

[MMC104] DESIGN FOR ADDITIVE MANUFACTURING

GENERAL INFORMATION

Studies	MASTER'S DEGREE IN BIOMEDICAL TECHNOLOGIES	Subject	?
Semester	2	Course	1
Character	OPTIONAL	Mention / Field of specialisation	???
Plan	2023	Modality	Face-to-face
Credits	3	Language	CASTELLANO
		Hours/week	2.66
		Total hours	47.8 class hours + 27.2 non-class hours = 75 total hours

PROFESSORS

BASKARAN RAZKIN, MAIDER
AZPI-AURREKOETXEA NARBARTE, ION

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
(No specific previous subjects required)	(No previous knowledge required)

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
MMRA26 - To apply the knowledge acquired and your problem-solving skills in new, little-known or changing environments within broader (or multidisciplinary) contexts related to your area of study		x		0,72
MMRA28 - To communicate your conclusions and the knowledge and ultimate reasons that support them to specialized and non-specialized audiences in a clear and unambiguous way		x		0,18
MM13-2 - To propose the appropriate additive manufacturing technology for each biomedical engineering problem		x		2,1
Total:				3

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

SECONDARY LEARNING RESULTS

RMM129 [!] *Diseñar productos de fabricación aditiva mediante softwares de simulación.*

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

17 h.

NCH

9,25 h.

TH

26,25 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

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

CH - Class hours: 17 h.

NCH - Non-class hours: 9,25 h.

TH - Total hours: 26,25 h.

RMM130 [!] *Optimizar el proceso de fabricación aditiva mediante softwares de simulación.*

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

17 h.

NCH

9,25 h.

TH

26,25 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

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

CH - Class hours: 17 h.

NCH - Non-class hours: 9,25 h.

TH - Total hours: 26,25 h.

RMM144 [!] *Analiza las variables intervinientes en la solución de los problemas y plantea acciones para lograr una situación estable asumiendo responsabilidades en el equipo de trabajo, afrontando contingencias y organizando y planificando tareas.*

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

5,5 h.

NCH

3,5 h.

TH

9 h.

EVALUATION SYSTEM

W

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

40%

Co-assessment

5%

Prototype / Product

55%

MAKE-UP MECHANISMS

Observation (technical capacity, attitude and participation)

Comments: If the score of the defense is lower than 5, this evaluation item will be evaluated in its entirety (%100) with the score of the defense. A co-evaluation system will be implemented to adjust the score of the student based on his or her participation in the Project.

CH - Class hours: 5,5 h.

NCH - Non-class hours: 3,5 h.

TH - Total hours: 9 h.

RMM145 [!] *Conoce y es capaz de aplicar las herramientas de resolución de problemas en el campo de la Ingeniería Biomédica con iniciativa, toma de decisiones, creatividad y razonamiento crítico.*

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

5,5 h.

NCH

3,5 h.

TH

9 h.

EVALUATION SYSTEM

W

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

40%

Co-assessment

5%

Prototype / Product

55%

MAKE-UP MECHANISMS

Observation (technical capacity, attitude and participation)

Comments: If the score of the defense is lower than 5, this evaluation item will be evaluated in its entirety (%100) with the score of the defense. A co-evaluation system will be implemented to adjust the score of the student based on his or her participation in the Project.

CH - Class hours: 5,5 h.

NCH - Non-class hours: 3,5 h.

TH - Total hours: 9 h.

RMM146 [!] *Define el problema, el desarrollo de la solución, así como las conclusiones de manera eficaz, argumentando y justificando cada una de ellas, y haciendo un uso correcto del lenguaje, por escrito y de manera oral.*

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

1,5 h.

NCH

1 h.

TH

2,5 h.

EVALUATION SYSTEM

W

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	50%	Observation (technical capacity, attitude and participation)
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	50%	

CH - Class hours: 1,5 h.

NCH - Non-class hours: 1 h.

TH - Total hours: 2,5 h.

RMM147 [!] *Define los objetivos, realiza la planificación para su consecución y su seguimiento sistemático coordinando su trabajo con los demás miembros del equipo.*

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	1,3 h.	,7 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	50%
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	50%

MAKE-UP MECHANISMS

Observation (technical capacity, attitude and participation)

CH - Class hours: 1,3 h.

NCH - Non-class hours: ,7 h.

TH - Total hours: 2 h.

CONTENTS

1 - 3D personalized printing2 - 3D printing of farmaceutical compounds3 - 4D printing in medicine

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Technical articles
Class presentations
Video projections

Bibliography

3D Printing in Medicine; Edited by Dr. Deepak M. Kalaskar;
Woodhead Publishing; eBook ISBN: 9780081007266; Hardcover
ISBN: 9780081007174