



WISCONSIN
INDIANHEAD
TECHNICAL
COLLEGE

MACHINE TOOLING TECHNICS

**Wisconsin Indianhead Technical College
32-420-5 Technical Diploma**

2014
Program Review

and

Improvement Plan

CONTENTS

Catalog Page.....	1
Review Team Membership	3
Self-Study Reports	7
Perkins Data Review	27
Program Improvement Plan	39

Machine Tooling Technics

32-420-5 Technical Diploma

Financial Aid Eligible

Program Overview

The Machine Tooling Technics program emphasizes mold and toolmaking for the plastic injection molding industry including using computerized machining equipment. Basic machining skills are covered along with math and print reading. The student will gain skills in precision measurement, metallurgical processes, in-depth programming, operation of CNC milling machines and lathes, shop and theory courses in toolmaking, and CAD/CAM operation.



Campus:
New Richmond

Admission Requirements

Students in this program must:

- Complete application form and submit with fee (fee waiver may apply if previously submitted)
- Complete Accuplacer entrance assessment to determine placement (waiver may apply with acceptable alternative test scores and/or postsecondary degree completion)
- Complete admissions interview with a WITC counselor (above requirements should be completed prior to interview)

Student Profile

Machine Tooling Technics students should be able to:

- Solve math problems
- Visualize shapes and forms
- Concentrate
- Be detail oriented and take criticism
- Enjoy doing mechanical work
- Lift 75 pounds
- Assume responsibility
- Follow procedures carefully
- Manage their time
- Work well with others and under supervision

Preparation for Admission

Students should strive to reach a comfort level in the following courses or skills:

- Communications
- General Metals/Welding/Woodworking
- Machine Shop
- Print Reading
- Algebra/Trigonometry
- Geometry
- Keyboarding

Program Outcomes

Employers will expect the Machine Tooling Technics graduate to be able to:

- Apply basic safety practices in the machine shop
- Interpret industrial/engineering drawings
- Apply precision measuring methods to part inspection
- Perform basic machine tool equipment set up and operation
- Perform programming, set up, and operation of CNC machine tools
- Perform advanced tool, die, and mold operations

Collegewide outcomes and indicators will also be addressed to develop personal awareness, career effectiveness, and professionalism. See page 5 of the college catalog for a list of collegewide outcomes and indicators.

Career Outlook

Typical careers available after graduation include:

- Tool and Die Mold Maker
- Machinist Apprentice
- Machine Operator
- CNC Machinist
- Setup Person
- Programmer
- Maintenance Machinist

Curriculum

Number	Course Title	Credits
Occupational Specific Courses		
32420306	Machine Shop Theory 1	2
32420307	Machine Shop Theory 2 [▲]	2
32420308	Applied Machine Tooling 1	4
32420309	Applied Machine Tooling 2 [▲]	4
32420311	Materials for Machine Tooling Technics	1
32420321	Print Reading for Machine Trades	1
32420334	CAD/CAM Demo [▲]	2
32420336	Applied Machine Tooling 3 [▲]	4
32420337	Applied Machine Tooling 4 [▲]	4
32420338	CAD Basics [▲]	1
32420339	Mastercam [▲]	2
32420357	Advanced Machining Concepts	1
32420370	Machine Tooling Technics 1 [▲]	4
32420371	Machine Tooling Technics 2 [▲]	4
32420372	Machine Tooling Technics 3 (WBL) [▲]	5
32420391	Toolmaking Theory	2
		43
Occupational Supportive/General Studies Courses*		
32801361	Applied Communications 1	2
32801363	Applied Communications 2 [▲]	2
32804355	Math 355	3
32804365	Math 365 [▲]	3
32809371	Applied Human Relations	2
32890305	Applied Information Resources	2
		14
	PROGRAM REQUIREMENTS	57

- [▲] Requires a prerequisite and/or corequisite that must be completed with a grade point of 2.0 or better.
- * See pages 41-43 for course descriptions.

Course Descriptions

(See pages 41-43 for General Studies course descriptions)

32420306

Machine Shop Theory 1 - Credits: 2

This course provides the student with knowledge in the areas of safety, speed and feed calculations, layout equipment, cutting tools, and machine tool equipment. Also introduces and studies the more technical shop operations of threading, tapping, boring, carbide tooling, and principles of metal cutting. Principles of metal cutting include the machinability of metals and how it relates to chip formation. Students will study the makeup of carbide tooling, how carbide is affected by operating conditions, and various carbide characteristics, sizes, shapes, grades, and applications as identified by the American Standards Association. The content supports activities in Applied Machine Tooling 1 and 2.

32420307

Machine Shop Theory 2 - Credits: 2

This course is a continuation of Machine Shop Theory 1. This lecture-based course will use lecture, group work, and individual projects to introduce you to surface grinding, CNC theory, application, programming, and inspection procedures. **PREREQUISITE:** 32420306 Machine Shop Theory 1.

