Bachelor Thesis

Academic Year: (2023 / 2024) **Review date: 21/04/2023 10:56:53**

Department assigned to the subject: Continuum Mechanics and Structural Analysis Department

Coordinating teacher: ARANDA RUIZ, JOSUE

Type: Bachelor Thesis ECTS Credits : 12.0

Year : XX Semester :

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Those required by the University in relation to the conditions to start and present the Bachelor Thesis.
http://www.uc3m.es/ss/Satellite/SecretariaVirtual/es/TextoMixta/1371210936260/
https://www.uc3m.es/secretaria-virtual/media/secretaria-virtual/doc/archivo/doc_matriz_evaluacion/tfg-matrizevaluacion_espanol_ingles_vjun21.pdf

LEARNING OUTCOMES

CB1. Students have demonstrated possession and understanding of knowledge in an area of study that builds on the foundation of general secondary education, and is usually at a level that, while relying on advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study
CB2. Students are able to apply their knowledge to their work or vocation in a professional manner and possess the competences usually demonstrated through the development and defence of arguments and problem solving within their field of study.
CB3. Students have the ability to gather and interpret relevant data (usually within their field of study) in order to make judgements which include reflection on relevant social, scientific or ethical issues.
CB4. Students should be able to communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.
CB5. Students will have developed the learning skills necessary to undertake further study with a high degree of autonomy.
CG1. Ability to solve problems with initiative, decision-making, creativity, critical reasoning and to communicate and transmit knowledge, skills and abilities in the field of Industrial Engineering.
CG3. Ability to design a system, component or process in the field of Industrial Technologies to meet the required specifications
CG4. Knowledge and ability to apply current legislation as well as the specifications, regulations and mandatory standards in the field of Industrial Engineering.
CG9. Knowledge and ability to apply computational and experimental tools for the analysis and quantification of Industrial Engineering problems.
ECRT1. Applied knowledge of thermal engineering.
ECRT2. Knowledge and skills to apply the fundamentals of elasticity and strength of materials to the behaviour of real solids.
ECRT3. Knowledge and skills in the application of materials engineering.
ECRT4. Applied knowledge of manufacturing systems and processes, metrology and quality control.
ECRT5. Knowledge and skills for the calculation, design and testing of machines.
ECRT6. Ability for the analysis, design, simulation and optimisation of processes and products.
ECRT7. Applied knowledge of electronic instrumentation.
ECRT8. Knowledge and ability for systems modelling and simulation.
ECRT9. Knowledge of automatic regulation and control techniques and their application to industrial automation.
ECRT10. Knowing the basic aspects of electrical machines.
ECRT11. Knowing and using the main electronic components.
ECRT12. Knowledge and skills adequate to organise and manage companies.
ECRT13. Knowledge of management information systems, industrial organisation, production and logistics systems and quality management systems.
ECRTFG1. Original exercise to be carried out individually and presented and defended before a university examining board, consisting of a project in the field of specific Industrial Engineering technologies of a professional nature in which the skills acquired in the course are synthesised and integrated.

CT1. Ability to communicate knowledge orally as well as in writing to a specialized and non-specialized public
CT3. Ability to organize and plan work, making appropriate decisions based on available information, gathering and interpreting relevant data to make sound judgement within the study area
CT4. Motivation and ability to commit to lifelong autonomous learning to enable graduates to adapt to any new situation
RA1. Knowledge and understanding: Have basic knowledge and understanding of science, mathematics and engineering within the industrial field, as well as knowledge and understanding of Mechanics, Solid and Structural Mechanics, Thermal Engineering, Fluid Mechanics, Production Systems, Electronics and Automation, Industrial Organisation and Electrical Engineering.
RA2. Engineering Analysis: To be able to identify engineering problems within the industrial field, recognise specifications, establish different resolution methods and select the most appropriate one for their solution
RA3. Engineering Design: To be able to design industrial products that comply with the required specifications, collaborating with professionals in related technologies within multidisciplinary teams.
RA4. Research and Innovation: To be able to use appropriate methods to carry out research and make innovative contributions in the field of Industrial Engineering.
RA5. Engineering Applications: To be able to apply their knowledge and understanding to solve problems and design devices or processes in the field of industrial engineering in accordance with criteria of cost, quality, safety, efficiency and respect for the environment.
RA6. Transversal Skills: To have the necessary skills for the practice of engineering in today's society.

OBJECTIVES

By the end of this subject, students will be able to have:

1. a systematic understanding of the key aspects and concepts of their branch of engineering;
2. the ability to apply their knowledge and understanding to identify, formulate and solve engineering problems using established methods;
3. an understanding of design methodologies, and an ability to use them.
4. the ability to conduct searches of literature, and to use databases and other sources of information;
5. the ability to select and use appropriate equipment, tools and methods;
6. an understanding of applicable techniques and methods, and of their limitations;
7. an awareness of the non-technical implications of engineering practice.
8. use diverse methods to communicate effectively with the engineering community and with society at large;
9. demonstrate awareness of the health, safety and legal issues and responsibilities of engineering practice, the impact of engineering solutions in a societal and environmental context, and commit to professional ethics, responsibilities and norms of engineering practice;
10. recognise the need for, and have the ability to engage in independent, life-long learning.

DESCRIPTION OF CONTENTS: PROGRAMME

Original exercise to be presented and defended in front of an academic committee. The work will be an integral project in the field of the Bachelor degree that will be professionally oriented where the different competences acquired during the degree courses should be demonstrated or an innovative work developing an idea, prototype or a model of systems or equipments within the field developed during the Bachelor degree.

LEARNING ACTIVITIES AND METHODOLOGY

Students apply competences and knowledge acquired during their studies in a Project from an area of the degree program, concluding with a written report. The foregoing reflects the corresponding project`s analysis, resolution of issues and conclusions. The Project represents 299 hours/0% on-site
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The student will defends their Project before in front of a tribunal, clearly presenting the corresponding points with resolution of any problems arising in the Project. 1 hour/100% on-site.

The tutor for the Bachelor´s Degree Final Project helps and guides the student in all aspects necessary to carry out a solid final Project, and to write a corresponding clear and professional report. The tutoring sessions can be on-site or on line.

ASSESSMENT SYSTEM

This is done through an oral Bachelor's Degree Final Project defense before a tribunal selected to assess the student's work, the learning outcomes, and the its presentation of the same, according to an evaluation model.
Prior to the defense, the student must have duly presented their written report to the tribunal members.
The students of the English track must write and defend e their bachelor thesis completely in English.

The student will make the defense and presentation of their project before a court clearly arguing the issues that apply and solving the problems that may have arisen in the project.

The work itself will be taken into account (mainly assessed by the tutor by issuing a "tutor report" that will be part of the final evaluation of the TFG), as well as the preparation of the report, and the public presentation and defense before A labor court.

In addition, the originality of the Bachelor Thesis is evaluated. The University uses the Turnitin Feedback Studio program within the Aula Global for the delivery of student work. This program compares the originality of the work delivered by each student with millions of electronic resources and detects those parts of the text that are copied and pasted.

Represents 100% of the evaluation.