

SUBJECT TEACHING GUIDE

G1144 - Machinery, Equipment and Plant

Degree in Civil Engineering

Academic year 2021-2022

1. IDENTIFYING DATA					
Degree	Degree in Civil Engineering			Type and Year	Optional. Year 3
Faculty	School of civil Engineering				
Discipline	Subject Area: Construction Engineering Optional Subjects: Other Specialities 2 Optional Subjects: Other Specialities 3				
Course unit title and code	G1144 - Machinery, Equipment and Plant				
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. TRANSPORTES Y TECNOLOGIA DE PROYECTOS Y PROCESOS
Name of lecturer	PABLO PASCUAL MUÑOZ
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Other lecturers	FRANCISCO BALLESTER MUÑOZ LUIS MANUEL ACEBES ESCUDERO DANIEL CASTRO FRESNO

3.1 LEARNING OUTCOMES

- Deep knowledge about the construction machinery used for the earthmoving.
- Integration of technical and economic factors in the selection of construction machinery.
- Obtaining the necessary knowledge for the management of asphalt and concrete plants in a construction site.
- Acquisition of the technical training for the supervision of the concrete placement on site.
- Getting knowledge about the criteria for the selection of lifting equipment.
- Basic knowledge about main types of precast elements, including manufacturing, transport and installation on site.
- Getting knowledge about the criteria for the selection of the equipment in aggregates treatment plants.

4. OBJECTIVES

- Provide the student with the necessary elements to identify, select and contract the machinery to be used in the development of the earthmoving.
- Show the student the necessary tools to evaluate and optimize productivity and costs related to the machinery employed.
- Training the students to identify, contract and manage the concrete, asphalt and aggregates plants which are needed on site.

6. COURSE ORGANIZATION

CONTENTS	
1	T1. Earthmoving fundamentals. Production and Costs. T2. Machinery for grubbing, pushing and ripping of earth. T3. Machinery for excavation and loading. T4. Machinery for hauling of soils. T5. Machinery for levelling and compaction of soils. T6. Automation in construction. P1. Exercises of Mass Diagrams. P2. Exercises of fleet production and costs.
2	T7. Aggregate production plants. T8. Lifting equipment. Placement of precast concrete. T9. Manufacturing and transport of concrete. Formwork and placement. T10. Manufacturing, laying and compaction of asphalt pavements. T11. Equipment for the construction of structures. P3. Exercises regarding equipment and plants.
3	Earthmoving machinery management software. Case studies with MSExcel.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Exam - Theory (1st Part)	Written exam	Yes	Yes	30,00
Exam - Problems	Written exam	Yes	Yes	30,00
Computer Lab practices	Laboratory evaluation	No	No	10,00
Exam - Theory (2nd Part)	Written exam	Yes	Yes	30,00
TOTAL				100,00

Observations

Students will only have to retake those parts of the subject that have failed (grade lower than 5), whereas they will not be allowed to retake a part that has been already passed (grade higher than 5).

Reaching a grade higher than 3 in any part of the subject will enable them to keep that grade throughout the present academic year.

Once the call is closed, if the weighted average grade of the student is equal or higher than 5 but the minimum grade (3) has not been reached in some of the parts of the subject, the final grade will be SUSPENSO 4.

In case of Early Examination, students will be evaluated through an exam covering 100% of the subject.

Observations for part-time students

In order to be able to take the final theory exam, students will be required to have a grade in the laboratory practices.

Each student may choose to apply for inclusion in the scheme of dedication desired to attend their studies among those allowed in their degree, and can change it at the beginning of each academic year. To do this you must have the approval of the center in which you are enrolled. When a student requests their inclusion in part-time dedication schemes, he / she must motivate the causes that lead him / her to make such a request. Those students who have opted for part-time dedication schemes will be able to avail themselves, in those qualifications that offer it, to specific groups with lower presential levels than full-time students. In qualifications in which there is no specific group for blended learning, part-time students may request a change in the evaluation modality.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

- Apuntes de la asignatura.
- Máquinas de movimiento de tierras: criterios de selección. Francisco Ballester y Jorge A. Capote. 1992.
- Movimiento de tierras : utilización de la maquinaria, producciones y casos prácticos, compactación de materiales, utilización de compactadores. Juan Tikin. Madrid. ETS Ingenieros de Caminos, Canales y Puertos, Servicio de Publicaciones, 1997.
- Manual de movimiento de tierras a cielo abierto. Julián Rojo López. Madrid. Fueyo, 2010.
- Manual de maquinaria de construcción. Manuel Díaz del Río. McGraw-Hill / Interamericana de España, S.A. 2001.