32420308

Applied Machine Tooling 1 - Credits: 4

This lab-based course will provide instruction in shop safety, measuring, print reading, and basic setup and operation of saws, mills, and lathes.

32420309

Applied Machine Tooling 2 - Credits: 4

This lab-based course will introduce the student to threading, boring, precision and taper turning, and inspection procedures using optical comparators and coordinate measuring machines. **COREQUISITES:** 32420308 Applied Machine Tooling 1 and 32420321 Print Reading for Machine Trades.

32420311

Materials for Machine Tooling Technicians - Credits: 1

During this course students will learn the basic principles of metallurgy related to mechanical, physical, and chemical properties of materials used for Machine Tooling Technicians. Materials covered will be steel, cast iron, aluminum, copper, and plastics. Lab activities will include hardening, tempering, and hardness testing. This course will give the student the ability to make material selections and perform problem solving for specific applications that they will encounter in industry.

32420321

Print Reading for Machine Trades - Credits: 1

This course will cover the basic principles of print reading. The emphasis is on interpreting standard lines and symbols in single- and multiple-view working drawings. Topics include print reading procedures, drawing changes, machining specifications, and the reading of prints in specialized areas including ANSI and ISO standards. Strongly recommend a basic understanding of mathematics concepts.

32420334

CAD/CAM Demo - Credits: 2

This course builds on CAD Basics and Mastercam with additional CAD drawing concepts and CAM projects. Learners will utilize Solidworks and Mastercam applications to complete their learning objectives. Students will gain competency in file management by saving, converting, and working with different file types. Learners will create geometry in each application and convert files between CAD and CAM. Students will apply various tool paths to the designs they have created. Surface creation and machining exercises will be demonstrated by each individual. Each learner will design and detail a plastic part including a plotted final drawing to the correct scale. **PREREQUISITES:** 32420321 Print Reading for Machine Trades and 32420339 Mastercam.

32420336

Applied Machine Tooling 3 - Credits: 4

Students will further build their skills in machining and develop confidence in their ability to produce good workpieces. Students will continue to use the tools and procedures introduced in Machine Shop Theory 1. Students will also be introduced to surface grinding, coordinate measuring machine inspection, optical comparator, and CNC programming, setup, and machining. **PREREQUISITES:** 32420306 Machine Shop Theory 1 and 32420309 Applied Machine Tooling 2.

32420337

Applied Machine Tooling 4 - Credits: 4

This lab-based course further develops students' skills in CNC vertical mill and CNC lathe setup, operation, and programming. Students will set up increasingly complex projects on both the CNC lathe and CNC vertical mill. Students will learn how to troubleshoot CNC setups, programs, and tooling variations. Students will also troubleshoot and run their own programs created in Machine Shop Theory 2 and Mastercam. Finally, students will complete surface grinding projects. **COREQUISITES:** 32420307 Machine Shop Theory 2 and 32420336 Applied Machine Tooling 3.

32420338

CAD Basics - Credits: 1

This course offers instruction on individual computer workstations in a computer lab. This computer-aided drafting (CAD) instruction uses SolidWorks software that is capable of creating 3D drawings. In this course you will spend a majority of the time creating 3D models and exploring the concepts of working in 3D space. Students will create complete and fully dimensioned 3-view part prints ready to be transferred to paper. **COREQUISITE:** 32420321 Print Reading for Machine Trades.

32420339

Mastercam - Credits: 2

This introductory course prepares students for using Computer-Aided Machining (CAM) software to create CNC machining programs. This CAM instruction utilizes Mastercam software that is capable of creating 2D and 3D wire drawings, from which toolpaths to machine part features can be generated. Students will complete a variety of exercises before working on 2D machining projects. Students will create complete CNC process projects including drawings, toolpaths, CNC code, and all setup sheets and diagrams. These projects will be shop ready for machining. **PREREQUISITE:** 32420338 CAD Basics.

32420357

Advanced Machining Concepts - Credits: 1

In this course students will learn about advanced CNC programming and setup techniques, electrical discharge machining, and advanced inspection techniques.

32420370

Machine Tooling Technics 1 - Credits: 4

In this course learners will learn to set up, program, and run CNC mills, lathes, and EDM equipment. Learners will continue to build competencies in surface grinding, tool and cutter grinding, and manual milling. **PREREQUISITE:** 32420337 Applied Machine Tooling 4.

32420371

Machine Tooling Technics 2 - Credits: 4

In this course learners will build upon their machining skills using CNC mills, lathes, and EDM equipment. Learners will continue to build competencies in surface grinding, tool and cutter grinding, and manual milling. Learners will create, program, and run CNC programs with helical interpolation, subroutines, cutter compensation, and multiple feature offsets. Learners will practice final grinding and fitting operations. **COREQUISITE:** 32420370 Machine Tooling Technics 1.

