

Advisory Committee Minutes Spring 2019

Machining

Vernon College – Skills Training Center

April 22, 2019 at 12:00pm

David Kulbeth - Chair

Ernie Stutz - Vice Chair

Mark McMillan - Recorder

Members Present:

George Dozier, Prat - Whitney

Scotty Francisco, Wichita Clutch

David Kulbeth, Kalco Machine and Manufacturing

Mike Kwas, Howmet

Mark McMillan, Production Machine

Eric Michaeli, Wichita Clutch

Crystal Ojeda, Workforce Solutions

Scott Stubbs, SMS Machining

Ernie Stutz, METech

Faculty and Staff Present:

Dr. Elizabeth Crandall

Shana Drury

Chelsey Henry

Mark Holcomb

Mollie Williams

David Kulbeth opened the meeting with new business.

Review program outcomes, assessment methods/results, and workplace competency

Program Outcomes:

David Kulbeth asked the committee review the following. Shana Drury reviewed the outcomes with the committee reminding them that these are overall outcomes.

1. Blueprint Reading – Students must be able to read and interpret drawings that are given on multiple parts of an assembly. Part material selection, orientation, and feature tolerances are the most critical.
2. Measurement – Students must be able to use applicable measuring processes to verify the size and location of part features. The ability to measure is not limited to precision tools but also micrometer hand wheels that provide precise movements on machine tools such as mills and lathes.
3. Tooling and Fixtures – Students must be able to know how to hold and manipulate parts to be machined. When conventional holding methods fail, students must be able to create suitable fixtures that hold parts in the correct orientation so they can be held in place throughout the machining process.
4. Programming and Editing – Students must have a good working knowledge of programming using common G&M codes and syntax. Students must be able to isolate and correct programming issues.
5. Setup and Operation – Students must be knowledgeable about how a mill and lathe works (both CNC and Conventional). Students must understand how the machine uses tools and how the machine applies a part program to its coordinate envelope. They must be able to use the machines registry for setups and tooling compensation.

*David Kulbeth asked the committee for a motion to approve the program outcomes as presented.
Eric Michaeli made a motion to approve the program outcomes as presented.
George Dozier seconded the motion.*

The motion passed and the committee approves the program outcomes as presented.

Assessment Methods and Results:

Tests, quizzes, lab scenarios, course projects, daily assignments.

David Kulbeth asked the committee for a motion to approve the assessment methods and results as presented.

*Mike Kwas made a motion to approve the assessment methods and results as presented.
Ernie Stutz seconded the motion.*

The motion passed and the committee approves the assessment methods and results as presented.

Workplace competency:

Insert workplace competencies (capstone course or licensure exam). Use the table below to fill in data:

Program Outcome	Number of students who took course or licensure exam	Results per student	Use of results
1. Blueprint Reading	N/A	4 students	All completed
2. Measurement	N/A	4 students	All completed
3. Tooling and Fixtures	N/A	4 students	All completed
4. Programming and Editing	N/A	4 students	All completed
5. Setup and Operation	N/A	4 students	All completed

*David Kulbeth asked for a motion to approve the workplace competency as presented.
Eric Michaeli made a motion to approve the workplace competency as presented.
Mike Kwas seconded the motion.*

The motion passed and the committee approves the workplace competencies as presented.

Review program curriculum/courses/degree plans

Machining, Level 1 Certificate

CIP 48.0501

Level 1 Certificate

MACHINING - CNC

Instructional Location - Skills Training Center

CERTIFICATE OF COMPLETION (Probable Completion Time – 9 months or 32 weeks)

Major Requirements (31 SH)

Fall Block

<u>MCHN 1320</u>	Precision Tools and Measurement	3
<u>MCHN 1408</u>	Basic Lathe	4
<u>MCHN 1413</u>	Basic Milling Operations	4
<u>MCHN 2444</u>	Computerized Numerical Control Programming	4

Spring Block

<u>MCHN 1426</u>	Introduction to Computer-Aided Manufacturing (CAM)	4
<u>MCHN 2403</u>	Fundamentals of Computer Numerical Controlled (CNC) Machine Controls	4
<u>MCHN 2433</u>	Advanced Lathe Operations	4
<u>MCHN 2441</u>	Advanced Machining I	4
	Total Credit Hours:	30

Verification of Workplace Competencies: Capstone Experience

<u>MCHN 2441</u>	Advanced Machining I	4
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Machining Occupational Skills Award (11 Semester Hours):

<u>MCHN 1320</u>	Precision Tools and Measurement	3
<u>MCHN 1426</u>	Introduction to Computer-Aided Manufacturing (CAM)	4
<u>MCHN 2444</u>	Computerized Numerical Control Programming	4

MCHN 1320 - Precision Tools and Measurement - An introduction to the modern science of dimensional metrology. Emphasis on the identification, selection, and application of various types of precision instruments associated with the machining trade. Practice of basic layout and piece part measurements while using standard measuring tools.

