SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number:	MECH-370	Department:	Mechanical Eng. Technology		
Course Title:	Solid Modeling for Mechanical Design II	Semester:	Spring	Year:	2012

Objectives/Competencies

Course Objective	Competencies
1. Use variables to add intelligence to parts.	• Discuss design variables. • Create relationships between dimensions. • Create both local and global variables. • Create table driven parts using an Excel spreadsheet. • Manipulate the way dimensions are viewed: Numbers, Variables, and Equations.
2. Create presentations files.	• Create exploded assemblies. • Edit presentation files. • Animate an assembly. • Tweak component positions. • Add trails to components.
3. Understand and apply fundamental mechanical design principles.	• Discuss the importance of working stress. • Discuss and use factors of safety. • Perform design calculations. • Discuss and use tolerances and allowances. • Apply design fits and tolerances—running, clearance location, and force. • Apply geometric tolerancing for part functionality.

	• Discuss casting design and tolerance control. • Perform the split operation. • Create a face draft for a casting. • Develop a working knowledge of engineering materials. • Use Machinery's Handbook to look up and create standard components.
4. Document engineering changes.	• Read and understand Engineering Change Orders (ECO). • Prepare an ECO. • Implement an ECO using ASME standard techniques. • Document an ECO with proper drafting protocol. • Discuss revision control.
5. Perform product redesign given new customer requirements.	• Review and discuss customer constraints. • Work as teams to propose new design concepts. • Present concepts to "upper management". • Prepare and implement a project schedule. • Prepare a new BOM. • Document engineering activity in design notebook.

6. Create 2D orthogonal drawings from an assembly in accordance with ASME Y14.3 and Y14.5.	• Discuss part-numbering systems. • Create a base view. • Create orthogonal views. • Create isometric views. • Create an aligned section view. • Create sectioned views. • Create reference dimensions. • Create drawing annotations. • Create a main assembly drawing. • Create a sub-assembly drawing. • Discuss Bills of Materials. • Create and modify a parts list. • Understand Bill of Material dialog box icons. • Create balloons for components.