

DMX4306 Design of Machine Elements

Level	4
Course Code	DMX4306
Course Title	Design of Machine Elements
Credit value	3
Core/Optional	Core
Course Aim	The aim of this course is to provide concepts in machine design to analyze, design and/or select machine elements with giving attention to safety, reliability, societal and ergonomic aspects.
Course Learning Outcomes (CLO):	<p>At the completion of this course student will be able to:</p> <p>CLO1: Apply the knowledge gained from other engineering subjects for design of machine elements.</p> <p>CLO2: Illustrate the design procedure of the machine elements with desired standards.</p> <p>CLO3: Demonstrate the knowledge in designing machine elements in Mechanical Engineering applications.</p> <p>CLO4: Describe the ability to read, understand and interpret the design constraints related to the machine elements</p> <p>CLO5: Apply the concepts of failure of machine elements.</p> <p>CLO6: Predict mechanical components used in mechanical systems that require functioning the respective machines for their intended purposes.</p>
Content	<p>Outline Syllabus:</p> <p>Unit 1 Session 1: Introduction the philosophy of Machine Design Session 2: Stresses induced in machine components Session 3: Design against static loads and fluctuating loads</p> <p>Unit 2 Session 4: Power screws Session 5: Threaded joints Session 6: Welded joints Session 7: Riveted joints Session 8: Shafts Session 9: Couplings Session 10: Keys Session 11: Mechanical springs</p> <p>Unit 3 Session 12: Friction clutches Session 13: Brakes Session 14: Belt Drives Session 15: Chains Drives Session 16: Rope Drives Session 17: Rolling contact bearings Session 18: Sliding contact bearings</p>

Unit 4

Session 19: Spur gears

Session 20: helical gears

Session 21: bevel gears

Session 22: Worm gears

Design Class 1: Based on Units 1, 2 and 3.

Design Class 2: Based on Units 3 and 4.