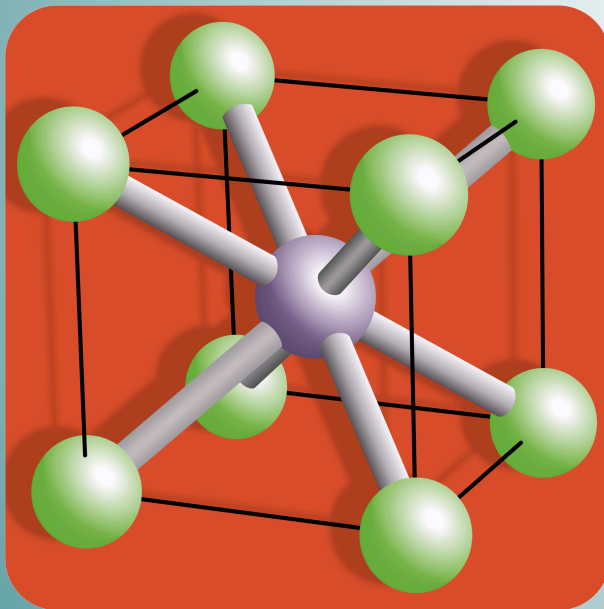


Materials

Topic 0. Presentation



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Land and Materials

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FIRST DAY PRESENTATION

MATERIALS

(YEAR -)

COURSE SCHEDULE

6 ECTS credits (150 hours)

- **Face to face course: 67 h.**
 - TE (Theory): 36 h.
 - PA (Practical): 20 h.
 - PL (Laboratory): 4 h.
 - TU (Tutoring): 2 h.
 - EV (Assesment): 5 h.
- **Distance learning training: 83 h.**
 - TG (Group): 20 h.
 - TA (Autonomous): 63 h.

TIME TABLE:

Day - Day:

From - to (TE + PA + PL)

WHO WE ARE



Dpt. Ciencia e Ing. Terreno y los Materiales
(ETSI CCP)



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DO YOU NEED MORE INFORMATION ABOUT US?:

<https://ladicim.es/>

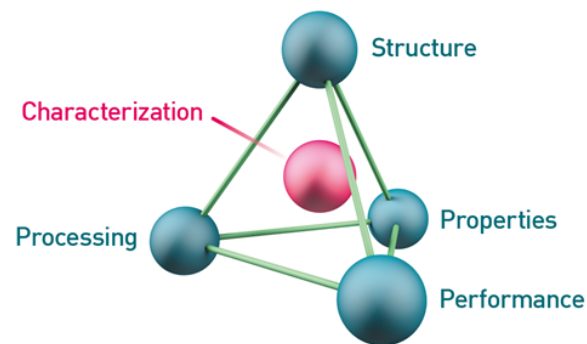
GENERAL OBJECTIVES

1. To correlate processing techniques, structure, and properties with the behavior of the materials.

2. To acquire basic knowledge of the different families of materials commonly used in industrial applications.

3. To define, analyze, evaluate and compare the physical-mechanical properties of industrial and construction materials.

4. To know the basic techniques of production, conformation and transformation of industrial materials.



COURSE ORGANIZATION

6. COURSE ORGANIZATION	
CONTENTS	
1	<p>Block I.- FUNDAMENTALS OF MATERIALS SCIENCE</p> <p>Lesson 1.- Introduction to Materials. Description, composition, properties and applications</p> <p>Lesson 2.- Hooke's Law. Analysis of physical properties</p> <p>Lesson 3.- Crystalline and Amorphous Structure. Structure and behavior</p> <p>Lesson 4.- Tensile Strength and Hardness</p> <p>Lesson 5.- Fast Fracture and Toughness</p> <p>Lesson 6.- Fatigue Failure</p> <p>Lesson 7.- Creep</p> <p>Lesson 8.- Oxidation and Corrosion</p>
2	<p>Block II.- FUNDAMENTALS OF MATERIALS TECHNOLOGY</p> <p>Lesson 9.- Phase diagrams</p> <p>Lesson 10.- Iron Alloys</p> <p>Lesson 11.- Other Metal Alloys</p> <p>Lesson 12.- Treatments</p> <p>Lesson 13.- Production and Conformation of metals. Processes for the production of pieces.</p> <p>Lesson 14.- Ceramics and Glasses</p> <p>Lesson 15.- Polymers</p> <p>Lesson 16.- Composite Materials</p> <p>Lesson 17.- Mortars and Concrete</p> <p>Lesson 18.- Materials Selection</p>

