



Mechanical Drafting and Design

Career Cluster	Manufacturing
Course Code	21106
Prerequisite(s)	Drafting and Design I course 21102 (recommended)
Credit	1.0
Program of Study and Sequence	Drafting and Design I – Mechanical Drafting and Design – Capstone Experience
Student Organization	Skills USA
Coordinating Work-Based Learning	Guest speakers, internships, tours
Industry Certifications	National Career Readiness Certificate (NCRC), https://doe.sd.gov/CTE/documents/Industry-0221.pdf
Dual Credit or Dual Enrollment	https://sdmylife.com/images/Approved-CTE-Dual-Credit.pdf
Teacher Certification	7-12 Technology Education; STEM Cluster Endorsement; Engineering & Robotics Pathway Endorsement; Drafting; Manufacturing Cluster Endorsement; Welding & Precision Machining Pathway Endorsement
Resources	

Course Description

People with careers in mechanical drafting, design, and engineering create our future. They turn a concept into a set of plans whether it is a component or assembly. These plans will guide manufacturing professionals as they continue the manufacturing process. Mechanical Drafting and Design will expose students to the American Design Drafting Association (ADDA) Apprentice standards in mechanical drafting and students will be given the option to take the ADDA Apprentice drafting test.

Program of Study Application

This is the second pathway course in the Manufacturing cluster, Design and Engineering pathway. Drafting and Design I Course number 21102 is a recommended prerequisite for this course. The course would be followed by a capstone experience.

Course Standards

MDD 1: Demonstrate the use of geometric construction

<i>Webb Level</i>	<i>Sub-indicator</i>
Two Skill/Concept	MDD 1.1 Apply geometric design and mechanical drafting to the design process.
Three Strategic Thinking	MDD 1.2 Demonstrate basic geometric dimensioning and tolerancing (GD&T).

MDD 2: Prepare mechanical drawings.

<i>Webb Level</i>	<i>Sub-indicator</i>
Three Strategic Thinking	MDD 2.1 Create a multi-view drawing.
Two Skill/Concept	MDD 2.2 Examine drawing identification and management techniques used in mechanical drafting.
Three Strategic Thinking	MDD 2.3 Create sectional views of a mechanical drawing.
Three Strategic Thinking	MDD 2.4 Develop auxiliary views of mechanical drawings.
Three Strategic	MDD 2.5 Generate pictorial drawings.

MDD 3: Understand the design for manufacturing and assembly.

<i>Webb Level</i>	<i>Sub-indicator</i>
One Recall	MDD 3.1 Analyze different manufacturing processes.
One Recall	MDD 3.2 Identify basic welding symbols used in the manufacturing design process.

MDD 4: Mechanical drafting career exploration and development.

<i>Webb Level</i>	<i>Sub-indicator</i>
Two Skill/Concept	MDD 4.1 Define and compare career pathways in mechanical drafting.
Four Extended Thinking	MDD 4.2 Design a personal learning plan for career interest in mechanical drafting.
Two Skill/Concept	MDD 4.3 Explain trends and issues in mechanical drafting careers.

MDD 5: Apply career readiness skills in the workplace as they relate to today's society.

<i>Webb Level</i>	<i>Sub-indicator</i>
One Recall	MDD 5.1 Identify and demonstrate career readiness (soft skills) in the workplace.