

# COURSE SYLLABUS

<b>LAST REVIEW</b>	Fall 2022
<b>COURSE TITLE</b>	Total Productive Maintenance (TPM)
<b>COURSE NUMBER</b>	AMFT 0160
<b>DIVISION</b>	Career and Technical Education
<b>DEPARTMENT</b>	AMFT
<b>CIP CODE</b>	15.0406
<b>CREDIT HOURS</b>	3
<b>CONTACT HOURS/WEEK</b>	Class: 1                      Lab: 4
<b>PREREQUISITES</b>	None
<b>COREQUISITES</b>	None
<b>COURSE PLACEMENT</b>	None

## COURSE DESCRIPTION

The purpose of this course is to introduce Process tools and software to map machine reliability and downtime cost effects on manufacturing operations and production success. This course will introduce TPM methodologies and principles and utilize them in course labs. Process tools with focus on machine troubleshooting will be utilized to do root cause analysis and continuous improvement to cure problems rather than adapting to them. (CMMS) Computer Maintenance Management Software will be used as a process tool to discover and implement changes regarding both Predictive and Preventative Maintenance. The students will analyze the labs manufacturing equipment and create and close work orders, build preventative Maintenance schedules and preventative maintenance schedules in the CMMS software. The students will do projects to calculate lost revenue due to an individual piece of equipment.

## PROGRAM ALIGNMENT

This course is part of a program aligned through the Kansas Board of Regents and Technical Education Authority. For more information, please visit:

[https://kansasregents.org/workforce\\_development/program-alignment](https://kansasregents.org/workforce_development/program-alignment)

## Program Learning Outcomes

1. The student will be able to assess hazards, mitigate risk, and develop procedures and protocol to create a safe working environment.
2. Student will be able to collaborate with team members in developing a plan to maximize efficiency in a production facility.
3. The student will be able to evaluate implicit tasks and identify necessary resources to install and maintain industrial equipment.

4. Student will be able to troubleshoot and repair industrial equipment in the high stress environment of modern manufacturing.

## **TEXTBOOKS**

<http://kckccbookstore.com/>

## **METHODS OF INSTRUCTION**

A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

## **COURSE OUTLINE**

- I. Fundamentals of Total Productive Maintenance
- II. Principles of root cause analysis
- III. Fundamentals of predictive and preventative maintenance
- IV. Principles of Machine Reliability
- V. Principles of Best Practice
- VI. Principles and functional use of repeatable machine process
- VII. CMMS role in Total Productive Maintenance and Machine Reliability
- VIII. Work order functionality
- IX. Calculate lost productivity and downtime cost

## **COURSE LEARNING OUTCOMES**

Upon successful completion of this course, the student will:

- A. The student will be able to utilize various TPM methodologies in lab projects.
- B. The student will be able to troubleshoot machine process using root cause analysis.
- C. The student will be able to work in group projects to create best practice standards.
- D. The student will be able to create and close work orders on schedules in CMMS.
- E. The student will be able to create asset tags and use in lab to calculate machine reliability cost.
- F. The student will be able to utilize different tools within CMMS to optimize machine process and reliability.
- G. The student will be able to perform financial analysis based on data from CMMS in lab.

## **ASSESSMENT OF COURSE LEARNING OUTCOMES**

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

## **COLLEGE POLICIES AND PROCEDURES**

*Student Handbook*

<https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf>

*College Catalog*

<https://www.kckcc.edu/academics/catalog/index.html>

*College Policies and Statements*

<https://www.kckcc.edu/about/policies-statements/index.html>

*Accessibility and Accommodations*

<https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html>.