

# Manufacturing (MFG)

## **MFG 100 Foundational Skills for The Trades**

**2 credits , REEL**

**Quarter(s): S, F, W, Sp**

Provides an introduction to the core skills required for success in manufacturing and trades-related careers. Learn trade topics such as orientation to careers in the trades, work-ethic and teamwork, basic measurements and calculations, scaffolding, rigging, hand and power tool use, fall protection, and fundamental electrical safety. Emphasizes shop safety, problem-solving, teamwork, communication, and critical thinking. Build a strong foundation for further specialized training and entry-level positions in the industry through hands-on practice and real world applications. Lab hours are required for this course.

Prerequisites: None

## **MFG 105 Industrial Safety**

**3 credits , REEL**

**Quarter(s): S, F, W, Sp**

Provides instruction on safety topics and practices specifically related to industrial work environments. Topics include an overview of OSHA/WISHA requirements, personal protective equipment, energy lock-out/tag-out procedures, material handling, electrical safety, machine guarding, hazardous materials, fire prevention, hazard identification and control, and safety inspection.

Prerequisite: None

## **MFG 110 Project Management**

**4 credits , REEL**

The course is an introduction to the theory of project development procedures. The concepts used for project management will include scheduling by means of the critical path method. The fundamentals of CPM will be presented and the concepts applied with software used in industry. Basic job

estimating theory will be presented and applied using current industrial software.

Prerequisite: None

## **MFG 115 Manufacturing Process**

**5 credits , REEL**

**Quarter(s): F**

A compressive study of the processing of materials, industry standards, and the manufacturing techniques that expose students to the basic types of machine tools as well as cutting tool geometry and precision measuring.

Prerequisite: None

## **MFG 120 Quality Assurance**

**4 credits , REEL**

**Quarter(s): Sp**

Provides the student with a comprehensive introduction to the principles and purpose of Quality Assurance Management in industry. The student will also gain basic understanding of the quality control tools used in industry, such as standard deviation, histograms, distribution curves, etc.

Prerequisite: None.

## **MFG 130 Materials Science**

**5 credits , REEL**

**Quarter(s): F, W**

Material Science is a study of the nature, structure, characteristics, and properties of natural and synthetic materials used in contemporary industry. Emphasis will be placed on understanding how the structure and properties of industrial influence the selection of primary materials and their conversion into useful products.

Prerequisite: None

## **MFG 140 Applied Hydraulics**

**4 credits , REEL**

**Quarter(s): F**

Covers basic problems of hydraulics, fluids, power, hydraulics actuators, controls, pressures and circuits, and principles of industrial applications.

Prerequisite: None

**MFG 205 Work Teams in Industry**  
**3 credits , REEL**

Explores the interpersonal skills, group roles, team structures, problem solving techniques, and work ethics necessary for success in modern industrial organizations. Practical exercises are used to allow students to develop critical skills.

Prerequisite: None

**MFG 230 Computer Integrated Manufacturing**  
**4 credits , REEL**  
**Quarter(s): Sp**

Introduces the student to the basic concepts of Computer Integrated Manufacturing and provides a foundation for applying those concepts in actual industrial situations. The course also introduces the student to CAD/CAM concepts and their function in the design and manufacturing process. Students will use specialized software to design parts, simulate the machining process, and observe the production of actual machine parts. Lab hours are required for this course.

Prerequisite: None

**MFG 288 Cooperative Work Experience**  
**2 credits**

Provides work-based learning experience in a specific program of study. Individualized student outcomes are developed, focusing on behaviors that contribute to workplace success.

Prerequisites: Instructor or Cooperative Education Coordinator permission  
Concurrent requirements: COLL 289 or BUS 294 must be taken prior to or concurrent with this course.

**MFG 299 Independent Study**  
**1 – 10 credits**

Offers individualized learning opportunities for knowledge or skill development. Content and expectations are established between the student and instructor, and documented in an Independent Study contract.

Prerequisites: By instructor permission only.