32420372

Machine Tooling Technics 3 (WBL) - Credits: 5

In this course, the learner will build and polish one plastic injection mold. Learners will do several projects to gain competency, which will include electrical discharge machining, tool and cutter grinding, and a project that requires problem solving set-up problems. A work-based learning component will be completed by each individual; you will contact a manufacturer to get a job that you will bring back to the campus lab and complete the work as directed by the manufacturer and your instructor. Learners will gain additional skills in the operation of basic and advanced machine tools in the areas of milling, drilling, boring, reaming, grinding, CNC milling, and EDMing operations. **PREREQUISITES:** 32420321 Print Reading for Machine Trades, 32420371 Machine Tooling Technics 2, and **COREQUISITE:** 32420391 Toolmaking Theory.

32420391

Toolmaking Theory - Credits: 2

This course provides the classroom instruction that supports shop activities in semester four of the Machine Tooling Technics program. It is a lecture course that addresses the technology of various types of plastic injection mold dies. Major emphasis will be placed on the theory, design, and building of plastic injection molds. Small group activities will be utilized to enhance student learning.

Gainful employment information is available at this link: <http://www.witc.edu/pgmpages/machtooltch/career.htm>. This information is provided as a federal requirement in an effort to help students make informed decisions related to the costs and potential employment in a chosen field.

Graduate Employment Information

(WITC Graduate Survey Responses 2011-2012; for most recent data, go to [witc.edu](http://www.witc.edu))

Number of graduates	9	Number employed	7	% employed in WITC district	33%
Number of responses	8	Percent employed	100%	Range of yearly salary	\$32,425-\$47,000
Number available for employment	7	Employed in related field	7	Average yearly salary	\$39,014

career vision

800.243.9482

witc.edu

2014-2015

119

TEAM MEMBERSHIP

ACADEMIC PROGRAM REVIEW PROFILE

Program Number & Name		
32-420-5 Machine Tooling Technics		
Program Academic Dean	Title/Location	
Nancy Cerritos	Academic Dean	
Team Lead(s)	Title/Location	
Olaf Wick	Instructor Machine Tooling Technics , New Richmond	
Team Members	Title/Location	
Bill White	Instructor Machine Tooling Technics , New Richmond	
Jessica Eccles	Manager of Enrollment Services	
Tina Nygren	Teacher Assistant	
Program Information:		
Capacity (new students admitted/year):	16-18	
Number of Faculty:	FT: 2	PT:
Statewide Curriculum:	Yes?	No? X
Number of Technical Studies Courses in each of the following delivery modes: (there may be duplication for courses offered in multiple modes)		
	<i>Classroom:</i>	100%
	<i>Online:</i>	0
	<i>ITV/IP:</i>	0
	<i>In Person/Web Blended:</i>	0

Program Accredited by:	NA
Date of Last Accreditation	
Date of Next Accreditation	
Is a visit required? If so, when is the next visit?	
Program Licensed by:	NA
Date of Last Licensing:	
Date of Next Licensing:	
Is a visit required? If so, when is the next visit?	
Please list other program memberships:	NA

Note: The accreditation, licensing, and membership information listed above will be listed in the annual WITC Fact Book.

SELF-STUDY REPORT

SELF-STUDY SUMMARY REPORT

Program Information	
Program Name: Machine Tooling Technics	Team Chair: Olaf Wick
Academic Dean: Nancy Cerritos	Divisional Dean: Randy Deli
Process Used to Complete the Self-Study	
Meeting format (in-person, IP, conference calls etc.)	In Person
Number of meetings	One large group meeting, two with dean and faculty.
How was the self-study handled? (as a group, assigned to individuals to report back to group, etc.)	As a large group, going through each category and assigning team ratings.
Additional comments:	
Summary of Findings	
As you completed this self-study section of the program review, what areas "stand out" in your program? Please explain.	Program statistics are very good. Enrollment and retention are both very good.
What has surprised you? Please explain.	Repairs and replacement of equipment seems to be more of an issue than the academics- which are generally speaking, in very good shape. The other thing that is not apparent is the time and effort required on the parts of the instructors to maintain the equipment, to troubleshoot issues and actually to do many of the repairs themselves. In addition, equipment in this program is expensive to repair. This eats up supply dollars at an alarming rate.
List two or three of the items identified through your self-study that you will focus on to make improvements to your program.	We will be working on improving and implementing our TSA. We will also be working with embedded diplomas as well; implementing them and refining them. Also curriculum and training for the multi-axis equipment
When/where in your program will you implement these improvements?	It will be throughout the program- one technical diploma will be in the first year, the other in the third semester. TSA will be assessed throughout the program reported at the end of the fourth

	semester. This is all documented in our Outcome Analyzer report in WIDS.
What methods (direct or indirect) will you use to assess the success of this implementation?	We will use program statistics and measure completion rates of courses and program. The TSA of course is s direct assessment.
What new outcomes or benchmarks do you hope to achieve through these recommended changes?	We hope to maintain our current levels of achievement.
Additional comments:	

Attach a **“Category Results Report”** for each category listed in the Self-Study section of the manual. If desired, teams can add additional categories that are pertinent to the program area being studied.

