ISET-1813: PRODUCTION TECHNICIAN AND MAINTENANCE I

Cuyahoga Community College

Viewing: ISET-1813 : Production Technician and Maintenance I

Board of Trustees:
5/23/2024

Academic Term:
Fall 2026

Subject Code
ISET - Integrated Systems Engineering

Course Number:
1813

Title:
Production Technician and Maintenance I

Catalog Description:
This course delves into the essential principles of manufacturing production, including safety and quality, with a special focus on the application of industrial safety and quality measurement techniques. Through hands-on instruction and practice, participants will gain a comprehensive understanding of these key principles and their significance in the field of manufacturing.

Credit Hour(s):
3

Lecture Hour(s):
2

Lab Hour(s):
2

Requisites

Prerequisite and Corequisite
Math 0910 and ENG 990 or instructor Approval

Outcomes

Course Outcome(s):
Work in a Safe and Productive Manufacturing Workplace, perform safety and environmental assessments, emergency drills and participate in emergency teams, identify unsafe conditions and take corrective action

Objective(s):
1. Explain industrial workplace safety expectations
2. Participate in mock assessments and drills
3. Identify factors required for successful teams and communication.
4. Participate in mock safety training

Course Outcome(s):
Suggest processes and procedures that support safety of work environment, fulfill safety and health requirements for maintenance, installation, and repair, monitor safe equipment and operator performance, Utilize effective, safety-enhancing workplace practices

Objective(s):
1. Read and understand common industrial work instructions
2. Search common workplace safety documents for safe use requirements
3. Review common monitoring logs and identify outliers
4. Assemble effective workplace teams

Course Outcome(s):

Participate in periodic or statistically based internal quality audit activities, Check and document calibration of gauges and other data collection equipment, suggest continuous improvements, inspect materials and product/process at all stages to ensure they meet specifications, Document the results of quality tests

Objective(s):

- Perform mock quality audit
- Perform mock equipment calibration and inspection
- Review common materials/process against specifications
- Practice documentation of common quality tests

Course Outcome(s):

Communicate quality problems, take corrective actions to restore or maintain quality, Record process outcomes and trends, identify fundamentals of blueprint reading, Use common measurement systems and precision measurement tools

Objective(s):

- Learn Common communication modes
- Record mock data in common production systems
- Extract useful dimensional information from blueprints
- Perform mock measurements with precision measurement tools

Methods of Evaluation:

1. Completion of assigned homework
2. Periodic quizzes
3. Exams
4. Simulations and Applied Demonstrations

Course Content Outline:

1. Safety
1. Introduction to Advanced Manufacturing
2. Industry 4.0 and IIoT
3. Safety Responsibilities
4. Practicing Safety in the Workplace
5. Types of PPE
6. Hazardous Materials Standards
7. Hazardous Material Handling and Storage
8. Machine Safety
9. Equipment Safety
10. Material Handling and Robot Safety
11. Safety Inspections and Analysis
12. Work Area Safety
13. Training
14. Fire and Electrical Safety
15. Emergency and Accident Response
16. Introduction to Communication
17. Receiving Communication
18. Communication Methods
19. Communicating Feedback
20. Introduction to Teams
21. Production Team Communication
22. Team Ideation
23. Workplace Behavior

2.Quality

1. Introduction to Quality
2. Dimensional Measurement
3. Measurement Conversion
4. Introduction to Print Reading
5. Multiview Drawings
6. Blueprint Dimensions and Notes
7. Manufacturing Drawings and Scales
8. Welding Symbols
9. Tolerancing
10. Caliper Measurement
11. Micrometer Measurement
12. Indicator Measurement
13. Quality Inspections and Audits
14. Introduction to Quality Tools
15. Preventive and Corrective Action
16. Basic Statistical Concepts
17. Introduction to Control Charts

Religious Accommodation

Before reviewing the course schedule, students should carefully review the following religious accommodation policy and other required instructional policies:

Religious Accommodation:

Students seeking an accommodation for absences permitted under Ohio's Testing Your Faith Act must provide the instructor with written notice of the specific dates for which the student requires an accommodation and must do so not later than fourteen (14) days after the first day of instruction. Please submit requests for accommodations at this link: https://portal2.tri-c.edu/ReligiousAccommodation/ Religious Accommodation Form. Students with questions about their religious accommodations under Ohio's Testing Your Faith Act may contact the College's Office of General Counsel and Legal Services by phone at 216.987.4856 or via email at legal@tri-c.edu.

