ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

53002030 - Fuel Transport And Logistics

DEGREE PROGRAMME

05BK - Máster Universitario En Ingeniería De La Energía

ACADEMIC YEAR & SEMESTER

2025/26 - Semester 2

Index

Learning guide

1. Description

1.1. Subject details

Name of the subject	53002030 - Fuel Transport And Logistics
No of credits	3 ECTS
Type	Optional/elective
Academic year ot the programme	First year
Semester of tuition	Semester 2
Tuition period	February-June
Tuition languages	English
Degree programme	05BK - Máster Universitario en Ingeniería de la Energía
Centre	05 - E.T.S. De Ingenieros Industriales
Academic year	2025-26

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Enrique Querol Aragon (Subject coordinator)		enrique.querol@upm.es	M - 09:00 - 12:00 Tu - 09:00 - 12:00 Tutoring is preferred via email. Send an email for in-office or Teams tutoring. If you don't receive a response within 2 days, please write again.

			Only emails sent from the institutional email account (@alumnos.upm.es) are answered.

* The tutoring schedule is indicative and subject to possible changes. Please check tutoring times with the faculty member in charge.

3. Skills and learning outcomes *

3.1. Skills to be learned

CB10 - Que los estudiantes posean las habilidades de aprendizaje que les permitan continuar estudiando de un modo que habrá de ser en gran medida autodirigido o autónomo.

CB9 - Que los estudiantes sepan comunicar sus conclusiones y los conocimientos y razones últimas que las sustentan a públicos especializados y no especializados de un modo claro y sin ambigüedades

CE13 - Entender la evolución y el funcionamiento de los mercados de petróleo, gas y electricidad. Conocer los principales tipos de diseño de los mercados de electricidad y gas que existen en la experiencia internacional y los criterios bajo los que se han diseñado, y ser capaz de analizar cuál es la regulación más adecuada para cada situación.

CE5 - Comprender y conocer las herramientas regulatorias y normativas del sector energético.

CE7 - Conocer y aplicar las alternativas para la operación segura de instalaciones energéticas, tanto renovables, como no renovables, y de transformación de vectores energéticos, como refinerías o biorrefinerías

CE9 - Disponer de criterios y herramientas para entender la composición y características de los diferentes tipos de combustibles convencionales y no convencionales.

CG1 - Aplicar conocimientos de ciencias y tecnologías avanzadas a la práctica profesional o investigadora de la Ingeniería Energética.

CG2 - Poseer capacidad para diseñar, desarrollar, implementar, gestionar y mejorar productos, sistemas y procesos en los distintos ámbitos energéticos, usando técnicas analíticas, computacionales o experimentales avanzadas.

CG8 - Incorporar nuevas tecnologías y herramientas avanzadas de la Ingeniería Energética en sus actividades profesionales o investigadoras.

CT1 - Aplica. Habilidad para aplicar conocimientos científicos, matemáticos y tecnológicos en sistemas relacionados con la práctica de la ingeniería.

CT10 - Conoce. Conocimiento de los temas contemporáneos.

CT11 - Usa herramientas. Habilidad para usar las técnicas, destrezas y herramientas ingenieriles modernas necesarias para la práctica de la ingeniería.

CT3 - Diseña. Habilidad para diseñar un sistema, componente o proceso que alcance los requisitos deseados teniendo en cuenta restricciones realistas tales como las económicas, medioambientales, sociales, políticas, éticas, de salud y seguridad, de fabricación y de sostenibilidad.

CT4 - Trabaja en equipo. Habilidad para trabajar en equipos multidisciplinares.

CT5 - Resuelve. Habilidad para identificar, formular y resolver problemas de ingeniería.

CT6 - Es responsable. Comprensión de la responsabilidad ética y profesional.

CT7 - Comunica. Habilidad para comunicar eficazmente.

3.2. Learning outcomes

RA13 - Comprender un diagrama de flujo de un proceso

RA14 - Ser capaz de seleccionar y dimensionar equipos para el transporte y almacenamiento de combustibles

* The Learning Guides should reflect the Skills and Learning Outcomes in the same way as indicated in the Degree Verification Memory. For this reason, they have not been translated into English and appear in Spanish.

4. Brief description of the subject and syllabus

4.1. Brief description of the subject

This subject is organised in a practical manner, and all the deliveries (except the final exam) are scheduled in Moodle with enough time between the session and the target date.

The subject can be passed even if some day the student can't assist due to work, job interviews, or other activities, because everything is organized in Moodle.