SELF-STUDY CATEGORY RESULTS

Program and Category			
Program: Machine Tooling Technics			
Category: Review of Most Recent Program Review			
PLUSES (Strengths)		DELTAS (Opportunities)	
<ul style="list-style-type: none"> Had a good team with the right players Manageable team size Program statistics continue to be strong Strong advisory committee Overall QRP statistics good Accomplished most of our action items Third year retention improved to 73.33% Second year retention improved to 95.45% Implemented Smarter Measures 		<ul style="list-style-type: none"> Not able to impact general studies mix due to internal requirements Need to update and modernize equipment Not enough budget dollars for repair of equipment No basic computer literacy test in place- this was a recommendation we were not able to influence Only one year of data for Smarter Measures- don't know the impact 	
Select one PLUS item and explain the root cause:	The experience from the first time around taught us the best way to do this and the best people participating (Had a good team with the right players).		
Select one DELTA item and explain the root cause:	Not able to impact General studies mix due to internal requirements. We want to re-consider these options but at the time of the review, the courses were mandated by the college		
What items in this category MUST be addressed on our improvement plan?	There is nothing we must do.		
What items in this category MIGHT be addressed on the improvement plan?	We might address the general studies mix again as that is being reconsidered by the Academic Affairs division.		
What items in this category may be considered a BEST PRACTICE OR INNOVATION?			
Team Rating			
Please indicate by an (X) the team rating of your program on this category.			
<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<i><u>Exemplary</u>—all areas exceed expectations—use as a model for other programs</i>
		X	
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category			
Program: Machine Tooling Technics Category: WITC Program Statistics			
PLUSES (Strengths)		DELTAS (Opportunities)	
-Enrollments have grown steadily over the last four years -Retention is averaging about 83% over the last three years, which is excellent -Graduate satisfaction is high % employed has grown over the last three years - with 100% employed- related in 2013		Enrollments remain tied to the economy. Right now there is a need for graduates.	
Select one PLUS item and explain the root cause:	Enrollment is at capacity. There are jobs available in the field and it is a lucrative field.		
Select one DELTA item and explain the root cause:	Enrollment is at capacity. We cannot grow to meet current demand (if it were advisable to do so).		
What items in this category MUST be addressed on our improvement plan?			
What items in this category MIGHT be addressed on the improvement plan?			
What items in this category may be considered a BEST PRACTICE OR INNOVATION?			
Team Rating			
Please indicate by an (X) the team rating of your program on this category.			
<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<i><u>Exemplary</u>—all areas exceed expectations—use as a model for other programs</i>
			X
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category	
Program: Machine Tooling Technics Category: Curriculum	
PLUSES (Strengths)	DELTAS (Opportunities)
<ul style="list-style-type: none"> -Program documentation is correct. -Catalog page correct. -Curriculum Checklist is accurate. -All offerings are at one location. -Sequence is logical. -Program outcomes are up to date. -in TSA development with similar programs -Course prerequisites are appropriate. -No state wide curriculum. - Collegewide outcomes identified at course level. -Multiple learning styles are supported. -Strong in both process and project based assessments. -Courses are current in WIDS 	<ul style="list-style-type: none"> -Currently no certificates with the program - No core courses are online or alternate delivery -Have more General Studies courses than similar state programs
Select one PLUS item and explain the root cause:	Courses are current in WIDS as this was accomplished through the previous improvement plan.
Select one DELTA item and explain the root cause:	Number of General Studies courses has been determined by internal rules.
What items in this category MUST be addressed on our improvement plan?	Consider embedded certificates/diplomas (internal and external pressure).
What items in this category MIGHT be addressed on the improvement plan?	Study current General Study configuration.
What items in this category may be considered a BEST PRACTICE OR INNOVATION?	

Team Rating

Please indicate by an (**X**) the team rating of your program on this category.

