

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number: MECH-467 Department: MET

Course Title: Adv Engineering Applications Semester: Spring Year: 2015

Objectives/Competencies

Course Objective	Competencies
1. Participate in class brainstorming sessions.	<ul style="list-style-type: none"> <li>• Provide input as a team member to propose solutions to problems</li> <li>• Devise and share solutions to problems with the class.</li> <li>• Listen to other student proposed solutions.</li> <li>• Determine a best course and complete assignments.</li> </ul>
2. Create complex 3D solids using SolidWorks	<ul style="list-style-type: none"> <li>• Create solids given two orthographic views.</li> <li>• Create parts with features at compound angles.</li> <li>• Create parts with angled features</li> <li>• Use 3D sketching and swept features.</li> <li>• Create mold cavities given sectional cross sections.</li> <li>• Create radii of variable values.</li> </ul>
3. Create surface models in SolidWorks	<ul style="list-style-type: none"> <li>• Create lofted surfaces</li> <li>• Intersect surfaces with solids</li> <li>• Projecting surfaces.</li> </ul>
4. Appropriately document component parts using orthographic representation and ASME Y14.5.	<ul style="list-style-type: none"> <li>• Create auxiliary vies</li> <li>• Create break out views.</li> <li>• Determine true view of angled features.</li> </ul>
5. Integrate CAD with CAM.	<ul style="list-style-type: none"> <li>• Load SolidWorks files into Mastercam.</li> <li>• Orient the part accordingly.</li> <li>• Create initial stock and subsequent stock models</li> </ul>

Course Objective	Competencies
<p>6. Develop CAM programs for complex 3D parts such as mold cavities and raised surfaces.</p> <p>7. Recognize need for and engage in lifelong learning</p>	<ul style="list-style-type: none"> <li>• Perform high speed 3D machining               <ul style="list-style-type: none"> <li>○ Core roughing</li> <li>○ Surface roughing.</li> <li>○ Horizontal and waterline finishing</li> <li>○ Raster finishing</li> <li>○ Pencil finishing.</li> <li>○ Scallop and spiral finishing.</li> </ul> </li> <li>• Perform machining on lofted surfaces</li> <li>• Perform machining on drafted walls.</li> <li>• Perform machining on parts with multiple surfaces (4<sup>th</sup> axis machining)</li> <li>• Perform research on a CAD or CAM topic not presented previously at STCC</li> <li>• Prepare a tutorial on the topic</li> <li>• Prepare a presentation for the class.</li> <li>• Present the tutorial to the class.</li> </ul>