

DMX5212 Computer Aided Design and Manufacturing

Level	5
Course Code	DMX5212
Course Title	Computer Aided Design and Manufacturing
Credit value	2
Core/Optional	Optional
Course Aim/s	Aim of this course is to provide the students with principles, concepts and techniques that are essential to address the challenges of modern manufacturing and enterprise systems.
Course Learning Outcomes (CLO):	<p>At the completion of this course student will be able to:</p> <p>CLO1: Explain the need of computers in design and manufacturing for competitive manufacturing.</p> <p>CLO2: Create virtual prototypes of manufacturing parts for further analysis and manufacture.</p> <p>CLO3: Analyze and optimize engineering products used in different manufacturing areas.</p> <p>CLO4: Explain concept of design for manufacturing, assembly and environment.</p> <p>CLO5: Apply advanced manufacturing techniques to create the highest-caliber products quickly, efficiently, inexpensively, and in synchronization with marketing, sales, and customer service of the company.</p> <p>CLO6: Explain the techniques applicable in automation of manufacturing process</p>
Content	<p>Outline Syllabus:</p> <p>Unit 01: Introduction to computer aided design and manufacturing</p> <p>Unit 02: Geometric modeling and visualization (Fundamentals Geometric Modeling and Visualization)</p> <p>Unit 03: Design analysis and optimization (Finite Element Analysis and Design Optimization)</p> <p>Unit 04: Design for manufacture, assembly and environment (Design for manufacturing)</p> <p>Unit 05: Manufacturing support Functions:</p> <p>Unit 06: Automation of manufacturing process</p> <p>Laboratory Work:</p> <ol style="list-style-type: none"> 1. Computer aided drafting 2. Finite Element Method 3. Part Programming 4. CNC machining 5. Industrial robot Programming and operation.