

<b>MIME 3221</b>	<b>Engineering design 1</b>	<b>3 Credit Hours</b>
<b>Prerequisites:</b>	MIME 3130	
<b>Goal</b>	To introduce the student to design and provide them with the basic component design.	
<b>Objectives</b>		<b>Outcomes</b>
<p>The course should enable the student to:</p> <ol style="list-style-type: none"> <li>1. Understand basic design philosophy.</li> <li>2. Conceive the principle of stress concentration.</li> <li>3. Grasp the concept of fatigue and mechanical connection design.</li> <li>4. Grasp a systematic approach in solving engineering design problems.</li> <li>5. Comprehend the design of ball bearings, super gears and lubrication attending</li> </ol>		<p>The students should be able to:</p> <ol style="list-style-type: none"> <li>1. Design and conduct experiments and projects.</li> <li>2. Realize the importance of project design section, proposal, generation of alternative solution</li> <li>3. Apply design process techniques and standard safety.</li> <li>4. Apply soderberg and Goodman equation in fatigue design.</li> <li>5. Identify the construction and the characteristics of ball bearings.</li> <li>6. Perform life and load calculation of ball bearings.</li> <li>7. Design mechanical connections such as shafts, coupling, belts, springs, screws and fasteners</li> <li>8. Use a American gear to design spur gears.</li> <li>9. Define stress concentration and notch sensitivity.</li> </ol>