<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<i>Exemplary—all areas exceed expectations—use as a model for other programs</i>
		X	
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category			
Program: Machine Tooling Technics Category: Assessment of Student Learning			
PLUSES (Strengths)		DELTAS (Opportunities)	
<p>-The nature of our program supports formative, summative and direct assessment methods.</p> <p>-Our shop courses are mainly made up of project and process based learning activities.</p> <p>-Assessment of classroom learning activities is tied to application in the lab.</p> <p>-Have completed TSA process and are assessing program outcomes.</p> <p>- Assessing Collegewide outcomes. Have embedded Math Outcome.</p>		<p>-Few indirect methods of assessment used- and those results are minimally helpful.</p> <p>-Changes made based on assessment results are not adequately documented.</p>	
Select one PLUS item and explain the root cause:	The skills in this program are easily assessed in demonstration method, making direct assessment most effective. This lends itself to a successful TSA experience		
Select one DELTA item and explain the root cause:	Indirect methods in use are dependent on student self-reporting. They often do not.		
What items in this category MUST be addressed on our improvement plan?			
What items in this category MIGHT be addressed on the improvement plan?	Document changes made based on assessment results/class comments.		
What items in this category may be considered a BEST PRACTICE OR INNOVATION?			
Team Rating			
Please indicate by an (X) the team rating of your program on this category.			
<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<i><u>Exemplary</u>—all areas exceed expectations—use as a model for other programs</i>
		X	
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category	
Program: Machine Tooling Technics Category: Advisory Committees	
PLUSES (Strengths)	DELTAS (Opportunities)
<ul style="list-style-type: none"> -Our Advisory Committee meets once per year. -Formal process is followed: -Review of previous minutes. -Graduate placement reported. -Employment outlook is discussed. -Current enrollments reported. -Curriculum updates are discussed. -Program promotion activities are discussed. -Software recommendations are made. -Equipment and facility needs and recommendations are made. -Meeting minutes are always documented. -Minutes are clear and concise. -All changes and modifications are discussed with the Advisory Committee. -The Advisory Committee is a balance of owners and employees. -Instructors develop the agenda. The Advisory Committee can add items they to the agenda. -Our Advisory Committee is very involved with the program. 	<ul style="list-style-type: none"> -Advisory committee meets once a year. -Not always able to follow through on Committee suggestions. -Don't always have General Studies Instructors present at meeting. -Don't always have Student Services representation at meetings.
Select one PLUS item and explain the root cause:	Committee membership is periodically reviewed and updated to have balance between owners and employees and to add new members.
Select one DELTA item and explain the root cause:	To increase representations from General Studies and Students Services, we could invite specific persons.
What items in this category MUST be addressed on our improvement plan?	
What items in this category MIGHT be addressed on the improvement plan?	To increase representations from General Studies and Students Services, we could invite specific persons.
What items in this category may be considered a BEST PRACTICE OR INNOVATION?	

Team Rating

Please indicate by an (**X**) the team rating of your program on this category.

<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<i>Exemplary—all areas exceed expectations—use as a model for other programs</i>
		X	
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category			
Program: Machine Tooling Technics Category: Equipment and Facilities			
PLUSES (Strengths)		DELTAS (Opportunities)	
<p>-There have been a number of additions and upgrade to equipment in the last three years.</p> <p>-The Machine Tooling Technics program advisory committee is very involved in guiding the program with equipment and facility needs.</p> <p>-Safety training is given at the beginning of the program and reviewed with each new piece of equipment that the students use.</p> <p>-Risk forms are used with all students enrolled in machine tool classes.</p> <p>-Lab is exceptionally clean and well organized.</p>		<p>-Some old equipment remains.</p> <p>-Repairs are expensive.</p> <p>-Difficult to replace equipment.</p> <p>-No equipment condition report.</p>	
Select one PLUS item and explain the root cause:	Lab is clean and well organized. The instructors have made it a priority to keep the area looking professional.		
Select one DELTA item and explain the root cause:	Equipment hard to replace- due to the cost of the equipment and our planning process- competing for major equipment dollars.		
What items in this category MUST be addressed on our improvement plan?			
What items in this category MIGHT be addressed on the improvement plan?	Consider creating equipment condition documentation.		
What items in this category may be considered a BEST PRACTICE OR INNOVATION?	Lab is clean and well organized. The instructors have made it a priority to keep the area looking professional.		
Team Rating			
Please indicate by an (X) the team rating of your program on this category.			
<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<i>Exemplary—all areas exceed expectations—use as a model for other programs</i>
		X	
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category			
Program: Machine Tooling Technics Category: Staff Development and Program Innovation			
PLUSES (Strengths)		DELTAS (Opportunities)	
-Instructors attend training on software upgrades (SolidWorks & Mastercam). -Instructors attend training as available and applicable. -All training is documented on instructor ILPs. -Dean conducts annual performance reviews and goal setting.		-Difficult to find time for professional development. -Budget dollars are limited for professional development.	
Select one PLUS item and explain the root cause:	Instructors are highly invested in training-much is done on their own time and at their own expense.		
Select one DELTA item and explain the root cause:	Budget dollars are limited as budgets are tight.		
What items in this category MUST be addressed on our improvement plan?			
What items in this category MIGHT be addressed on the improvement plan?			
What items in this category may be considered a BEST PRACTICE OR INNOVATION?			
Team Rating			
Please indicate by an (X) the team rating of your program on this category.			
<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<i><u>Exemplary</u>—all areas exceed expectations—use as a model for other programs</i>
		X	
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category	
Program: Machine Tooling Technics Category: Collaborations across the college	
PLUSES (Strengths)	DELTAS (Opportunities)
<p><u>General Studies:</u></p> <ul style="list-style-type: none"> -We communicate as deemed necessary by student needs- is reciprocal. -We support general education learning activities by tying them to experiences students may have on the job within their career field. -We work jointly in creating learning activities between courses. <p><u>Student Services:</u></p> <ul style="list-style-type: none"> -We communicate as deemed necessary by student needs. -We provide academic advising for all of our program students. -We are involved with four to six activities per calendar year to help with program promotion. - Faculty have, as an annual goal, to meet with Student Services and update front line staff on the program. <p><u>Continuing Education:</u></p> <ul style="list-style-type: none"> -We have worked with Con Ed with Blueprint reading and CAD/CAM courses. -Our collaboration is proof of how we value Academic Affairs and the Continuing Education departments of our college. -We share equipment, lab space and instructors. <p><u>Academic Affairs Staff:</u></p> <ul style="list-style-type: none"> -Plans Divisional and academic days for staff development and networking opportunities -Academic affairs need to be involved in order for program improvements to be actualized. 	<p><u>General Studies:</u></p> <ul style="list-style-type: none"> -Document best practice examples. <p><u>Student Services:</u></p> <ul style="list-style-type: none"> -Program needs to be clarified with student services staff. -Document best practice examples. <p><u>Continuing Education:</u></p> <ul style="list-style-type: none"> -Regular meetings should take place between program instructors and the Continuing Education department. -No contact person on campus. <p><u>Academic Affairs Staff:</u></p> <ul style="list-style-type: none"> -Need to meet regularly with Dean and faculty. -More regular meetings need to be established with pre-work assignments given so face-to-face time can be most productive.(for divisional and academic days). -All improvements cannot be approached at once.