Perform common methods of measurement conversion; determine the degree of precision measurement required; identify various types of precision instruments and their applications; list maintenance procedures on various types of measuring instruments; interpret and confirm blueprint requirements; convert between English and metric units; compute total tolerances of parts; calibrate various types of precision measuring instruments to a standard; and select and use precision measurement tools.

MCHN 1408 - Basic Lathe - An introduction to the common types of lathes. Emphasis on basic parts, nomenclature, lathe operations, safety, machine mathematics, blueprint reading, and theory.

Identify engine lathe components; match cutting speeds and feeds to materials; list safety procedures; identify machine accessories; identify types of lathes; use formulas to calculate speeds and feeds; set up basic lathe operations; perform metal removing operations such as turning, facing, drilling, grooving, turning on centers, and threading; and perform basic machine maintenance.

MCHN 1413 - Basic Milling Operations - An introduction to the common types of milling machines, part nomenclature, basic machine operations and procedures, safety, machine mathematics, blueprint reading, and theory.

Identify milling machine components and their functions; identify types of milling machines; describe the difference between climb and conventional milling; calculate speeds and feeds for milling machines; set up milling machines; and operate milling machines.

MCHN 2444 - Computerized Numerical Control Programming - An introduction to G and M codes (RS274-D) necessary to program Computer Numerical Controlled (CNC) machines.

Write, simulate, edit execute CNC programs; calculate the feeds and speeds for various materials; and select the appropriate tooling.

MCHN 1426 - Introduction to Computer-Aided Manufacturing (CAM) - A study of Computer-Aided Manufacturing (CAM) software which is used to develop applications for manufacturing. Emphasis on tool geometry, tool selection, and the tool library.

Use Computer-Aided Manufacturing software to create part programs; transfer programs to the machine control unit; and machine parts.

MCHN 2403 – Fundamentals of Computer Numerical Controlled (CNC) Machine Controls
Programming and operation of Computer Numerical Controlled (CNC) machine shop equipment

Demonstrate operations of CNC machine controls; compare and contrast the differences between conventional and CNC machines; utilize CNC machine applications for machining operations.

MCHN 2433 - Advanced Lathe Operations - Identify and use of special lathe cutting tools and support tooling, such as, form tools, carbide inserts, taper attachments, follower and steady rest. Close tolerance machining required.

Identify and apply special lathe tooling; list machine and work setup procedures; list and explain machining operation procedures; calculate speeds and feeds; perform advanced setups utilizing support tooling; and perform advanced machining operations to specifications.

MCHN 2441 - Advanced Machining I - Advanced lathe and milling operations. Emphasis on advanced cutting operations of the lathe and milling machines, including the use of special tooling, bench assembly, and materials identification.

Identify and apply special tooling for the lathe and milling machines; list machine and work setup procedures; identify and select proper tooling for machining of specific materials; and perform advanced lathe and milling machine setup to specifications.

Suggested revisions:

There was discussion of adding a blueprint reading and sketching course. Ernie discussed a previous course of Intro to Blueprint Reading because in the field they need to know what they are looking at as well as how to create a basic print.

