

## DMX4204 Machine Dynamics

<b>Level</b>	4
<b>Course Code</b>	DMX4204
<b>Course Title</b>	Machine Dynamics
<b>Credit value</b>	2
<b>Core/Optional</b>	Core (for Mechanical Engineering )
<b>Course Aim/s</b>	The aim of this course is to provide theoretical concepts and practical knowledge related to mechanics of machines.
<b>Course Learning Outcomes (CLO):</b>	<p>At the completion of this course student will be able to:</p> <p>CLO1: Analyze the velocities and accelerations in link mechanisms.</p> <p>CLO2: Explain the use of Turning Moment Diagrams and demonstrate the knowledge by solving problems on fluctuation of energy and flywheel inertia.</p> <p>CLO3: Understand the principles of cams.</p> <p>CLO4: Analyze the friction on screw threads, bearings and clutches.</p> <p>CLO5: Evaluate force and power transmission criteria for belt, rope, chain drives and explain use and application of governors</p> <p>CLO6: Identified the difference between static and dynamic balancing and use the knowledge to determine the unbalances of simple systems with rotating masses and balance the system.</p> <p>CLO7: Compute the force and torque transmission in gears and gear trains.</p>
<b>Content</b>	<p><b>Outline Syllabus:</b></p> <p>Unit 1: Kinematics of machines  Unit 2: Turning Moment Diagrams and Flywheel  Unit 3: Cams  Unit 4 : Analysis and application of friction  Unit 5 : Power Transmission and Governors  Unit 6 : Balancing &amp; Vibrations  Unit 7 : Gears &amp; Epicyclical Gear Trains</p> <p><b>Laboratory work:</b></p> <ol style="list-style-type: none"> <li>1. To determine the characteristics of Screw Jack</li> <li>2. To experimentally verify a dynamically balanced shaft having four eccentric masses</li> <li>3. Gain the knowledge through the demonstration models, of commonly used mechanical devices to demonstrate the principle behind.</li> <li>4. Determine the moment of inertia of a flywheel.</li> </ol> <p><b>Design Class:</b></p> <ol style="list-style-type: none"> <li>1. Design of velocities and accelerations in link mechanisms.</li> </ol>