Other staff:			
-Office of institutional effectiveness provides a wealth of resources for our program in the form of data, information, and staff to help us in all facets of program modifications.			
Select one PLUS item and explain the root cause:	Academic affairs need to be involved for program improvements to be actualized- we have local supervision so we stay in touch- can address student needs immediately as they arise.		
Select one DELTA item and explain the root cause:	Ned to meet regularly with faculty and dean- no meetings are scheduled.		
What items in this category MUST be addressed on our improvement plan?			
What items in this category MIGHT be addressed on the improvement plan?	We can plan a meeting schedule for faculty and dean.		
What items in this category may be considered a BEST PRACTICE OR INNOVATION?			
Team Rating			
Please indicate by an (X) the team rating of your program on this category.			
<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<i>Exemplary—all areas exceed expectations—use as a model for other programs</i>
		X	
Additional Comments: (optional)			

WITC QRP AND PERKINS DATA REVIEW

QRP SCORECARD

32-420-5 – Machine Tooling Technics

WTCS State Indicator	2013				
	Total In Cohort	Total Achieved	Actual	WITC Threshold	WITC Target
C200 Course Completion	36	32	88.89%	61.52%	96.92%
C400 Special Populations Course Completion	25	21	84.00%	60.13%	97.66%
C600 Minority Course Completion	2	2	100.00%	NA	100.00%
F200 Second Year Retention	22	21	95.45%	58.22%	100.00%
F400 Third Year Retention	15	11	73.33%	36.33%	76.26%
F600 Third Year Graduation	15	8	53.33%	16.20%	72.87%
F800 Fifth Year Graduation	15	6	40.00%	10.52%	78.98%
I300 Job Placement - All Employment	7	7	100.00%	71.82%	100.00%
I600 Job Placement - Related Employment	7	7	100.00%	13.13%	100.00%
J500 Non-Traditional Gender	36	2	5.56%	NA	53.83%
J650 NTO Graduation	13	1	7.69%	NA	25.00%

WTCS State Indicator	2012			2011		
	Total in Cohort	Total Achieved	Actual	Total in Cohort	Total Achieved	Actual
C200 Course Completion	35	31	88.57%	26	25	96.15%
C400 Special Populations Course Completion	21	19	90.48%	21	20	95.24%
C600 Minority Course Completion	3	2	66.67%	2	2	100.00%
F200 Second Year Retention	15	11	73.33%	20	12	60.00%
F400 Third Year Retention	20	12	60.00%	15	6	40.00%
F600 Third Year Graduation	20	11	55.00%	15	6	40.00%
F800 Fifth Year Graduation	17	11	64.71%	20	9	45.00%
I300 Job Placement - All Employment	9	9	100.00%	7	7	100.00%
I600 Job Placement - Related Employment	9	8	88.89%	7	6	85.71%
J500 Non-Traditional Gender	35	2	5.71%	26	0	0.00%
J650 NTO Graduation	9	0	0.00%	10	0	0.00%