The structure of the sessions in this subject consists of Seminars and assignments:

- Seminars: about specific subjects used in the industry: introduction to simulators, specific processes, ...
- Assignments. A specific installation is analysed each year, that will have to be analysed by the student in 4 steps: Report (T1), process simulation (T2), calculations (T3), oral exhibition (T4).
- There is also an optional assignment for those students who want to improve their grades.

Assistance and work time in the classroom are advisable, to check out assignment topics and consolidate the team work with colleagues and the lecturer.

The assistance with a laptop is advisable, to make better use of the work sessions.

It can be find in moodle:

- the planning, so the student can prepare the session with the information available
- all the tasks and questionaries for evaluation
- a document with the correction criteria for each work task

- all the marks of the different evaluation items can be reviewed after the deadlines.

The Student should check out the deadlines, and adjust it's deliveries to the format and size indicated in each moodle task. Please verify that you have uploaded your answer to the correct task, that the files are correct (latest version, format, file type, content), and that the files can be opened without errors.

4.2. Syllabus

1. Energy Markets

2. Logistics in energy companies

3. Risk management in the fuel logistic chain

4. Fuel Transport

5. Fuel storage

5. Schedule

5.1. Subject schedule*

Week	Type 1 activities	Type 2 activities	Distant / On-line	Assessment activities
1	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			**MoodleQuestionnaires (After the seminar sessions)** Online test Progressive assessment Not Presential Duration: 03:00
2	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			
3	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			**T1. Report** Group work Progressive assessment Not Presential Duration: 06:00
4	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			
5	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			
6	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			
7	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			**T2. Simulation** Group work Progressive assessment Not Presential Duration: 10:00
8	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			
9	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			
10	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			

11	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			**T3. Calculations.** Group work Progressive assessment Not Presential Duration: 10:00
12	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			**T4. Presentation.** Individual presentation Progressive assessment Not Presential Duration: 01:00 **OptionalAssignment** Individual work Progressive assessment Not Presential Duration: 04:00
13	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			
14	**Syllabus topic (according to the planning available in Moodle).** Duration: 02:00 Lecture			
15				
16				
17				**Final Exam** Written test Global examination Not Presential Duration: 02:00

Depending on the programme study plan, total values will be calculated according to the ECTS credit unit as 26/27 hours of student face-to-face contact and independent study time.

6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
1	MoodleQuestionnaires (After the seminar sessions)	Online test	No Presential	03:00	10%	0 / 10	CG1 CG2 CT1 CT10 CE5 CE9 CE13
3	T1. Report	Group work	No Presential	06:00	20%	0 / 10	CB9 CB10 CG1 CT4 CT7 CT10 CE7 CE9
7	T2. Simulation	Group work	No Presential	10:00	30%	0 / 10	CB10 CG1 CG2 CG8 CT1 CT3 CT5 CT10 CT11 CE9
11	T3. Calculations.	Group work	No Presential	10:00	30%	0 / 10	CB9 CB10 CG1 CG2 CT1 CT3 CT5 CT10 CT11 CE5 CE9

12	T4. Presentation.	Individual presentation	No Presential	01:00	10%	0 / 10	CB9 CT5 CT7 CT10 CE5
12	OptionalAssignment	Individual work	No Presential	04:00	10%	0 / 10	CB9 CB10 CG1 CG2 CT1 CT3 CT4 CT5 CT6 CT7 CT10 CT11 CE5 CE7 CE9 CE13

6.1.2. Global examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
17	Final Exam	Written test	No Presential	02:00	100%	5 / 10	CB9 CB10 CG1 CG2 CG8 CT1 CT3 CT5 CT7 CT10 CT11 CE5 CE7 CE9 CE13

6.1.3. Referred (re-sit) examination

Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Final exam	Written test	Face-to-face	02:00	100%	5 / 10	CB9 CG1 CG2 CG8 CT1 CT3 CT5 CT6 CT7 CT10 CT11 CE5 CE7 CE9 CE13

6.2. Assessment criteria

Ongoing Evaluation:

This subject is configured for an **ongoing evaluation**, which is used to prepare the subject in a practical manner.

