



Sample Brief Course Description

Course title	Design and Fabrication of Biomedical Devices
Course code	BME 310
College	Engineering
Department / Program	Biomedical Engineering
Year/ Level	4/12
Course Type	A. <input type="checkbox"/> University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Others b. <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective
Credited Hours	6
Contact Hours	(LT:4 LB:4, TR:0)
Pre-requisites (if any)	ECE 203
Co-requisites (if any)	---
Course description	This course is intended to cover advanced design and manufacturing technologies for biomedical devices covers such topics in depth, with an applied perspective and providing several case studies that help to analyze and understand the key factors of the different stages linked to the development of a novel biomedical device. The course topics will include: Advances in computer-aided design. Engineering and manufacturing technologies. Multi-variable simulation tools. Medical imaging. 3D printing. Rapid prototyping (Additive manufacturing and



	CNC Machining Prototyping). Micro and nanomanufacturing methods.
Course Main Objectives	<ul style="list-style-type: none">• Understand the conception of engineering and manufacturing technologies.• Apply advances computer-aided design techniques in biomedical device designs.• Identify the key factors of the different stages associated to the development of a novel biomedical device.• Describe the micro and nanomanufacturing methods.• Design a medical device and apply rapid prototyping .
Learning Outcomes	Knowledge and Understanding: <ol style="list-style-type: none">1. Identify the main considerations to develop biomedical devices.2. Identify Computer-Aided Engineering Resources and FEM for Biodevices.3. Recall Bio-fabrication: main advances and challenges.
	Skills: <ol style="list-style-type: none">1. Design biomedical devices using Computer-Aided Design (CAD) technologies.2. Use and evaluate the Medical Imaging-Aided Design of Personalized Devices.3. Apply Additive Manufacturing Technologies to meet required needs to fabricate biomedical devices.4. Identify and apply the Nano-manufacturing Technologies for Biodevices.
	Values: <ol style="list-style-type: none">1. Communicate design work through written report.