

## DMX6304 Computational Fluid Dynamics

<b>Level</b>	6
<b>Course Code</b>	DMX6304
<b>Course Title</b>	Computational Fluid Dynamics
<b>Credit value</b>	3
<b>Core/Optional</b>	Optional
<b>Course Aim/s</b>	To provide the necessary knowledge and hands-on experience to use computational techniques to solve problems related to fluid flow dynamics.
<b>Course Learning Outcomes (CLO):</b>	<p>At the completion of this course student will be able to</p> <p>CLO1: Identify appropriate techniques for the analysis of fluid flows.</p> <p>CLO2: Analyze fluid dynamics problems using differential and integral equations.</p> <p>CLO3: Analyze fluid flows using numerical techniques.</p> <p>CLO4: Model fluid flow using computational Fluid Dynamics software and interpret the results.</p>
<b>Content</b>	<p><b>Outline Syllabus:</b></p> <p>Unit 1: Governing Equations of CFD  Unit 2 : Numerical methods for CFD  Unit 3 : Discretization methods  Unit 4 : Finite Difference methods  Unit 5 : Finite volume methods  Unit 6 : Turbulence modeling  Unit 7 : Introduction to CFD software and Case studies</p> <p><b>Mini-projects:</b></p> <ol style="list-style-type: none"> <li>1. Solving the incompressible Navier-Stokes equations on rectangular domains using Matlab.</li> <li>2. Simulation of External flows using ANSYS (or other CFD software).</li> </ol>