SUBJECT TEACHING GUIDE

G390 - Fundamentals of Computation

Degree in Mining Resources Engineering
First Degree in Mining Resources Engineering

Academic year 2023-2024

1. IDENTIFYING DATA				
Degree	Degree in Mining Resources Engineering First Degree in Mining Resources Engineering		Type and Year	Core. Year 1 Core. Year 1
Faculty	School of Mines and Energy Engineering			
Discipline	Subject Area: Computer Science Basic Training Module			
Course unit title and code	G390 - Fundamentals of Computation			
Number of ECTS credits allocated	6	Term	Semester based (2)	
Web				
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. MATEMATICA APLICADA Y CIENCIAS DE LA COMPUTACION
Name of lecturer	SIXTO HERRERA GARCIA
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Other lecturers	

3.1 LEARNING OUTCOMES

- To obtain a basic formation in informatics and computation, identifying the computer as a working tool to solve specific engineering problems by mean of programing languages and a structured methodology.

4. OBJECTIVES

To acquire a basic formation in informatics and computation, which let the student to use the computer as a working tool to solve specific engineering problems. To this aim, it is needed to study an structured, extended and general high level programing language, and the criteria used by the programing engineering.

6. COURSE ORGANIZATION

	CONTENTS
1	Theme I: Operative Systems and Structure of the Computer.
2	Theme II: Programing Programing introduction and methodology. Software development. Programing languages. Algorithm development. Introduction to a specific programing language. Programing structure. Data types and structures. Control structures. Operators and expressions. Input/output data.
3	Theme III: Data Bases Basic definitions of data bases. Entity - relation model. Table design, consulting and reports. Reference integrity. Table normalization. SQL introduction.
4	Theme IV: Computational Tools for Engineering. Introduction to computing tools. Modeling and simulation of physics systems. Graphical representation and data organization in engineering.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Final exam.	Laboratory evaluation	Yes	Yes	50,00
Continuous Assessment: Periodic tests on course topics	Laboratory evaluation	No	Yes	35,00
Continuous Assessment: A test on course topics to be solved in groups	Laboratory evaluation	No	Yes	15,00
TOTAL				100,00

Observations

Final note is obtained by averaging the results of the test done during the course. Minimum notes will be applied to both the final exam and the continuous assessment. According to the Art. 35, if the minimum calification is not reached for any of the parts of the evaluation, the global calification will be the minimum value between 4,9 and the weighted average of all the califications,
All the proofs will be done or delivered using the virtual platform of the course. Thus it is the student's responsibility to ensure that they have access to this platform before the beginning of the tests.
Recovery exam is a unique proof of, at least, two hours done in the informatics room and covering all the themes included in the subject. In this exam the 100% of the final note can be recover and none qualification, total or partial, from the course is maintained.
The recuperation will be a unique proof done in the informatics room on all the themes of the course and a minimum duration of 2 hours.

Observations for part-time students

Students with partial dedication will have a unique evaluation, corresponding to the 100% of the final calification. This examen, which corresponds to the final examen of the full dedication students, will be done with the rest of students and all the observations for the examen final will be applied.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

- Introducción a la informática. George Beekman, Pearson Educación, 2005
- A. Prieto, B. Prieto: "Conceptos de Informática". MacGraw Hill.
- MATLAB and Simulink Student Version, Mathworks, 2009
- J. Campbell, P. Gries, J. Montojo y G. Wilson: Practical Programing. Bookshelf.