in the Centre Board, according to the regulations for the realisation of the Final Year Project. Each TFG will have a different content.

### Planning

	Class hours	Hours outside the classroom	Total hours
Mentored work	20	0	20
Seminars	10	40	50
Autonomous problem solving	0	210	210
Presentation	5	15	20

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

### Methodologies

	Description
Mentored work	The student, in an individual way, guided and supervised by his/her advisor, elaborates, as a result of the developed work, a project according to the indications of the Regulations for the realisation of the Final Year Project of the CUD-ENM. In said memory, the student presents the results of his/her work in which he/she has had to project, design or develop products, processes or systems of the field, as well as propose solutions to the problem posed in the field of the engineering, taking into account in the measure of the possible social factors, of health and security, environmental, economic and industrial.
Seminars	The students that fails the Final Year Project will have to improve, in an individual way, guided and supervised by his/her advisor, the project according to the indications of committee.
Autonomous problem solving	<p>Studies/previous activities</p> <p>Before carrying out the work (also during the same), the student will have to make bibliographic researches and consult specific databases, what will allow him/her a better processing and preparation so much of documentation, as of proposals of resolution to the problem proposed in the TFG. These activities will be carried out in the classroom and/or laboratory, independently by the students.</p> <p>Personalised and individualized attention by the advisor The advisor will supervise the progress of the TFG through periodic meetings where he/she will provide feedback to the student.</p> <p>Integrated methodologies The student presents the result obtained in the preparation of a document on the thematic of the matter. It will be carried out individually, both in writing (memory) and orally (presentation).</p> <p>Presentation and public defense The students must prepare and defend the work done in front of a committee. The defense will be carried out in a face-to-face, broadcast and recorded through the conference platform.</p>

### Personalized assistance

Methodologies	Description
Mentored work	The advisor will supervise the progress of the TFG through periodic meetings where he/she will provide feedback to the student. The advisor will take time to help personally to each of the TFG students, to guide their work and guide their learning process, as well as to review and correct the report.
Seminars	The advisor will supervise the improvement of the TFG through periodic meetings where he/she will provide feedback to the student. The advisor will take time to help personally to the TFG students, to guide their work and guide their learning process, as well as to review and correct the report.
Tests	Description
Presentation	The students must prepare and defend the work done in front of a committee. It will carried out in a face-to-face, broadcast and recorded through the conference platform.

### Assessment

Description	Qualification	Training and Learning Results
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Mentored work	Report of the TFG advisor	25	B1 B2 B4 B12	D12
Presentation	Report of the committee of the TFG Evaluation of the presentation and defense	75	B1 B2 B3 B4 B10 B12	D4 D12

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### Other comments on the Evaluation

At least one committee will be appointed, consisting of three lecturers for each of the following areas: MAT (Mathematics), MEC (Mechanics), ELE (Electricity, Electrotechnics and Automatic), QUI (Chemical and Environmental Technology), TEL (Telecommunications), OI (Industrial Organization).

The evaluation will be carried out according to the regulations for the completion of the Final Year Project as well as the evaluation rubric, both approved by the Center Board, whose updated contents are shown on the CUD-ENM website, in the section dedicated to the TFG (Studies Section -> Mechanical Engineering Degree -> Student -> Final Year Project).

**ACADEMIC INTEGRITY:** Students are expected to show adequate ethical behaviour, committing to act honestly. Based on article 42.1 of the *Regulation on the evaluation, qualification and quality of teaching and the student learning process of the University of Vigo*, as well as point 6 of the fifth rule of *Order DEF/711/2022, of July 18th, which establishes the requirements for evaluation, progress, and ongoing enrolment in military educational training centres for incorporation into the ranks of the Armed Forces*, **any violation of academic integrity in the assessment process, as well as the cooperation in it will result in the assignment of a failing grade to the student (zero) for the entire course in the corresponding assessment opportunity**, regardless of the percentage of importance that the test in question had in the overall continuous assessment and independently of other disciplinary actions that maybe applied.

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### Sources of information

#### Basic Bibliography

#### Complementary Bibliography

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### Recommendations

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### Other comments

Important information: In the moment of the defense of the TFG, the student must have all the remaining subjects of the degree passed, as established in the article 7.7 of the Regulation for the realisation of the Final Year Project of the University of Vigo.