PERKINS SCORECARD

32-420-5 Machine Tooling Technics											
	Total N	1P1	Total N	1P2	Total N	2P1	Total N	3P1	2P1+3P1	Total N	4P1
FAUPL (Benchmark)		82.22		83.71		55.00		11.28	66.78		90.41
2010	18	100.00	17	88.24	18	77.78	18	5.56	83.34	3	100.00
2011	13	84.62	13	69.23	13	46.15	13	7.69	53.84	7	100.00
2012	16	87.50	16	75.00	16	62.50	16	0.00	62.50	6	100.00
2013	16	93.75	15	80.00	16	56.25	16	25.00	81.25	10	100.00
4 Year Average		91.47		78.12		60.67		9.56	70.23		100.00

Terminology	Definition
FAUPL or NPL or PL	Percentage benchmark the program must meet or exceed.
Total N	The number of students in the cohort of the specified year listed.
1P1	Program technical course completion percentage.
1P2	Program general studies course completion percentage.
2P1	Program degree attainment percentage.
3P1	Program retention/transfer percentage.
2P1 + 3P1	Degree attainment + retention percentage.
4P1	Job placement percentage reported at six-month graduate survey.

WTCS QRP SCORECARD ANALYSIS WORKSHEET

Program:	Machine Tooling Technics 32-420-5			
Target Analysis				
Indicator	Actual	Target	Threshold	Best Practice or Innovation – Describe and include how this has contributed to your high actual results for this indicator.
C200 Course completion	88.89%	96.92%	61.52%	We are close to target on this one due to work done in the last program improvement plan. We worked with admission processes and are standing firm on admittance scores as well as working more closely with the General studies instructors.
F200 Second year retention	95.45%	100.00%	58.22%	This score is excellent for the same reasons listed above. In addition, the instructors pay very close attention to student progress not just in core courses but in the General Studies courses as well.
Threshold Analysis				
Indicator	Actual	Target	Threshold	Potential Action – Describe what action(s) could possibly be taken to improve this indicator and why it might work.
F800 5 th year graduation	40.00%	78.98%	10.52%	Most students have given up when they get this far out and have taken different directions. We will be adding certificates/diplomas to the program, through the improvement plan, with career laddering in mind.

WTCS PERKINS SCORECARD ANALYSIS WORKSHEET

Program:	Machine Tooling Technics 32-420-5			
Indicator	Actual	Benchmark	Not met (X)	What practices might be causing this performance and what potential actions could be taken to improve this score?
1P1 Technical Course Completion	93.74	82.22		Instructors work very closely with students and counselors and do early referral. The students spend many hours with the instructors and this helps as well.
1P2 Academic (General Studies) Course Completion	80.00	83.71	X	Although this was not met, it is close and has improved over the last two years. Instructors work very closely with the general studies instructors. One particularly troublesome course was modified and has now become much more successful.
2P1 Degree Attainment (Completion)	56.25	55.00		Although this was met, we would like to see this number improve. We will approach is from improving general studies course completion and include an action item on the program improvement plan.
3P1 Retention/ Transfer	25.00	11.28		A number of students who didn't graduate had general studies courses to complete and are taking extra time
2P1+3P1	81.25	66.78		We met this because we retained the students who did not successfully complete their general studies requirements and are either completing in the summer or taking extra semesters.
4P1 Placement (6-month survey)	100.00	90.41		There are more jobs than graduates at this time so placement should not be an issue for our graduates

FUTURE TRENDS AND EXTERNAL FACTORS

Program	Machine Tooling Technics 32-420-5
Future Trends	
•	Higher level of technical skills will be required
•	Strong Basic Skills will be expected
•	Shorter set up times are needed
•	Need to be not only skilled CNC machinist, but also programmer
•	Need to practice Lean manufacturing
Employment Trends	
Local	Still strong locally
•	Looking for soft skills as well as technical ability
•	
State	Demand is high state-wide
•	Looking for Advanced Machinists
•	
External Factors	
•	Skills gap in current machinists and what is needed
•	Rapidly changing technology
•	Increasing need for rapid set up time

IMPROVEMENT PLAN

ACADEMIC PROGRAM IMPROVEMENT PLAN

PROGRAM: Machine Tooling Technics 32-420-5					
Defined Outcome: Establish career pathways by implementing two embedded	QRP Indicator #	Perkins Indicator #	Responsibility	Timeline	Resources
Action Plan/Action Items: -examine curriculum -consider common first year with Ashland or Superior MT programs -study General Studies configuration -investigate further HS articulations -determine if other short term diplomas are feasible -implement two embedded diploma			Instructors Dean Other T and T deans	Fall 2014-Fall 2016	TAACCCT Grant Curriculum Office
<p>Update: (A mid-year and year-end update will be required each year during implementation.)</p> <p>May 2015: We have established two embedded technical diplomas. We have also determined that the Generla Studies configuration is good as it stands. What we do need to do is discuss a common first year with the Ashland and Superior programs. That is deferred until fall.</p> <p>Dec. 2015: Will be meeting with all programs in January to determine possible alignments.</p> <p>June 2016- Ashland and Superior are aligned- a perfect alignment between NR and RL was not possible, or desirable.</p> <p>January 2017: This action item is completed.</p>					

