

Materials and Civilisation

Code: 106233
ECTS Credits: 6

2025/2026

Degree	Type	Year
Science, Technology and Humanities	OB	3

Contact

Name: Gemma Garcia Alonso
Email: gemma.garcia@uab.cat

Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

NONE

Objectives and Contextualisation

- Understand the interrelationship between structure, processing and properties determines the applications of the different types of materials.
- Relate the development of materials and materials science to the construction of civilizations and societies up to the contemporary era, with special emphasis on economic, social, and environmental aspects.

Competences

- Describe the fundamental forces of nature in relation to the configuration of the universe and the structure of matter.
- Make critical use of digital tools and interpret specific documentary sources.
- Recognise the political, social and cultural dimension of science and technology development in the different historical periods.
- Work collaboratively in teams.

Learning Outcomes

1. Assess the reliability of sources, select important data and cross-check information.
2. Describe the concept of material culture and the relationship it has with technological development.
3. Describe the different types of materials and the interrelationship between structure, properties, processing and applications of materials.
4. Develop teamworking skills, blend in and actively collaborate in achieving common goals.
5. Relate the development of materials to the construction of the modern and contemporary societies.
6. Understand the technological basis for the great cultural periods with regard to the possibilities for controlling matter, energy and information.

Content

- Topic 1. Materials and Materials Science
- Topic 2. Materials and geopolitics
- Topic 3. Materials for construction
- Topic 4. Materials for transport
- Topic 5. Materials for information and communication
- Topic 6. Materials for energy
- Topic 7. Materials and sustainability
- Topic 8. Materials for health

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lecturing	32	1.28	3, 5
Practical Tutorial teaching	6	0.24	4, 1
Practical-theoretical lectures	14	0.56	2, 3, 6, 5, 1
Type: Autonomous			
Individual work	95	3.8	3, 5, 1

- Theoretical classes. Presentation of the topic (objectives, contents, explanation of the texts or complementary videos of the topic available in the Moodle Classroom).
- Resolution of demonstrative exercises in the classroom
- Practical work in the classroom
- Elaboration of individual works
- Cooperative learning through commenting on texts in the classroom
- Individual oral presentations
- Independent work by reading and analyzing proposed texts and carrying out assignments

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Activitats diverses a l'aula - Entrega evidències	20	0	0	2, 3, 4, 6, 5
Debate	20	0	0	2, 4, 6, 5, 1
Primer parcial	30	1.5	0.06	3, 5
Segon parcial	30	1.5	0.06	3, 5

CONTINUOUS ASSESSMENT

Note: To be eligible for continuous assessment, students must:

- Attend both partial exams.
- Have completed and submitted at least 70% of classroom activities.
- Have completed the "Citizen Debate" activity, including all required submissions and oral presentations.

Students who cannot attend classes regularly must opt for single assessment.

Weight of each component in continuous assessment:

- First partial exam: 30%
- Second partial exam: 30%
- In-class activities: 20%
- "Citizen Debate" activities: 20%

SINGLE ASSESSMENT

The single assessment will consist of:

- A written exam synthesizing course knowledge: 50%
- An individual written summary of the required readings: 25%
- An individual written synthesis of assigned papers: 25%

To be eligible for single assessment, students must submit all required work by the established deadline.

REQUIREMENTS TO PASS

To pass the course, in either assessment method, students must:

- Obtain a minimum grade of 4 (out of 10) in the average of the two partial exams or in the synthesis exam.
- Achieve a final grade equal to or greater than 5.0 out of 10.

If a student fails to meet one of these requirements but obtains a grade equal to or greater than 3.5, they will be entitled to a make-up exam. This final exam will allow them to pass the course with a grade of 5.0 out of 10.

PLAGIARISM

If a student commits any irregularity that could significantly alter the assessment result, the activity in question will be graded with a 0, regardless of any disciplinary process that may follow.

If multiple irregularities occur in the assessments of the same course, the final grade for that course will be 0.

This subject allows the use of AI technologies as an integral part of the submitted work, provided that the final result reflects a significant contribution from the student in terms of analysis and personal reflection.

The student must clearly (i) identify which parts have been generated using AI technology; (ii) specify the tools used; and (iii) include a critical reflection on how these have influenced the process and final outcome of the activity. Lack of transparency regarding the use of AI in the assessed activity will be considered academic dishonesty; the corresponding grade may be lowered, or the work may even be awarded a zero. In cases of greater infringement, more serious action may be taken.

Bibliography

Available online (ebook) through the UAB Library Service

- Making the Modern World - Materials and Dematerialization. by Vaclav Smil. Wiley.
- Materials and the Environment, by Ashby, Michael.F, 2020.

Available for free at <https://ufl.pb.unizin.org/imos/> (creative commons attribution noncommercial)

- Impact of Materials on Society by Sophia Krzys Agreement; Kevin S. Jones; Marsha Bryant; Debra Dauphin-Jones; Pamela S. Hupp; Susan D. Gillespie; Kenneth E. Sassaman; Mary Ann Eaverly; Florin Curta; Sean Adams; and Bonnie Effros

Others:

The Substance of Civilization, by Stephen L. Sass, Arcade Publishing. New York ISBN-10: 1-61145-401-8.

Software

NONE

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	1	Catalan	second semester	morning-mixed
(TE) Theory	1	Catalan	second semester	morning-mixed