

Mechanical Engineering and Mechatronics Engineering

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 (Main topics, sub topics)	<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

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DMM6601 Management for Engineers

Level	6
Course Code	DMM6601
Course Title	Management for Engineers
Credit value	6
Core/Optional	Core
Course Aim/s	Aim of this course is to provide concepts of management that are useful for engineering profession .
Course Learning Outcomes (CLO):	<p>At the completion of this course student will be able to</p> <p>CLO1: Demonstrate the knowledge of management functions in the context of engineering.</p> <p>CLO2: Identify the importance of organization, its culture and behaviour of individuals</p> <p>CLO3: Appreciate the importance of approaches to human resource management and act accordingly</p> <p>CLO4: Apply strategic management approach to organizations.</p> <p>CLO5: Use quantitative techniques in management decision making.</p> <p>CLO6: Exhibit thorough knowledge in different aspects of project management, and use appropriate tools in different stages of projects.</p> <p>CLO7: Demonstrate the knowledge of quality and productivity management approaches and apply them in organizations as appropriate.</p> <p>CLO8: Practice the engineering profession adhering to ethical responsibilities and professional standards.</p>
Content (Main topics, sub topics)	<p>Outline Syllabus:</p> <p>Unit 01: Fundamentals of management</p> <p>Unit 02: Organizational Behaviour</p> <p>Unit 03: HR Management</p> <p>Unit 04: Strategic Management</p> <p>Unit 05: Operations Management</p> <p>Unit 06: Project Management</p> <p>Unit 07: Quality and Productivity Management</p> <p>Unit 08: Engineer and Society</p> <p>Project:</p> <p>Based on Management concepts as practice in industries</p>

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DMX5403 Control Systems Engineering

Level	5
Course Code	DMX5403
Course Title	Control Systems Engineering
Credit Value	4
Core/ Optional	Core
Course Aim/s	The aim of this course is to gain an understanding of the principles of classical and digital control systems, analysis and design
Course Learning Outcomes (CLO)	<p>At the completion of this course student will be able to:</p> <p>CLO1: Demonstrate knowledge of control system in engineering applications. CLO2: Model a control system using mathematical and graphical techniques. CLO3: Analyze time domain characteristics of a control system. CLO4: Analyze the stability of a control system using classical methods. CLO5: Design simple control systems using classical methods. CLO7: Analyze and design discrete time systems for controls. CLO8: Analyze a control system using computer software.</p>
Content (Main topics ,sub topics)	<p>Outline Syllabus:</p> <p>Unit 1: Modelling of control systems Unit 2 : Time domain analysis Unit 3: Stability of control systems Unit 4 : Design of control systems Unit 5: Digital control systems</p> <p>Laboratory work:</p> <ol style="list-style-type: none"> 1. Stability control of a single-input-single-output system using the magnetic levitation apparatus 2. Stability control of a single-input-multi-output system using the inverted pendulum apparatus 3. Stability control of a multi-input-multi-output system using the twin rotor apparatus 4. Simulation project with MATLAB <p>Mini-project:</p> <p style="text-align: center;">Mini-project and a viva based on control system design</p>