SUBJECT TEACHING GUIDE

G604 - Nuclear Engineering

Degree in Energy Resources Engineering

Academic year 2019-2020

1. IDENTIFYING DATA					
Degree	Degree in Energy Resources Engineering			Type and Year	Compulsory. Year 4
Faculty					
Discipline	Subject Area: Advanced Electrical Technology Module: Training in Energy Resources, Fuels and Explosives				
Course unit title and code	G604 - Nuclear Engineering				
Number of ECTS credits allocated	6	Term		Semester based (1)	
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. INGENIERIA ELECTRICA Y ENERGETICA
Name of lecturer	ALFREDO ORTIZ FERNANDEZ
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Office	E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 2. DESPACHO PROFESOR (S2029)
Other lecturers	MANUEL JOSE IBARRA ARENADO

3.1 LEARNING OUTCOMES
- Basic knowledge of nuclear physics principles
- Knowledge about different nuclear generation technologies.
- Knowledge about nuclear power plant operation, as well as the nuclear safety and radiation protection measures that are taken.

4. OBJECTIVES
- To provide students a basic/medium knowledge about a current energy source, the nuclear power. - To train students for professional practice in a sector with demand of technicians graduated or postgraduated .

6. COURSE ORGANIZATION

	CONTENTS
1	SECTION I. Nuclear physics
2	SECTION II. Nuclear fuel
3	SECTION III. Reactor Theory
4	SECTION IV. Nuclear safety

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Simulation practices	Activity evaluation with Virtual Media	No	Yes	30,00
Answering theoretical questions	Activity evaluation with Virtual Media	No	No	5,00
Final exam	Written exam	Yes	Yes	60,00
Complementary activities	Others	No	No	5,00
TOTAL				100,00

Observations

The student will be assessed as follows:
• Simulation practices
The value of these practices is 30% of the total grade.
Several simulations have to be carried out by the pupils by using a simulation tool of a BWR reactor.
• Answering theoretical questions
The value of these questions is 5% of the total grade.
Pupils have to answer several theoretical questions in order to evaluate their progress in the knowledge of the subject.
• Final exam
The value of this test is 60% of the total grade.
At the final of the semester, the student knowledge about the subject will be checked with this test.
• Complementary activities
The value of these activities is 15% of the total grade.
These activities will include visits to nuclear power plants or to industries related with this sector, the attendance to seminars taught by nuclear experts, etc.

Observations for part-time students

Part-time students will be assessed as follows:
-Attendance to the simulation practices, having to satisfactorily overcome them according the sam criteria established for full-time students. Percentage value of this test over the final grade: 40%.
-Performing the examination in official date. Percentage value of this test over the final grade: 60%.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

- Nuclear physics and reactor theory. DOE fundamentals hanbook. Vol. 1 y 2. U.S. Department of Energy. 2009
- Introduction to Nuclear Engineering. John R. Lamarsh, Anthony J. Baratta. Editorial: Prentice Hall, 3ª Ed. 2001