

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number: MECH-439 Department: Mechanical Eng. Technology

Course Title: CAM II LAB Semester: Spring Year: 2009

Objectives/Competencies

<b>Course Objective</b>	<b>Competencies</b>
1. Collaborate with team members and assign division of labor.	<ul style="list-style-type: none"><li>• Discuss the tasks required for successful creation and documentation of assigned parts.</li><li>• Discuss team members' strengths and weaknesses.</li><li>• Divide tasks as appropriate.</li><li>• Submit written plan to MET faculty.</li></ul>
2. Using Inventor, design and create operation setups for manufacturing.	<ul style="list-style-type: none"><li>• Discuss and define required fixturing.</li><li>• Design fixture(s) in Inventor.</li><li>• Discuss and define required operation setups.</li><li>• Create required assemblies in Inventor.</li></ul>
3. Using EdgeCAM, create CNC code to manufacture fixture.	<ul style="list-style-type: none"><li>• Open fixture components in EdgeCAM.</li><li>• Create program with EdgeCAM software.</li><li>• Run solid and wireframe simulations to ensure optimum performance.</li><li>• Verify a crash-free program.</li><li>• Create and edit CNC code file.</li><li>• Edit CNC code if required.</li></ul>

4. Using EdgeCAM, prepare the part file for manufacturing.	<ul style="list-style-type: none"> <li>• Open Inventor assemblies in EdgeCAM.</li> <li>• Create part program with EdgeCAM software.</li> <li>• Run solid and wireframe simulations to ensure optimum performance.</li> <li>• Verify a crash-free program.</li> <li>• Create and edit CNC code file.</li> <li>• Edit CNC code if required.</li> </ul>
5. Prepare the CNC machine for manufacturing.	<ul style="list-style-type: none"> <li>• Verify proper eye wear is used.</li> <li>• Download CNC program to machine.</li> <li>• Select and load stock.</li> <li>• Install and touch off all tools.</li> <li>• Prove-out part program using HAAS verifier.</li> <li>• Perform dry-run to ensure machine runs and successfully cuts part.</li> <li>• Verify coolant is on and ready.</li> </ul>
6. Run CNC machine and manufacture fixture.	<ul style="list-style-type: none"> <li>• Start machine and run program.</li> <li>• Observe cycle and be prepared for emergency stop.</li> <li>• Remove finished part from machine.</li> <li>• Clean machine as required.</li> </ul>
7. Run CNC machine and manufacture part.	<ul style="list-style-type: none"> <li>• Secure fixture in vise.</li> <li>• Secure stock remnant in fixture using necessary fasteners. Remainder, same as competency 6.</li> </ul>
8. Perform part inspection.	<ul style="list-style-type: none"> <li>• Define measurement instruments to be used.</li> <li>• Secure part for inspection.</li> <li>• Measure dimensions as delineated in part print.</li> <li>• Verify measurements are within tolerance.</li> </ul>

9. Prepare final documentation of the event.	<ul style="list-style-type: none"><li>• Discuss outcomes with team members.</li><li>• Prepare “Lessons Learned” list.</li><li>• Write final report per required format.</li></ul>
10. Present findings to class.	<ul style="list-style-type: none"><li>• Prepare oral presentation.</li><li>• Discuss EdgeCAM program preparation.</li><li>• Discuss “Lessons Learned”.</li><li>• Summarize changes that would lead to continuous improvement.</li></ul>