

Manufacturing – Business & Industry Endorsement

The Manufacturing Career Cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

The Manufacturing courses are comprehensive and experience-based study of technology allows students to reinforce, apply, and transfer their academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings. In addition to their general academic and technical knowledge and skills, students gain an understanding of career opportunities available in technology and what employers require for workers to gain and maintain employment in the 21st century.

Possible careers for Manufacturing include: CNC Technician, CNC Programmer and Operator, Machinist, Manufacturing Engineers, Manufacturing Production Technicians, Machine Operator.

Manufacturing and Machinery Mechanics Program of Study – This program of study is a Business and Industry endorsement or STEM endorsement if math and science requirements are met.

Course Name	Course Codes	Credits	Grade Levels	Rockwall ISD Recommended Preparation (courses in bold are state required prerequisites)
Principles of Manufacturing	MAU001	1	9- 10	None
Engineering Design & Presentation I	STE002	1	9-10	Algebra I (can be taken concurrently)
Manufacturing Engineering Technology I	MAU011	1	10-11	Engineering Design & Presentation I (can be taken concurrently)
Manufacturing Engineering Technology II (math credit)	MAU012	1	11-12	Algebra II, Manufacturing Engineering Technology I

PRINCIPLES OF MANUFACTURING

MAU001

Grade Placement: 9-10

Required Prerequisite: None

Recommended Prerequisite: None

Credit: 1

Certification: NIMS Measurement, Materials, and Safety

This course focuses on planning, managing, and performing the processing of materials into intermediate or final products. Related professional and technical support activities such as production planning and control, maintenance, and manufacturing /process engineering. The study of manufacturing technology allows students to reinforce, apply and transfer academic knowledge to a variety of processes such as metal forming, machining, and 3D printing. Students will also learn the correct safety procedures to use machines such as drill press, lathe, and mill. Computer Aided Manufacturing (CAM) will also be introduced. Students prepare for NIMS certifications in drill press skills, manual milling skills, and measurement, material, and safety. The 3D printing certification test will also be provided. Students will gain an understanding of what employers require to gain and maintain employment in manufacturing careers.

ENGINEERING DESIGN & PRESENTATION I

STE002

Grade Placement: 9-10

Required Prerequisite: Algebra I (can be taken concurrently)

Recommended Prerequisite: None

Credit: 1

Certification: None

Students enrolled in this course will demonstrate knowledge and skills of the process of design as it applies to engineering fields using software applications and tools necessary to produce and present working drawings and prototypes. Students will use computer hardware and software applications to complete assignments and projects. Through implementation of the design process, students will transfer advanced academic skills to component designs. Additionally, students explore career opportunities in engineering, technology, and drafting and what is required to gain and maintain employment in these areas. Basic design principles as well as an introduction to the design software, SolidWorks, will be introduced.

MANUFACTURING ENGINEERING TECHNOLOGY I

MAU011

Grade Placement: 10-11

Required Prerequisite: Engineering Design & Presentation I (can be taken concurrently)

Recommended Prerequisite: None

Credit: 1

Certification: Machining Drill Press Level I, NIMS Machining Level I - Manual Milling Skills I

In this course students will gain knowledge and skills in the application, design, production, and assessment of products, services, and systems and how those knowledge and skills are applied to manufacturing. Students will prepare for success in the global economy. The study of manufacturing engineering will allow students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings in manufacturing. Students will continue their NIMS certifications with mastery in the Drill Press, Manual Mill and Lathe. This class will also be introduced to operation of the CNC mill and CNC Lathe. Students will be required to supply their own safety glasses. There is an associated fee of \$50 for supplies and materials.