BIBLIOGRAPHY

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- ASHBY and JONES. Engineering Materials 1 (Fourth Edition). An Introduction to Properties, Applications and Design. Elsevier, 2012.
- ASHBY and JONES. Engineering Materials 2 (Third Edition). An Introduction to Microstructures, Processing and Design. Elsevier, 2006.
- ASKELAND: "The science and engineering of materials". Sixth Edition. Cengage Learning, 2010.
- FLINN and TROJAN: "Engineering Materials and Their Applications". John Wiley and Sons (WIE). Fourth Edition, 1995.
- CALLISTER: "Materials Science and Engineering. An Introduction". John Wiley & Sons, 2007.
- ASHBY M, F. "Materials Selection in Mechanical Desing", Ed Pergamon Press, Oxford
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- SETIÉN y VARONA: "Apuntes de Fundamentos de Ciencia y Tecnología de Materiales". Servicio Publicaciones". ETS Ing. Caminos. 2003.

Complementary Material (Virtual Classroom):

Slides (TE).

Problems Statements (PA).

Laboratory Practices Guidelines (PL).

LABORATORY PRACTICES (PL)

- **4 Practical Sessions (compulsory attendance):**

1. Materials Identification.
2. Tensile test, Hardness and impact.
3. Metalography.
4. Mortar and Concrete Compression.

Attendance at PL is compulsory for 1st enrollment students.

Rest of students wishing to attend must inform the teacher responsible for PL beforehand.

At the end of the 4th session a mandatory PL exam will be taken for all students enrolled.

PL grade is part of the continuous assesment.

ASSESSMENT. Methods and Criteria

BLOCK I assesment		Examen escrito	No	Sí	40,00
Calif. mínima	5,00				
Duración	3 horas				
Fecha realización	03/12/2018		BLOCK 1		
Condiciones recuperación	September Exam				
Observaciones	Evaluation of theoretical contents and Exercises. The minimum grade to compensate theory or exercises will be 2,50 in either of the two parts. The minimum grade to compensate Block I with Block II will be 3,50				
BLOCK II assesment		Examen escrito	No	Sí	40,00
Calif. mínima					
Duración	3 horas				
Fecha realización	The one that indicates the exam calendar		BLOCK 2		
Condiciones recuperación	September Exam				
Observaciones	Evaluation of theoretical contents and Exercises. The minimum grade to compensate theory or exercises will be 2,50 in either of the two parts. The minimum grade to compensate Block I with Block II will be 3,50.				
Continuous Assesment		Otros	No	No	20,00
Calif. mínima					
Duración					
Fecha realización	For the first quarter		CONTINUOUS ASSESSMENT		
Condiciones recuperación					
Observaciones	Laboratory practices, periodic tests, delivery of solved problems, delivery and oral presentation (not read) of works and complementary activities				
TOTAL					100,00
Observaciones					

The final grade of the subject will be obtained by means of the following formula:

$0,4 \cdot (\text{grade Block I}) + 0,4 \cdot (\text{grade Block II}) + \text{Continuous Evaluation grade (maximum 2 points)}$

The grade of the Continuous Evaluation will be saved for the September Call for all those students who do not pass the Subject in the February Call. Neither of the two blocks will be saved for later courses

Observaciones para alumnos a tiempo parcial

In general, the evaluation of part-time students will be based on what is established for this purpose in the Evaluation Regulations of the University of Cantabria. In any case, the unique circumstances of each student who is in this situation will be assessed individually and the right of these students to overcome the subject in an unique evaluation process will be guaranteed.

CONTINUOUS ASSESSMENT (20%)

- Attendance tracking with periodic controls (TE).
- Attendance at practices (PL).
- Practice exam (PL).
- Collection of solved exercises in the home / classroom.
- Written presentation of group work (computer document).
- Oral work exhibition.
- Complementary activities (participation in the classroom).