

DMX6306 Micro and Nano Electro Mechanical Systems

Level	6
Course Code	DMX6306
Course Title	Micro and Nano Electro Mechanical Systems
Credit value	3
Core/Optional	Optional
Course Aim/s	To provide fundamentals of Microelectro mechanical Systems (MEMS), Nanoelectro mechanical Systems (NEMS) and model MEMS and NEMS for different applications
Course Learning Outcomes (CLO):	<p>At the completion of this course student will be able to:</p> <p>CLO1: Demonstrate the knowledge of fundamentals of Micro/Nano Electro Mechanical systems.</p> <p>CLO2: Explain the scaling techniques of MEMS and NEMS devices.</p> <p>CLO3: Review the various types of MEMS/NEMS fabrication and manufacturing processes</p> <p>CLO4: Describe the working, actuation and sensing principles of different MEMS/NEMS based devices and systems.</p> <p>CLO5: Design and simulation of MEMS/NEMS based devices and systems.</p> <p>CLO6: Describe the applications and future developments of MEMS/NEMS based devices and systems.</p>
Content	<p>Outline Syllabus:</p> <p>Unit 01 : Fundamentals of MEMS Unit 02 : MEMS Fabrication and Manufacturing Processes Unit 03: Operation Principles and Applications of MEMS Devices Unit 04 :Fundamentals of NEMS Unit 05: Operation Principles and Applications of NEMS Devices</p> <p>Mini project:</p> <p>Computer-based in class design and simulation sessions (instructor guided) on microsystems design and processing tools such as ANSYS and COMSOL</p>