ACADEMIC PROGRAM IMPROVEMENT PLAN

PROGRAM: Machine Tooling Technics 32-420-5					
Defined Outcome: Implement TSA	QRP Indicator #	Perkins Indicator #	Responsibility	Timeline	Resources
Action Plan/Action Items: -Determine assessments for each TSA outcome. -Assess students in spring semester -Report progress to state -Re-examine materials and assessments for improvement.			Instructors Dean	Fall 2014-Spring 2015	Curriculum Office
<p>Update: (A mid-year and year-end update will be required each year during implementation.)</p> <p>May 2015: This needs another action plan added to it. Due to the addition of the embedded diplomas, we will have to create TSAs for those diplomas. We will be assessing students this spring for the two year technical diploma and reporting those results to the state.</p> <p>Dec. 2015: After a hectic fall semester, we will defer this to spring.</p> <p>June 2016: This was accomplished. Olaf is working with the state director on the TSAs for the embedded diplomas.</p>					

ACADEMIC PROGRAM IMPROVEMENT PLAN

PROGRAM: Machine Tooling Technics 32-420-5					
Defined Outcome: Improve degree attainment statistics by 10 % from 56.25 to 61.87	QRP Indicator #	Perkins Indicator #	Responsibility	Timeline	Resources
		2P1			
Action Plan/Action Items: <ul style="list-style-type: none"> - Improve General Studies Course completion rate (see next outcome). - Implement embedded technical diplomas for career laddering and reinforcement of successes. - Consider using smarter measures in first semester - Consider an extended plan for those who may not be able to complete in two years. - Be prepared to implement computer literacy assessment as part of application process to be aware of these skill levels up front. 			Instructors Dean	Fall 2014-Fall 2016	Student Services
Update: (A mid-year and year-end update will be required each year during implementation.) May 2015: At this point we have only completed the second action item of establishing embedded technical diplomas. We are awaiting results of the pilot program to determine if we would be able to implement computer literacy assessment for fall 2016 program students. Dec. 2015: Our embedded technical diplomas are implemented. June 2016: We are not implementing smarter measures or the computer literacy assessment at this point. We are looking at course pre-reqs to be in line with the new admissions policy, so this is substantially changed. January 2017: Current statistics show 73.33% degree attainment for the 2015-2016 report, so this was achieved. We also implemented a part-time evening Entry Level Machining to serve the underemployed or to boost those in the industry wanting a credential.					

ACADEMIC PROGRAM IMPROVEMENT PLAN

PROGRAM: Machine Tooling Technics 32-420-5					
Defined Outcome: Improve General Studies course completion by 5% from 80% to 85%	QRP Indicator #	Perkins Indicator #	Responsibility	Timeline	Resources
		1P2			
Action Plan/Action Items: -Implement test out for Applied Info Resources. -Continue to have ETC Technician teach this course. -Study General Studies course configuration to ensure correct courses are in program. -Implement bridge component for Math in spring semester. -Meet at least once a semester with each general studies instructor teaching in the program. -Have General Studies instructors attend advisory committee meetings.			Instructors Dean	Fall 2014-Fall 2015	General Studies Instructors and deans
Update: (A mid-year and year-end update will be required each year during implementation.) May 2015: We accomplished all of the action items in this action plan.					

ACADEMIC PROGRAM IMPROVEMENT PLAN

PROGRAM: Machine Tooling Technics 32-420-5					
Defined Outcome: Develop Curriculum Maintenance Plan	QRP Indicator #	Perkins Indicator #	Responsibility	Timeline	Resources
Action Plan/Action Items: -Update at least two courses every year -Adjust WIDS Analyzer -Add new assessments -Act on assessment results -Consider alternative delivery of elements of theory classes -Take online delivery facilitation class			Instructors	Fall 2015-Fall 2016	Curriculum Office
Update: (A mid-year and year-end update will be required each year during implementation.) May 2015: We have completed all but the last two action items on this action plan. Dec. 2015: Instructors have completed online facilitation class. January 2017: This action plan has been completed.					

ACADEMIC PROGRAM IMPROVEMENT PLAN

PROGRAM: Machine Tooling Technics 32-420-5					
Defined Outcome: Maintain and Replace Equipment	QRP Indicator #	Perkins Indicator #	Responsibility	Timeline	Resources
Action Plan/Action Items: -Inventory all equipment -Determine life span and possible repairs for each piece of equipment -Develop equipment replacement plan			Instructors Dean	Spring 2015- Spring 2016	Planning Process
<p>Update: (A mid-year and year-end update will be required each year during implementation.)</p> <p>May 2015: We have begun work on this action project and will complete next fall.</p> <p>December: 2015: This was deferred until spring.</p> <p>June 2016: This is deferred again. We have not had time to complete this.</p> <p>January 2017: This has been abandoned. We did not find the time to make this happen.</p>					