

SUBJECT TEACHING GUIDE

G754 - Thermal Machines and Motors

Degree in Mechanical Engineering

Academic year 2022-2023

| 1. IDENTIFYING DATA | | | | | |
|----------------------------------|--|------------------|--------------------|------------------|--------------------|
| Degree | Degree in Mechanical Engineering | | | Type and Year | Compulsory. Year 3 |
| Faculty | School of Industrial Engineering and Telecommunications | | | | |
| Discipline | Subject Area: Machines and Thermal Motors Module: Further Mechanical Technology | | | | |
| Course unit title and code | G754 - Thermal Machines and Motors | | | | |
| Number of ECTS credits allocated | 6 | Term | Semester based (2) | | |
| Web | | | | | |
| Language of instruction | Spanish | English Friendly | No | Mode of delivery | Face-to-face |

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|------------------|---|--|--|--|--|
| Department | DPTO. INGENIERIA ELECTRICA Y ENERGETICA | | | | |
| Name of lecturer | SEVERIANO FIDENCIO PEREZ REMESAL | | | | |
| E-mail | severiano.perez@unican.es | | | | |
| Office | E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 3. DESPACHO PROFESOR (S3026) | | | | |
| Other lecturers | MANUEL ODRIEZOLA RODRIGUEZ JORGE TOMAS CUELI LOPEZ | | | | |

3.1 LEARNING OUTCOMES

- Knowledge of machines and real heat engines. Foundations and principles of operation of reciprocating or rotary machines, with their actual development cycles, behavior, and laboratory tests (alternative M.).

4. OBJECTIVES

To provide students with basic knowledge about Heat Engines must possess a graduate in Mechanical Engineering.

6. COURSE ORGANIZATION

CONTENTS

| | |
|---|---|
| 1 | Alternative Heat Engines (Key characteristics and parameters. Cycles engines work. Cycle air. Renewal load 4 T and 2T engines. Fuels. Requirements MEP mixing engines. Characteristic curves. Test engines) |
| 2 | Steam turbines (Key features and components. Turbines Action. Reaction turbines.) |
| 3 | Gas turbines (Key features and components. Ideal and real cycles. Combined Cycle) |
| | Gas turbines (Key features and components. Ideal and real cycles. Combined Cycle) |
| | Gas turbines (Key features and components. Ideal and real cycles. Combined Cycle) |
| 4 | Other Heat Engines (rotary motors. Reactors) |

7. ASSESSMENT METHODS AND CRITERIA

| Description | Type | Final Eval. | Reassessn | % |
|--|--------------|-------------|-----------|---------------|
| Evaluation method Description examination 1 | Written exam | No | Yes | 45,00 |
| Evaluation method Description examination 2 | Written exam | Yes | Yes | 45,00 |
| Laboratory practice evaluation | Others | No | No | 10,00 |
| TOTAL | | | | 100,00 |
| Observations | | | | |
| <p>It is expected that in the event that the health and / or educational authorities do not allow the theoretical-practical examination of the subject to be carried out in person, this will be done through the Moodle platform. To do this, students must have a computer and internet connection on the day of the exam. Not parties to the September session are saved.</p> <p>In none of the tests using programmable calculators or electronic devices that establish communication is allowed.</p> | | | | |
| Observations for part-time students | | | | |
| Part-time students may pass the subject in the ordinary and extraordinary exams. | | | | |

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

- "Turbomáquinas Térmicas". C. Mataix, Dossat, 1990.
- "Termodinámica Técnica y Máquinas Térmicas". C. Mataix
- "Termodinámica Lógica y Motores Térmicos". J. Agüera
- "Motores de combustión interna alternativos". Muñoz-Payri. U.P. Valencia, 2000