The committee would like to add in DFTG 1325 after hearing the course description. Shana Drury and Mark Holcomb informed the committee that additions can be made to the course but not taken away. Shana reminded the committee that adding the additional course means that one course would have to be approved. Mark Holcomb discussed the option of the four CNC courses, maybe Advanced Lathe is too much for this program. There was discussion that being able to create CNC code and programming might be more than needed. There was discussion of MCHN 1426 and the software learning. There was discussion that if one course had to leave it would be MCHN 1426, they will be getting information on that during MCHN 2444. Mike Kwas mentioned another option would be to take MCHN 2433 Advanced Lathe Operations and just add to the Basic Lathe course. The question was asked within the committee members if you had to choose between MCHN 2444 and MCHN 2403? The committee discussed this further and with the definitions MCHN 2403 and the option of MCHN 1426. Scotty Francisco mentioned that he thought the MCHN 2444 should be kept because it is a necessary skill to be able to do beginning in the workforce. With that there is more discussion of dropping MCHN 2403. There was additional discussion of dropping MCHN 1426. Shana Drury mentioned Print Reading for Machining Trades and read the description for the committee. "MCHN 1302 – Print and Reading for Machining Trades: A study of blueprints for machining trades with emphasis on machine drawings. Identify the elements of machine drawings; interpret dimensions, tolerance, and geometric aspects of blueprints; and explain Geometric Dimensioning and Tolerancing (GD&T) symbols and their meanings. The committee agreed that this description fits better with the program than the DFTG 1325. Adding MCHN 1302 for blueprints and dropping MCHN 2403. Mark McMillan wants to drop MCHN 1426 and there was discussion on the options for courses that can replace that course.

Shana Drury informed the committee of the courses listed below that with the changes that Chris Rivard is recommending. Chris explained he took several things into consideration when making these changes including the workforce as well as the students. He thinks these changes will increase the skills of the students. There was some discussion about combining courses to include the skills from courses that are being dropped.

Mark McMillan made a motion to add MCHN 1302 to the fall block, drop MCHN 2403 from the spring and move MCHN 2444 to the spring block.

Scott Stubbs seconded the motion.

The motion passed and the committee approves the program revisions as presented.

SCANS Matrix: The SCANS (Secretary’s Commission on Achieving Necessary Skills) Matrix represents the 8 Federal requirements that must be taught. The matrix shows how we are mapping them back to each of the courses in the program.

Program: Machining								Credential: Certificate of Completion	
Award: Machining -CNC Certificate of Completion									
Cip: 48.0501									
LIST OF ALL COURSES REQUIRED AND IDENTIFIED									
COMPETENCIES									
SCANS COMPETENCIES								Course Number	Course Title
1	2	3	4	5	6	7	8		
X	X	X	X	X	X	X	X	MCHN 1320	Precision Tools and Measurement
X		X	X	X	X	X		MCHN 1408	Basic Lathe
X		X	X	X	X	X		MCHN 1413	Basic Mill
X		X		X	X	X	X	MCHN 1426	Introduction to Computer-Aided Manufacturing (CAM)
X		X		X	X	X	X	MCHN 2403	Fundamentals of Computer Numerical Controlled (CNC) Machine Controls
X	X	X		X	X	X	X	MCHN 2433	Advanced Lathe Operations
X	X	X		X	X	X	X	MCHN 2441	Advanced Machining
X	X	X	X	X	X	X	X	MCHN 2444	Computerized Numerical Control Programming
								PROGRAM COMPETENCIES (as determined by advisory committee)	
								8. BASIC USE OF COMPUTERS	
								7. WORKPLACE COMPETENCIES	
								6. PERSONAL QUALITIES	
								5. THINKING SKILLS	
								4. SPEAKING AND LISTENING	
								3. ARITHMETIC OR MATHEMATICS	
								2. WRITING	
								1. READING	

General Education Matrix: The General Education Matrix is state mandated. You will see the 6 requirements that the college is tasked with teaching and how they map back to the courses.

Program: Machining						Credential: Certificate of Completion	
Award: Machining -CNC Certificate of Completion							
Cip: 48.0501							
LIST OF ALL COURSES REQUIRED AND IDENTIFIED CORE OBJECTIVES							
GENERAL EDUCATION CORE OBJECTIVES						Course Number	Course Title
1	2	3	4	5	6		
X		X			X	MCHN 1320	Precision Tools and Management
X		X			X	MCHN 1408	Basic Lathe
X		X			X	MCHN 1413	Basic Mill
X	X	X	X		X	MCHN 1426	Introduction to Computer-Aided Manufacturing (CAM)
X	X	X	X		X	MCHN 2403	Fundamentals of Computer Numerical Controlled (CNC) Machine Controls
X		X		X	X	MCHN 2433	Advanced Lathe Operations
X	X	X		X	X	MCHN 2441	Advanced Machining
X	X	X			X	MCHN 2444	Computerized Numerical Control Programming
						6. Personal Responsibility - to include the ability to connect choices, actions, and consequences to ethical decision-making.	
						5. Social Responsibility - to include intercultural competence, civic knowledge, and the ability to engage effectively in regional, national, and global communities.	
						4. Teamwork - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal	
						3. Empirical and Quantitative Skills - to include applications of scientific and mathematical concepts	
						2. Communication Skills - to include effective written, oral, and visual communication	
						1. Critical Thinking Skills - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information	

Program Outcomes Matrix: The Outcomes Matrix represents the Vernon College mandated requirements. They are the Program outcomes just approved and how they map back to the courses.

