Program Information Report

CTMTSO

School of Advanced Manufacturing Systems

Whether your interest is in manufacturing or automation, the programs in the School of Advanced Manufacturing Systems will fit your needs. Maintain and troubleshoot the machines that make commercial goods by specializing in one or more aspects of the machining industry. Develop entry level or advanced skills in electronics, automation hydraulics or numerical controls.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or advance in their existing careers. The first level is the certificate, which can vary from nine to thirty-six credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level, an Associate in Applied Science, is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, an advanced certificate (if one exists) and General Education requirements.

Machine Tool

Learn about machining operations through the production of parts using WCC's extensive machine tool laboratory.

Program Information Report

Machine Tool Setup and Operation (CTMTSO)

Certificate

Program Effective Term: Fall 2015

In this program, students learn to setup and operate CNC machine tools, traditional mills, lathes, and saws. They learn how to use basic measurement tools and read blueprints. This certificate will highlight the fundamentals of materials and processes including mechanical and physical testing and heat treatment of ferrous and non-ferrous metals. Students completing this certificate will be able to perform many of the fundamental tasks within a fabrication shop, including simple part manufacturing, set-up and operation of CNC machine tools as well as inspection using simple measurement tools.

Major / Core Requirements		Credits
MEC 100	Materials and Processes	3
MEC 101	3D Modeling and Blueprint Reading	2
MEC 201	Mechanisms	2
MTT 102	Machining for Auto Applications	2
MTT 111	Machine Shop Theory and Practice	4
NCT 101	Introduction to Computerized Machining (CNC) - I	2
NCT 110	Introduction to Computerized Machining (CNC) - II	2
Minimum Credits Required for the Program:		**17**

PROGRAM PROPOSAL FORM

☐ **Preliminary Approval** – Check here when using this form for preliminary approval of a program proposal, and respond to the items in general terms.

☒ **Final Approval** – Check here when completing this form after the Vice President for Instruction has given preliminary approval to a program proposal. For final approval, complete information must be provided for each item.

Program Name:	Machine Tool Setup and Operation	**Program Code:** CT MTSO
Division and Department:	Advanced Technology and Public Services Careers/ Industrial Technology Department	
Type of Award:	☐ AA ☐ AS ☐ AAS ☒ Cert. ☐ Adv. Cert. ☐ Post-Assoc. Cert. ☐ Cert. of Comp.	
Effective Term/Year:	Fall 2015	**CIP Code:** 48.0501
Initiator:	Jeff Donahey/Thomas Penird	

Program Features Program's purpose and its goals. Criteria for entry into the program, along with projected enrollment figures. Connection to other WCC programs, as well as accrediting agencies or professional organizations. Special features of the program.	In this certificate, students are taught how to read blueprints, visualize models in 3D space, understand materials processes and testing, and recognize the fundamentals of machine tools. In addition, measurement techniques and the setup and operation of CNC machine tools will be practiced. The student will be able to go into a local manufacturing company and operate a traditional or CNC machine tool, as well as do operations like heat treating, testing, and measurement of product.
Need Need for the program with evidence to support the stated need.	Many of our students are only here to get specific training required by local industry. This is reflected in our completion numbers. Several students have asked for certification. Local employers would like the certification as in indication of the level of skill sets the potential employee has attained. We have eliminated the machine tool technology program from the Mechatronics (Formerly Automation) program. The MTT111 class needs to be associated with a program to aid in enrollment.

Program Outcomes/Assessment State the knowledge to be gained, skills to be learned, and attitudes to be developed by students in the program. Include assessment methods that will be used to determine the effectiveness of the program.	Outcomes	Assessment method
	1. Setup and operate CNC mills and lathes.	1. Capstone Projects
	2. Operate traditional mills, lathes, and saws.	2. Capstone Projects
	3. Read and interpret blueprint abbreviations, symbols and dimensions.	3. Test
	4. Measure parts using core measurement devices such as micrometers, calipers, rules, go-no gages, protractors and optical comparators.	4. Tests

Office of Curriculum & Assessment
logged 1/28/15 sf ✓
Done 2/10/15 mo

Curriculum List the courses in the program as they should appear in the catalog. List minimum credits required. Include any notes that should appear below the course list.	MEC 100	3 credits	Materials and Processes
	MEC 101	2 credits	3D Modeling and Blueprint Reading
	MEC 201	2 credits	Mechanisms
	MTT 102	2 credits	Machining for Automotive applications
	MTT 111	4 credits	Machine Shop Theory and Practice
	NCT 101	2 credits	Introduction to Computerized Machining (CNC I)
	NCT 110	2 credits	Introduction to Computerized Machining (CNC II)
		17 credits	
	Note: These are all existing courses		

Budget Specify program costs in the following areas, per academic year:		**START-UP COSTS**	**ONGOING COSTS**
	Faculty	**$ 0.0**	**$.**
	Training/Travel	**0.0**	**.**
	Materials/Resources	**.**	**.**
	Facilities/Equipment	**.**	**.**
	Other	**.**	**.**
	TOTALS:	**$.**	**$.**

Program Description for Catalog and Web site

In this program, students learn to setup and operate CNC machine tools, traditional mills, lathes and saws. They learn how to use basic measurement tools and read blueprints. This certificate will highlight the fundamentals of materials and processes including mechanical and physical testing and heat treatment of ferrous and non-ferrous metals. Students completing this certificate will be able to perform many of the fundamental tasks within a fabrication shop including simple part manufacturing, set-up and operation of CNC machine tools as well as inspection using simple measurement tools.

Program Information

Accreditation/Licensure -
Advisors -
Advisory Committee -
Norgren: Mike Rodocker, Josh Jeffers
Zero Hour Parts: Brandon Hoag, Debra Adams, MS PHR
Faurecia: Wes Nichols
Mechanized Numerics LLC: Andrew Dubuc
L&W Engineering: David Braun
Jacobs Technologies: Ed Grabow
Heller Precision Machining: Jason Barnhart, Chris Wehrle

Admission requirements -

Articulation agreements -

Continuing eligibility requirements -

Assessment plan:

Program outcomes to be assessed	Assessment tool	When assessment will take place	Courses/other populations	Number students to be assessed
1. Setup and operate CNC mills and lathes.	Capstone Project	Fall 2015	NCT 110	All
2. Operate traditional mills, lathes, and saws.	Capstone Projects	Fall 2015	MTT 111	All
3. Read and interpret blueprint abbreviations, symbols and dimensions.	Test	Fall 2015	MEC101	All
4. Measure parts using core measurement devices such as micrometers, calipers, rules, go-no gages, protractors and optical comparators.	Test	Fall 2015	MTT 111	All

Scoring and analysis plan:

1. Indicate how the above assessment(s) will be scored and evaluated (e.g. departmentally-developed rubric, external evaluation, other). Attach the rubric.

   Outcomes 1 and 2: Department-developed rubric
   Outcomes 3 and 4: Answer Key

2. Indicate the standard of success to be used for this assessment.
   75% of the students will score 70% or better on each outcome.

3. Indicate who will score and analyze the data.
   Department Faculty

REVIEWER	PRINT NAME	SIGNATURE	DATE
Department Chair/Area Director	Thomas	Penird	1/6/2015
Dean	Brandon	Tucker	1/6/15
Vice President for Instruction ☐ Approved for Development ☐ Final Approval	William Abernethy		2/5/15
President	Rose Bellanca	Rose Bellanca	2/23/15
Board Approval			3/24/15