

Materia 4_44: 3D Modelling and Printing

Materia:	3D Modelling and Printing	ECTS:	15
Descriptores	<ul style="list-style-type: none">• 3D CAD Systems. Parametric Modelling. Sketching. Solid Features. Surface Features. 3D Scanning and Reverse-Engineering techniques. Assemblies. Mechanical joints. Kinematic chains. Dynamic models.• Collaborative Frameworks. Design Intent. 3D model analysis and quality insurance. Technical documentation and drawings. 3D-Model-based simulations and analysis. Industry Standard Procedures and Workflows.• Introduction to Digital Manufacturing. Practical aspects of SLA, FDM, SLS and other 3D printing technologies. 3D Printing Materials. Slicing techniques. Operation of a 3D printer. Services for online printing. Integration of 3D Printing into the Industry 4.0 framework.		
Objetivos generales	This subject has the objective of introducing the student to 3D modelling and printing technology. Basic and middle concepts of design and modelling objects by computer using 3D Parametric CAD software must be covered. It also covers creating mock-ups and prototypes using 3D Printing technologies integrated into the Industry 4.0 framework.		
Competencia específica	CE [4-44]: Apply techniques and methodologies for 3D design, modelling and printing and apply them to the engineered parts.		
Resultados de aprendizaje	<ul style="list-style-type: none">• 3D Model engineering parts, assemblies, and products choosing the best approach and strategies.• Create change and future-proof 3D models following industry-standard workflows into collaborative frameworks.• Solve problems of design and modelling of 3D objects using different tools and formats.• Design and manufacture by 3D printing a small mechanism.• Be familiar with the terms and technologies of Industry 4.0 for prototyping and manufacturing.		
Métodos de evaluación	<ul style="list-style-type: none">• Evaluation: Closed answers tests, Use Cases, Problems and Final Project• Assessment instruments: Checklists, Rating Scales and eRubrics		