College of the Redwoods
Manufacturing Technology Advisory Committee
Meeting Minutes

Tuesday, March 2, 2021
6:00 – 7:00 PM
Virtual Meeting via Zoom

1. **Welcome**

Introductions

Committee members present:

Marty Coelho	College of the Redwoods
Steve Cole	Marimba One
Kenny Ingalls	South Fork High School
Brad Johnson	Hoopa Valley High School
Cassie Kemic	Department of Rehabilitation
Louis Lonn	Wing Inflatables
Will Maderas	County of Humboldt
Kerry Mayer	College of the Redwoods
Mike Peterson	College of the Redwoods
John Schmidt	NFNRC, Shasta College
Jack Sheppard	Humboldt County Office of Education
Karling Skoglund	Humboldt County Office of Education
Dave Stevens	Eureka High School
Montel Vander Horck	College of the Redwoods
Danny Walker	College of the Redwoods
Ryan Whitley, Chair	Bar JD Manufacturing

2. **Program Update – Mike Peterson**

Minutes from Previous Meeting

The Spring 2019 meeting minutes were reviewed. We are grateful to John Schmidt for serving as Chair and producing this excellent document.

Program Plans from Program Review Report

1. Complete the PVC`s 4021 recommendation by finalizing the Manufacturing Maintenance Technician Certificate curriculum and implement classes.
   - New certificate proposal was approved by the North Far North Regional Consortium
2. Increase program relevance by providing students excellent learning opportunities in an industrial setting.
   - Replace Five Vertical Knee-Type Milling Machines
   - Replace Five 13” Engine Lathes
   - Investigate Water Jet machining

- Purchase laboratory equipment relevant to the proposed Manufacturing Maintenance Technician certificate including training systems for teaching hydraulics, pneumatics, and Programmable Logic Controllers, for example.

New Certificate: Manufacturing Maintenance Technician

The proposed certificate was discussed, and the following information was reviewed. The core welding course number was corrected from WT-52 to WT-53.

Catalog Description

The Manufacturing Maintenance Technician certificate prepares students for careers in the manufacturing industry that are essential for keeping manufacturing facilities productive. These careers involve the set-up, preventative maintenance, troubleshooting, and repair of a wide-range of industrial machinery. Students will learn hands-on skills in fabrication, machining, and welding through project-based lessons. Theoretical content in mechanics, fluid power, electronics, robotics, programming, and precision measurement will be reinforced with laboratory interactions using state-of-the-art industrial machinery. Students will specialize by selecting elective courses that emphasize curriculum in a variety of technologies.

Program Goals

Create a flexible educational pathway aligned with Manufacturing Technology that allows students to gain skills and be employable in one year.

Provide local industry with a workforce that has specific skills tailored to niche manufacturing in Humboldt County.

Offer a credential that addresses targeted industrial concepts so that students will rapidly become eligible for occupations such as Helpers-Installation, Maintenance & Repair Workers (49-9098.00), Maintenance and Repair Workers, General (49-9071.00), Industrial Machinery Mechanics (49-9041.00), Millwrights (49-9044.00), and Maintenance Workers, Machinery (49-9043.00).

Enhance our Manufacturing Technology Program to include additional areas of study such as Industrial Systems Technology and Maintenance (0945.00) and Industrial Mechanics and Maintenance Technology (47.0303).

Outcomes

After successfully completing this program, a student will be able to:
1. Set-up, maintain, troubleshoot, and repair a variety of industrial machines.
2. Demonstrate safe work habits using a wide-range of tools, chemicals, and materials.
3. Perform process optimization using industrial concepts such as statistical process control, root cause analysis, and lean manufacturing.

Proposed New Credential

- *Manufacturing Maintenance Technician* - Two semesters: Total Units 22 - 24

Core Courses	Units	
▪ CET-10 Survey of Electronics	3	
▪ IT-25 30 Hour OSHA Training	2	
▪ IT-60 Basic Blueprint Reading	3	New Course
▪ IT-70 Fundamentals of Industrial Maintenance	3	New Course
▪ MT-10 Fundamentals of Manufacturing Technology	3	
▪ WT-52 Basic Gas and Arc Welding	2	
	Core Total 16	

Electives: Choose 6 to 8 Units

▪ AT-10 Introduction to Automotive Technology	4
▪ CET-10L Survey of Electronics Lab	1
▪ CT-21A Survey of Wood Technology	3
▪ DT-23 Engineering Design Graphics	3
▪ IT-152 Technical Computer Applications Lab	1
▪ MT-13 Advanced Manufacturing Processes	4
▪ MT-54A Fundamentals of CNC Machining	4
▪ MT-59A Mastercam 2-D Programming	4
▪ MT-53 Introduction to Metallurgy and Material Science	3
▪ WT-80 Welding Fabrication	2

Recommended Course Sequencing			
Fall Semester	Units	Spring Semester	Units
IT-70 Fundamentals of Industrial Maintenance	3	CET-10 Survey of Electronics	3
IT-25 30 Hour OSHA Training	2	IT-60 Basic Blueprint Reading	3
MT-10 Fundamentals of Manufacturing Technology	3	WT-53 Basic Gas and Arc Welding	2
Elective(s) At least	4	Elective(s) At least	4
Total	12	Total	12

Program and Course Learning Outcomes

Current and proposed learning outcomes were reviewed and discussed.

Fall 2021 Schedule

All classes are face-to-face.
MT-10 Fundamentals of Manufacturing Technology
Tuesdays and Thursdays, 6:05 – 8:40 PM
MT-12 Advanced Manufacturing Technology – Milling
Mondays and Wednesdays, 10:05 AM – 2:30 PM
MT-52 Introduction to Metallurgy and Material Science

Tuesdays and Thursdays, 1:15 – 3:45 PM

MT-54A Introduction to Computer Numerical Control

Mondays and Wednesdays, 2:50 – 5:50 PM

CET-10 Survey of Electronics

Tuesdays and Thursdays, 2:30 – 3:55 PM

CET-10L Survey of Electronics Lab

Tuesdays and Thursdays, 4:05 – 5:30 PM

3. Discussion

The committee discussed the impacts on the program and businesses due to COVID-19. The program's move to all online delivery for 2020-2021 allowed the program to continue while reducing risk, however the change was not without disruption. Details of the lathe and milling machine replacement project were discussed. While these machines are standard for general machine parts production and machine maintenance shops, not every local manufacturer uses lathes and milling machines in their specific production environments. The program is investigating other technologies such as water jet machining to enhance the program and make it stand out among similar programs at other colleges. There is some use of specialized and proprietary design and manufacturing software, however local companies are mainly using Mastercam, Solidworks, and Fusion 360.