Other Required Instructional Policies:

https://www.tri-c.edu/student-resources/curriculum/documents/syllabus-part-b.pdf

Weekly Schedule

	Topics
Week 1	Work in a Safe and Productive Manufacturing Workplace, perform safety and environmental assessments, emergency drills and participate in emergency teams, identify unsafe conditions and take corrective action
Week 2	Work in a Safe and Productive Manufacturing Workplace, perform safety and environmental assessments, emergency drills and participate in emergency teams, identify unsafe conditions and take corrective action
Week 3	Work in a Safe and Productive Manufacturing Workplace, perform safety and environmental assessments, emergency drills and participate in emergency teams, identify unsafe conditions and take corrective action
Week 4	Work in a Safe and Productive Manufacturing Workplace, perform safety and environmental assessments, emergency drills and participate in emergency teams, identify unsafe conditions and take corrective action
Week 5	Suggest processes and procedures that support safety of work environment, fulfill safety and health requirements for maintenance, installation, and repair, monitor safe equipment and operator performance, Utilize effective, safety-enhancing workplace practices
Week 6	Suggest processes and procedures that support safety of work environment, fulfill safety and health requirements for maintenance, installation, and repair, monitor safe equipment and operator performance, Utilize effective, safety-enhancing workplace practices
Week 7	Suggest processes and procedures that support safety of work environment, fulfill safety and health requirements for maintenance, installation, and repair, monitor safe equipment and operator performance, Utilize effective, safety-enhancing workplace practices
Week 8	Suggest processes and procedures that support safety of work environment, fulfill safety and health requirements for maintenance, installation, and repair, monitor safe equipment and operator performance, Utilize effective, safety-enhancing workplace practices

Week 9	Participate in periodic or statistically based internal quality audit activities, Check and document calibration of gauges and other data collection equipment, suggest continuous improvements, inspect materials and product/process at all stages to ensure they meet specifications, Document the results of quality tests
Week 10	Participate in periodic or statistically based internal quality audit activities, Check and document calibration of gauges and other data collection equipment, suggest continuous improvements, inspect materials and product/process at all stages to ensure they meet specifications, Document the results of quality tests
Week 11	Participate in periodic or statistically based internal quality audit activities, Check and document calibration of gauges and other data collection equipment, suggest continuous improvements, inspect materials and product/process at all stages to ensure they meet specifications, Document the results of quality tests
Week 12	Participate in periodic or statistically based internal quality audit activities, Check and document calibration of gauges and other data collection equipment, suggest continuous improvements, inspect materials and product/process at all stages to ensure they meet specifications, Document the results of quality tests
Week 13	Communicate quality problems, take corrective actions to restore or maintain quality, Record process outcomes and trends, identify fundamentals of blueprint reading, Use common measurement systems and precision measurement tools
Week 14	Communicate quality problems, take corrective actions to restore or maintain quality, Record process outcomes and trends, identify fundamentals of blueprint reading, Use common measurement systems and precision measurement tools
Week 15	Communicate quality problems, take corrective actions to restore or maintain quality, Record process outcomes and trends, identify fundamentals of blueprint reading, Use common measurement systems and precision measurement tools
Week 16	Communicate quality problems, take corrective actions to restore or maintain quality, Record process outcomes and trends, identify fundamentals of blueprint reading, Use common measurement systems and precision measurement tools

The Course Schedule is subject to change due to pedagogical needs, instructor discretion, parts of term, and unexpected events.

Required/Recommended Readings

Readings may be selected from the following textbooks:

- The Council for Six Sigma Certification. *Six Sigma White Belt Certification: Training Manual*.
- JJ Keller. *OSHA Safety Training Handbook*.
- Mikell P. Groover. *Fundamentals of Modern Manufacturing: Materials, Process and Systems.*

Resources for the Instructor

Mikell P. Groover. *Fundamentals of Modern Manufacturing: Materials, Process and Systems.*. 7th. New York: Wiley, 2023.

JJ Keller. *OSHA Safety Training Handbook*. 8th. Neenah WI: JJ Keller & Associates Inc., 2024.

The Council for Six Sigma Certification. *Six Sigma White Belt Certification: Training Manual*. Buffalo WY: Harmon Living LLC, 2024.

Top of page

Key: 5234