

**Precision Machining
Year 1**

Semester 1		Semester 2	
Quarter 1	Quarter 2	Quarter 3	Quarter 4
<p>Standards: 1.0, 4.1 Professional Standards: 4.0 6.0</p> <p><u>Unit 1</u></p> <p>Introduction to Machining</p> <ul style="list-style-type: none"> History of Precision. Use of Hand tools. Importance of machining in modern society. Identify and explore Career paths in machining. Differentiate machine operations. Creation of shop notebook. <p>Standards: 2.0 Professional Standards: 4.0 8.0 A, C, D, E</p> <p><u>Unit 2</u></p> <p>Shop Safety and Shop Etiquette</p> <ul style="list-style-type: none"> Identify and practice use of appropriate Personal Protective Equipment (PPE) for the machine shop environment. Explain Purpose of Occupational Safety and Health Administration (OSHA). Interpret Material Safety Data Sheet information (MSDS). <p>Standards: 3.0, 4.2 Professional Standards: 3.0, 4.0</p> <p><u>Unit 3</u></p>	<p>Standards: 3.1, 3.2, 4.4, 5.4, 7.0 Professional Standards: 3.0 4.0</p> <p><u>Unit 4</u></p> <p>Introduction to Turning Operations</p> <ul style="list-style-type: none"> Identify major components of lathe and functions. Explaining and demonstrating Safe Operation of Lathe. Identify lathe tooling and proper application. Discuss importance of regular maintenance programs. Demonstrate safe operation of saws and cutoff machines. <p>Standards: 5.1, 5.2 Professional Standards: 3.0 4.0</p> <p><u>Unit 5</u></p> <p>Design and Process Planning</p> <ul style="list-style-type: none"> Introduction to drawings. Create layouts on parts. Create and follow a process plan. 	<p>Standards: 6.0, 8.0 Professional Standards: 3.0 4.0</p> <p><u>Unit 6</u></p> <p>Introduction to Milling Operations</p> <ul style="list-style-type: none"> Identify major components of milling machine and their functions. Safe operation of milling machine. Part setup and work holding Location of parts using edge finders and Digital Read Out (DRO) or dials. <p>Standards: Professional Standards: 3.0 4.0</p> <p><u>Unit 7</u></p> <p>Introduction to SolidWorks</p> <ul style="list-style-type: none"> Basic applications of CAD. Introduction to sketches. Introduction to extrusions. Introduction to dimensioning. 	<p>Standards: 3.0, 5.0, 7.0 8.0 Professional Standards: 3.0 4.0</p> <p><u>Unit 8</u></p> <p>First Year Capstone Project</p> <ul style="list-style-type: none"> Creation of Engineering drawing, process plan, and layout for parts. Incorporate Lathe and Mill operations into a part. Quality control of machined parts. Perform precision grinding of final parts to specified tolerances.

**Introduction to Technical
Mathematics, Layouts and
Materials**

- Identify and use measurement tools for a variety of tasks.
- Distinguish between Semi precision vs precision measurements.
- Identify materials and methods.
- Solve basic algebra equations.
- Identify standards of material classification.