Goi Eskola Politeknikoa | Mondragon Unibertsitatea
Course: 2025 / 2026 - Course planning

Mondragon
Unibertsitatea
Goi Eskola
Politeknikoa
Escuela Politécnica
Superior

[GH8311] OP S1. INTRODUCTION TO ADDITIVE MANUFACTURING (3D PRINTING)

GENERAL INFORMATION

Studies	DEGREE IN MECHANICAL ENGINEERING			**Subject**	?
Semester	1	**Course**	3	**Mention / Field of specialisation**	
Character	OPTIONAL				
Plan	2022	**Modality**	Face-to-face	**Language**	ENGLISH
Credits	4,5	**Hours/week**	1.81	**Total hours**	32.5 class hours + 80 non-class hours = **112.5 total hours**

PROFESSORS

IRAGUI SAN PEDRO, MIKEL

ARETXABALETA RAMOS, LAURENTZI

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
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		1,04
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		1,06
G-RTR4 - To know and understand the concepts, techniques, methods, technologies, standards, etc. of the elective subjects of their specialty and other elective subjects transversal to the field of engineering		x		2,4
			Total:	**4,5**

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

LEARNING OUTCOMES OF THE QUALITY SEAL

(No learning results)

SECONDARY LEARNING RESULTS

1RGM391 (1 sem)

LEARNING ACTIVITIES	CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	3 h.	10 h.	13 h.

Comments: The main objective of the project is to define all the parameters for the manufacturing of a part, using the Ideamaker slicer, and to discuss the influence of these parameters.

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	60%
Individual written and/or oral tests or individual coding/programming tests	40%

Comments: Development and report: 60% Project test: 40%

MAKE-UP MECHANISMS

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

Comments: Project report correction / test recovery

CH - Class hours: 3 h.
NCH - Non-class hours: 10 h.
TH - Total hours: 13 h.

1RGM397 (1 sem)

LEARNING ACTIVITIES	CH	NCH	TH
Personal study and flexible development of concepts and subjects using active dynamics, to	20 h.	40 h.	60 h.

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foster more meaningful learning
Comments: Self-study based on course material, and resolution of doubts through a forum and online sessions.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and/or oral tests or individual coding/programming tests	100%	Individual written and/or oral tests or individual coding/programming tests
Comments: Individual assessment tests consisting of multiple-choice tests. Participation in the forum is also considered.		**Comments:** Recovery of the topics not passed.

CH - Class hours: 20 h.
NCH - Non-class hours: 40 h.
TH - Total hours: 60 h.

1RGM394 (1 sem)

LEARNING ACTIVITIES	CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	3 h.	10 h.	13 h.

Comments: The main objective of the project is to define all the parameters for the manufacturing of a part, using the Ideamaker slicer, and to discuss the influence of these parameters.

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	60%	Individual written and/or oral tests or individual coding/programming tests
Individual written and/or oral tests or individual coding/programming tests	40%	**Comments:** Project report correction / test recovery
Comments: Development and report: 60% Project test: 40%		

CH - Class hours: 3 h.
NCH - Non-class hours: 10 h.
TH - Total hours: 13 h.

1RGM390 (1 sem)

LEARNING ACTIVITIES	CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	3 h.	10 h.	13 h.

Comments: The main objective of the project is to define all the parameters for the manufacturing of a part, using the Ideamaker slicer, and to discuss the influence of these parameters.

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	60%	Individual written and/or oral tests or individual coding/programming tests
Individual written and/or oral tests or individual coding/programming tests	40%	**Comments:** Project report correction / test recovery
Comments: Development and report: 60% Project test: 40%		

CH - Class hours: 3 h.
NCH - Non-class hours: 10 h.
TH - Total hours: 13 h.

1RGM393 (1 sem)

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LEARNING ACTIVITIES	CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	3,5 h.	10 h.	13,5 h.

Comments: The main objective of the project is to define all the parameters for the manufacturing of a part, using the Ideamaker slicer, and to discuss the influence of these parameters.

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	60%	Individual written and/or oral tests or individual coding/programming tests
Individual written and/or oral tests or individual coding/programming tests	40%	**Comments:** Project report correction / test recovery

Comments: Development and report: 60% Project test: 40%

CH - Class hours: 3,5 h.
NCH - Non-class hours: 10 h.
TH - Total hours: 13,5 h.

CONTENTS

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Tema 1: Introducción- Qué es AM- Ventajas, desventajas y retos- Nuevos modelos de negocio basados en la AMTema 2: Tecnologías de AM- Material extrusion- Material jetting- Vat photopolymerization- Powder bed fusion- Directed energy deposition- Binder jettingTema 3: Diseño para la fabricación aditiva (DfAM)- Diseño generativo- Optimización topológicaTema 4: AM y sostenibilidad- Producto, procesado y mercadoProyecto: Definición y discusión de los parámetros de fabricación FFF

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
[!] *Transparencias de la asignatura*	Recopilación de artículos científicos relacionados con la temática / Recopilación de artículos científicos relacionados con la temática / Compilation of scientific articles related to the thematic area
[!] *Sesiones/vídeos de experto*	
[!] *Plataforma Moodle*	The Knowledge Base. Protolabs network by Hubs (https://www.hubs.com/knowledge-base/)
[!] *Discusiones en el foro*	
[!] *Aplicación slicer (IdeaMaker)*	
[!] *Impresoras FFF*	