ProgressiveEvaluationGrade: =MIN(10; 0,1 · MoodleQuestionnaires + 0,2 · T1 + 0,3 · T2 + 0,3 · T3 + 0,1 · T4 + 0,1 ·OptionalAssignment).

where:

- MoodleQuestionnaires. To evaluate concepts of Seminars: Introduction to Aspen Plus, Introduction to Aspen Hysys,... Evaluated with a brief moodle Questionnaire with a one-week deadline.
- **T1,T2,T3,T4**. The assignments are oriented towards the analysis of an existing installation (or project proposal), with several submissions. The lecturer will show in class what needs to be done for each submission, and the student will have to do the appropriate modifications of what has been seen to adapt it to the installation analysed. The evaluation will consist of group deliveries and also individual evaluation, all of them scheduled in Moodle:
    - T1 = 0,2 · T1g + 0,8 · T1i. **Report** of the installation. The evaluation has a group task (T1g: upload the report in DOCX and PDF file formats), and an individual questionnaire in moodle (T1i).
    - T2 = 0,2 · T2g + 0,8 · T2i. **Simulation** of a process. The evaluation consists of a group task (T2g: upload the simulation in a single file format, a PDF with the flowsheet without errors (with Leyend: p, T, m, x) and a worksheet (in XLSX format) with the calculations indicated in the task statement, based on the simulation results), and an individual questionnaire (T2i about the process and the software).
    - T3 = 0,2 · T3g + 0,8 · T3i. Basic engineering **calculations**. The evaluation have a group task (T3g: upload the workbook in XLSX format), and an individual questionnaire (T3i about the calculations and the software).
    - T4 = T4i. Oral **presentation** (powerpoint file). It is evaluated with an individual delivery (T4i: PPTX file with an automatic oral presentation).

- OptionalAssignment . The optional assignment, will be a individual task about a logistic or distribution topic suggested by the student and approved by the lecturer, about: an existing installation, a project of a installation, a report, or an article from www.sicendirect.com . The student will also suggest which type of task (in a T1, T2, T3, or T4 manner) is intended. The student will communicate his proposal to the lecturer within the deadline. Once the proposal is accepted, the student will be able to view the assignment in Moodle for submission. A list is displayed in Moodle to avoid overlaps between students. This additional task give students the possibility to increase their grades in case one evaluation went wrong, or wants to make sure it is above the 9/10 grade needed to obtain the best grade among all the students.
- **Minimum grade**. No task or questionnaire in Moodle has a minimum grade, but the following must be accomplished (T1i + T2i + T3i + T4i) /4 >= 4 ; otherwise the maximum ProgressiveEvaluationGrade will be 3 (Fail).

It is available in moodle the statement and a correction checklist (for each of the submissions) so the students know in advance what they need to do and how it is going to be graded.

The minimum grade to pass the progressive evaluation is **5/10**.

The first day of class includes a presentation of the subject and the assessment method. Any doubts after reading this document and after that class, must be presented to the lecturer as soon as possible for clarification purposes.

Evaluation with Final Exam and extraordinary call:

An in-person exam of approximately 1h 30 min based on the ongoing evaluation and content of the course.

Exam Grade = 0,3 · Questionnaire + 0,2 · Briefs + 0,5·Problems

where:

- **Questionnaire**: Questions with 4 possible anwers, only one to be selected. Correct answers +1; Incorrect and blank answers -1/2 .
- **Briefs**: Brief questions for reasoning
- **Problems**: calculations based on the class activities or tasks.

The exam requires that students are familliar with the installation analyzed in the progressive evaluation activities, and know the basic data of the installation used.

It may be necessary to use the computer and the software used in classes.

Students are not exempt from the skills and knowledge given during in-person sessions

No communication is allowed with other persons during the examen in any way or format.

During the exam the student may use any material available in moodle by the lecturer: notes, solved exercises, as well as specific software.

7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
Notes, presentations and solved exercises	Bibliography	www.ptdu.org.es
Web platform for the Subject	Web resource	https://moodle.upm.es/titulaciones/oficiales/course/view.php?id=10804
Articles	Web resource	www.sciencedirect.com
Standards	Bibliography	Disponible en biblioteca escuela
escritorio.upm.es	Equipment	Remote desktop with the software used in the course.

8. Other information

8.1. Other information about the subject

Classes are taught at the **School of Mining and Energy Engineers** (https://maps.app.goo.gl/8RuqcEDSecpBXCmx5), where the office of the lecturer is located.

Check the 1st Forum post in Moodle, for details about the class location (within the School).

Tutoring

Email is the preferred tutoring method. This helps to save the history of things talked and agreed.

For in-person tutoring (lecturer office or video conference), write an email to the lecturer with at least on day in advance.

Only emails sent from the institutional email account (@alumnos.upm.es) are answered.

Translation of Competences and Learning results:

RA13. Understand a process flowsheet.

RA14. Be able to select and dimension equipment units for fuel transportation and storage.

The subject is related to the objectives:

- Affordable and Clean Energy;
- Industry, Innovation, and Infrastructure