Program: Machining					Credential: Certificate of Completion	
Award: Machining -CNC Certificate of Completion						
Cip: 48.0501						
LIST OF ALL COURSES REQUIRED AND						
OUTCOMES						
OUTCOMES					Course Number	Course Title
1	2	3	4	5		
X	X			X	MCHN 1320	Precision Tools and Measurement
X	X	X		X	MCHN 1408	Basic Lathe
X	X	X		X	MCHN 1413	Basic Mill
X	X	X	X	X	MCHN 1426	Introduction to Computer-Aided Manufacturing (CAM)
X	X	X		X	MCHN 2403	Fundamentals of Computer Numerical Controlled (CNC) Machine Controls
X	X	X	X	X	MCHN 2433	Advanced Lathe Operations
X				X	MCHN 2441	Advanced Machining
X			X		MCHN 2444	Computerized Numerical Control Programming
					PROGRAM OUTCOMES (as determined by advisory committee)	
					5. Setup and Operation - Correctly setup and operate conventional and CNC machinery to accomplish a variety tasks.	
					4. Programming and Editing - Create and/or edit computer numerical control (CNC) programs using standard G&M code.	
					3. Tooling and Fixtures - Select and assemble tooling and fixtures for various applications common in the machining industry.	
					2. Measurement - Demonstrate proper selection and utilization of precision measurement tools according to application.	
1. Blueprint reading - Accurately read and interpret blueprints commonly found in the machining industry, including a fundamental knowledge and application of the rules and symbols of Geometric Dimensioning and Tolerancing.						

Institutional Outcomes Matrix: The Institutional Outcomes Matrix represents the Vernon College mandated requirements. This matrix represents how the program outcomes map back to the institutional outcomes/general education outcomes.

Program: Machining					Credential: Certificate of Completion
Award: Machining -CNC Certificate of Completion					
Cip: 48.0501					
LIST OF ALL COURSES REQUIRED AND					
OUTCOMES					Course Title
OUTCOMES					
1	2	3	4	5	
X	X	X	X	X	Critical Thinking Skills
X	X	X	X	X	Communication Skills
X	X	X	X	X	Empirical and Quantitative Skills
X	X	X	X	X	Teamwork
X	X	X	X	X	Social Responsibility
X	X	X	X	X	Personal Responsibility
			5. Setup and Operation		
			4. Programming and Editing		
		3. Tooling and Fixtures			
	2. Measurement				
1. Blueprint reading					

Mike Kwas made a motion to table the approval of SCANS until the fall once the changes previously discussed are made.

Eric Stutz seconded the motion.

The motion passed.

Program statistics: Graduates (from previous year/semester), current majors, current enrollment

- Program Statistics:
 - Graduates 2017-2018: 4
 - Enrollment Summer 2018: 0
 - Majors Fall 2018-2019: 0
 - Enrollment Fall 2018: 0

Local Demand

Shana Drury asked for information about local demand with the re-opening the programs. Eric Michaeli and Scotty Francisco mentioned that within the next three years they will have probably five to six retirements and they currently have one opening.

Mark McMillian mentioned the oilfield is slow currently but they are always looking for good employees.

mentioned they thought there might be some openings in the near future.

George Dozier mentioned that Prat-Whitney may have two or three retirements over the next three years.

Mike Kwas could see a demand within five years for retirement. If someone wants to work on the second or third shifts.

Evaluation of facilities, equipment, and technology. Recommendation for acquisition of new equipment and technology.

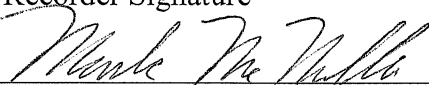
No new equipment purchased 2018/19 Academic year.

Promotion and publicity (recruiting) about the program to the community and to business and industry

Eric Michaeli asked in anyone had any recommendations for publicity and promotion.

The Machining program has now been introduced back into STC site recruiting tours. No other promotions to local community has been initiated at this time.

With no further discussion David Kulbeth adjourned the meeting at 1:24pm

Recorder Signature 	Date 9-4-20	Next Meeting: Fall 2019
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