

**Elizabethtown Area School District  
 Scope & Sequence - Quick Reference**



**Department: Applied Engineering & Technology Education**

**Course: Advanced CADD / Honors**

**Grade Level(s): 10-12**

<i>Unit Title</i>	<i>General Topic(s)</i>	<i>Pacing</i>
1. Introduction to Visual Communication	<ul style="list-style-type: none"> <li>● Sketching</li> <li>● 3D Communication Techniques</li> <li>● Orthographic Projection</li> <li>● Isometric Projection</li> </ul>	1-2 weeks
2. Basic 3D Modeling	<ul style="list-style-type: none"> <li>● Sketching and Geometric Construction</li> <li>● Advanced Sketching</li> <li>● Basic Extrusion</li> <li>● Advanced Extrusion and Materials</li> <li>● 3D Design Challenge 1</li> <li>● Geometric Constraints, Variables, and Measurement</li> <li>● 3D Design Challenge 2</li> </ul>	2 weeks
3. Additive Manufacturing & Rapid Prototyping	<ul style="list-style-type: none"> <li>● Complex 3D Modeling Techniques</li> <li>● Prototyping with 3D Printing                             <ul style="list-style-type: none"> <li>○ Materials and Applications</li> <li>○ Prototyping</li> <li>○ Tolerancing</li> </ul> </li> <li>● 3D Printed Design Project</li> </ul>	3 weeks
4. Subtractive Manufacturing	<ul style="list-style-type: none"> <li>● Introduction</li> <li>● CNC Machining Basics</li> <li>● Toolpath Generation                             <ul style="list-style-type: none"> <li>○ G-code</li> </ul> </li> </ul>	3 weeks

	<ul style="list-style-type: none"> <li>○ M-code</li> <li>● Additive vs Subtractive Manufacturing</li> <li>● CNC Production Project</li> </ul>	
5. 3D Design & Laser Fabrication	<ul style="list-style-type: none"> <li>● Laser Cutting Systems <ul style="list-style-type: none"> <li>○ Cutting &amp; Engraving Basics</li> <li>○ Laser Safety</li> <li>○ 2D Laser Design Project</li> </ul> </li> <li>● Advanced CAD Assemblies <ul style="list-style-type: none"> <li>○ Multi-part assembly techniques</li> </ul> </li> <li>● Multi-Part Laser Design Project</li> </ul>	3 weeks
6. Production Quality Prototyping	<ul style="list-style-type: none"> <li>● Design for Manufacturing and Design for Assembly</li> <li>● Mold Design <ul style="list-style-type: none"> <li>○ Basics and Applications in Manufacturing</li> <li>○ Mold Design Project</li> </ul> </li> <li>● Production Quality Prototyping Design Project</li> </ul>	3 weeks
7. Capstone Project & Presentation	<ul style="list-style-type: none"> <li>● Engineering Design Process</li> <li>● Project Production</li> <li>● Project Presentation</li> </ul>	3 weeks