

DMX3401 Fluid Mechanics and Thermodynamics

Level	3
Course Code	DMX3401
Course Title	Fluid Mechanics and Thermodynamics
Credit value	4
Core/Optional	Core
Course Aim	The aim of this course is to provide basic principles of fluid mechanics and thermodynamics and applications
Course Learning Outcomes (CLO):	<p>At the completion of this course student will be able to:</p> <p>CLO1: Demonstrate the knowledge of fluid properties that are of significance to engineering applications, with different units of measurements.</p> <p>CLO2: Determine fluid forces acting on surfaces and rigid bodies that are submerged in fluids.</p> <p>CLO3: Solve two dimensional fluid static and dynamic problems using relevant theories.</p> <p>CLO4: Demonstrate the knowledge of operating principles and applications of fluid machines.</p> <p>CLO5: Demonstrate the knowledge of ideal gas laws and laws of thermodynamics, and use them to solve problems related to closed thermodynamic systems.</p> <p>CLO6: Describe basic thermodynamic cycles and processes related to power generation, refrigeration and air conditioning, and solve problems.</p> <p>CLO7: Determine important parameters in combustion of fuels.</p> <p>CLO8: Solve one dimensional steady state heat transfer problems.</p>
Content	<p>Outline Syllabus:</p> <p>Unit 1: Characteristics of fluids Unit 2 : Hydrostatics Unit 3 : Hydrodynamics Unit 4 : Fluid machineries Unit 5: First law of Thermodynamics and its applications Unit 6: Second law of Thermodynamics and its applications Unit 7: Energy and generation of heat energy Unit 8: Heat transfer</p> <p>Laboratory work :</p> <ol style="list-style-type: none"> 1. Measurement of viscosity of fluids 2. Determination of flash point of oils 3. Determination of thermal conductivity 4. Flow rate measurement of fluids 5. Demonstration of Heat pump 6. Determination of calorific value