APR 107M : MANUFACTURING TRADES TECHNOLOGIES

Transcript title
MFG Trades Technologies

Credits
4

Grading mode
Standard letter grades

Total contact hours
80

Other hours
80

Recommended preparation
APR 100M and APR 105M.

Course Description
Introduces students to advanced concepts, tools, and technologies used in modern manufacturing environments. Participants will build on foundational skills through applied learning in three key areas: Manufacturing Processes, Quality, and Advanced Manufacturing Technologies. Students will gain hands-on experience with blueprint interpretation, precision measurement, and shop machinery. Emphasis is placed on understanding quality principles such as tolerances, quality control (QC), and quality assurance (QA) practices that support accuracy and efficiency in production. The course also explores emerging technologies in manufacturing, including computer-aided manufacturing (CAM), CNC operations, additive manufacturing (3D printing), industrial robotics, programmable logic controllers (PLCs), and applications of artificial intelligence in industrial systems. By the end of the course, students will understand how traditional and advanced manufacturing processes integrate to improve productivity, quality, and innovation across the modern manufacturing industry.

Course learning outcomes
1. Apply quality assurance and quality control principles, including tolerances, inspection, and documentation standards.
2. Interpret blueprints and apply measurement and layout techniques used in manufacturing processes.
3. Operate basic shop machinery safely and accurately to support production and fabrication tasks.
4. Analyze how automation and emerging technologies, including artificial intelligence, enhance efficiency, precision, and innovation in industrial production.

Content outline
1. Manufacturing Processes
2. Quality
3. Advanced Manufacturing Technologies

Required materials
No materials required.