

[GBJ202] BIOMATERIALS II

GENERAL INFORMATION

Studies	DEGREE IN BIOMEDICAL ENGINEERING	Subject	BIOMATERIALS
Semester	2	Course	2
Character	COMPULSORY	Mention / Field of specialisation	
Plan	2022	Modality	Face-to-face
Credits	3	Language	EUSKARA
		Total hours	46.75 class hours + 28.25 non-class hours = 75 total hours

2030 AGENDA GOALS



PROFESSORS

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REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
BIOMATERIALS I	(No previous knowledge required)

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GBR203 - To apply knowledge of biomaterials to the design and development of implants and biomedical instruments		x		2,6
G-RTR1 - To develop interdisciplinary projects specific to their specialty and of gradual complexity, - becoming aware of respect for human rights and fundamental rights, and analyzing and assessing the impact of the proposed solutions on the SDGs - to acquire and/or apply basic, advanced and/or avant-garde, demonstrating the ability to work in multidisciplinary teams and/or undertake further studies with a high degree of autonomy		x		0,24
G-RTR2 - To express information, ideas and the arguments that support them in an orderly, clear and coherent manner, orally and in writing, based on quality information, self-made or obtained from different sources, using inclusive and non-discriminatory language		x		0,16

Total: 3

KC: Knowledge or Content / SK: Skills / AB: Abilities

SECONDARY LEARNING RESULTS

2RGB292 (2 sem)

LEARNING ACTIVITIES

Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams

CH 1 h. NCH 1 h. TH 2 h.

EVALUATION SYSTEM

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

W
100%

MAKE-UP MECHANISMS

(No mechanisms)

CH - Class hours: 1 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 2 h.

2RGB293 (2 sem)

LEARNING ACTIVITIES

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

CH 1 h. NCH 1 h. TH 2 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

100%

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

Observation (technical capacity, attitude and participation)

CH - Class hours: 1 h.

NCH - Non-class hours: 1 h.

TH - Total hours: 2 h.

2RGB294 (2 sem)

LEARNING ACTIVITIES

CH

NCH

TH

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

1 h.

1 h.

2 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

100%

MAKE-UP MECHANISMS

Observation (technical capacity, attitude and participation)

CH - Class hours: 1 h.

NCH - Non-class hours: 1 h.

TH - Total hours: 2 h.

2RGB290 (2 sem)

LEARNING ACTIVITIES

CH

NCH

TH

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

1,25 h.

,75 h.

2 h.

EVALUATION SYSTEM

W

Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems

100%

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

Observation (technical capacity, attitude and participation)

CH - Class hours: 1,25 h.

NCH - Non-class hours: ,75 h.

TH - Total hours: 2 h.

2RGB291 (2 sem)

LEARNING ACTIVITIES

CH

NCH

TH

Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams

1,25 h.

,75 h.

2 h.

EVALUATION SYSTEM

W

Self-assessment

25%

Co-assessment

25%

Observation (technical capacity, attitude and participation)

50%

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

Observation (technical capacity, attitude and participation)

CH - Class hours: 1,25 h.
NCH - Non-class hours: ,75 h.
TH - Total hours: 2 h.

RGB205 [!] *Conoce y comprende las interacciones entre la superficie del biomaterial y su entorno*

LEARNING ACTIVITIES

	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	5 h.	3 h.	8 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning	3 h.	1 h.	4 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	14 h.	9 h.	23 h.
Self-assessment tests in a context of autonomous and continuous learning	3 h.	1 h.	4 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems

80%

Individual written and/or oral tests or individual coding/programming tests

Comments: Exams: 60 % control point + 10 % moodle tests during lesson period. Exercises: 10 % case study + 20% PBL

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests

Comments: %25 1st CP + %75 2nd CP

CH - Class hours: 25 h.
NCH - Non-class hours: 14 h.
TH - Total hours: 39 h.

RGB206 [!] *Conoce y comprende las técnicas de modificación superficial y las metodologías para la caracterización de las biosuperficies*

LEARNING ACTIVITIES

	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	4 h.	3 h.	7 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.		1 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	10 h.	6 h.	16 h.
Carrying out work experience in real environments and writing the corresponding report	1,25 h.	,75 h.	2 h.

EVALUATION SYSTEM

W

Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems

80%

Individual written and/or oral tests or individual coding/programming tests

Comments: Lesson exercises: 10% practicum + 10% case study + 20% PBL

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests

Comments: %25 1st CP + %75 2nd CP

CH - Class hours: 16,25 h.
NCH - Non-class hours: 9,75 h.
TH - Total hours: 26 h.

CONTENTS

1. Basic concepts of materials for biological applications
2. Types of biomaterials: metals, polymers, ceramics
3. Tissue engineering
4. Corrosion in biological media
5. Friction and wear
6. Surface modifications and surface characterization

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

- [!] *Artículos de carácter técnico*
- [!] *Consultas en páginas web relacionadas con el tema*
- [!] *Plataforma Moodle*
- [!] *Presentaciones en clase*
- [!] *Realización de prácticas en laboratorio*
- [!] *Transparencias de la asignatura*

Bibliography

<https://labur.eus/OQUG4>