Program Information Report

CTMTTC

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 Technology (CTMTTC)

Certificate

Program Effective Term: Fall 2015

High Skill Occupation High Wage Occupation

This program prepares students for manufacturing jobs where they will use advanced machine tool setups for the manufacture of non-production parts or prototype parts for industry. This program provides advanced skills in the use of tool room lathes, mills, precision grinders, and sophisticated measuring instruments. Students will learn machining operations through the production of parts, on modern conventional mills, lathes, and grinding equipment in WCC's extensive machine tool laboratory.

Articulation:
Eastern Michigan University, several BS degrees.

Copies can be obtained from the Counseling Office, a program advisor, or from the Curriculum and Assessment Office Web site: http://www.wccnet.edu/departments/curriculum/articulation.php?levelone=colleges.

Major/Area Requirements		**(10 credits)**
MTT 111	Machine Shop Theory and Practice	4
MTT 203	Advanced Machine Tool Operations	4
NCT 110	Introduction to Computerized Machining (CNC) - II	2

Core Courses*		**(12 credits)**
MEC 100	Materials and Processes	3
BMG 241	Innovation: Process and Application	1
FLP 101	Fluid Power Fundamentals - I	2
MTT 102	Machining for Auto Applications	2
NCT 101	Introduction to Computerized Machining (CNC) - I	2
ROB 101	Robotics I - I	2

**Core courses must be taken before Major/Area Requirements.*

Minimum Credits Required for the Program: 22

Notes:

This certificate can also lead to an associate degree in Automation Technology.

WASHTENAW COMMUNITY COLLEGE

PROGRAM CHANGE OR DISCONTINUATION FORM

Program Code: CTMTTC

Program Name: Machine Tool Technology Certificate

Effective Term: Fall 2008

Division Code: HAT

Department: Industrial Technology (INTD)

Directions:

1. Attach the current program listing from the WCC catalog or Web site and indicate any changes to be made.
2. Draw lines through any text that should be deleted and write in additions. Extensive narrative changes can be included on a separate sheet.
3. Check the boxes below for each type of change being proposed. Changes to courses, discontinuing a course, or adding new courses as part of the proposed program change, must be approved separately using a Master Syllabus form, but should be submitted at the same time as the program change form.

Requested Changes:

- ☐ Review
- ☒ Remove course(s): MTT103, NCT112
- ☒ Add course(s): AMS103, BMG241, FLP101, MTT102, NCT101, NCT110, ROB101,
- ☐ Program title (title was _____)
- ☐ Description
- ☐ Type of award
- ☐ Advisors
- ☐ Articulation information

Show all changes on the attached page from the catalog.

- ☐ Program admission requirements
- ☐ Continuing eligibility requirements
- ☐ Program outcomes
- ☐ Accreditation information
- ☐ Discontinuation (attach program discontinuation plan that includes transition of students and timetable for phasing out courses)
- ☒ Other Required Core Courses (12 credits):
  - AMS 103 . . . . . 3 credits
  - BMG 241 . . . . . 1 credit
  - FLP 101 . . . . . 2 credits
  - MTT 102 . . . . . 2 credits
  - NCT 101 . . . . . 2 credits
  - ROB 101 . . . . . 2 credits

Rationale for proposed changes or discontinuation:
Provide students with core courses of basics skills common to all INTD certificate and degree programs.

Financial/staffing/equipment/space implications:
None

List departments that have been consulted regarding their use of this program.
Business and Computer Technologies Division – Rosemary Wilson, Dean
Vocational Technologies Division, - Bruce Greene, Dean

Signatures:

Reviewer	Print Name	Signature	Date
Initiator	Tom Penird/ Gary Schultz	Gary L Schultz	3/4/08
Department Chair	Tom Penird/ Gary Schultz		3/4/08
Division Dean/Administrator	Granville Lee		2/26/08
Vice President for Instruction	Roger Palay	Roger M. Palay	3/13/08
President	Larry Whitworth		

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Please submit completed form to the Office of Curriculum and Assessment and email an electronic copy to sjohn@wccnet.edu for posting on the website.

Program Information Report

School of Advanced Manufacturing Systems

Machine Tool

Machine Tool Technology (CTMTTC)

Certificate

Program Effective Term: Fall 2008

This program prepares students for manufacturing jobs where they will use advanced machine tool setups for the manufacture of non-production parts or prototype parts for industry. This program provides advanced skills in the use of tool room lathes, mills, precision grinders, and sophisticated measuring instruments. Students will learn machining operations through the production of parts, on modern conventional mills, lathes, and grinding equipment in WCC's extensive machine tool laboratory.

Articulation:
Eastern Michigan University, several BS degrees

Copies can be obtained from the Counseling Office, a program advisor, or from the Curriculum and Assessment Office Web site: http://www.wccnet.edu/departments/curriculum/articulation.php?levelone=colleges.

Core Courses		(12 credits)
AMS 103	Materials and Processes	3
BMG 241	Innovation: Process and Application	1
FLP 101	Fluid Power Fundamentals - I	2
MTT 102	Machining for Auto Applications	2
NCT 101	Introduction to Computerized Machining (CNC) - I	2
ROB 101	Robotics I - I	2

**Core courses must be taken before Major/Area Requirements.*

Major/Area Requirements		(13 credits)
CAD 105	Blueprint Reading and Analysis	3
MTT 111	Machine Shop Theory and Practice	4
MTT 203	Advanced Machine Tool Operations	4
NCT 110	Introduction to Computerized Machining (CNC) - II	2

Minimum Credits Required for the Program: 25

Notes:

This certificate can also lead to an associate degree in Automation Technology.

WASHTENAW COMMUNITY COLLEGE

PROGRAM CHANGE OR DISCONTINUATION FORM

Program Code: _CTMTTC **Program Name:** Machine Tool Technology Certificate **Effective Term:** __Fall '06

Division Code: _HAT **Department:** _Industrial Technology

Directions:

1. Attach the current program listing from the WCC catalog or Web site and indicate any changes to be made.
2. Draw lines through any text that should be deleted and write in additions. Extensive narrative changes can be included on a separate sheet.
3. Check the boxes below for each type of change being proposed. Changes to courses, discontinuing a course, or adding new courses as part of the proposed program change, must be approved separately using a Master Syllabus form, but should be submitted at the same time as the program change form.

Requested Changes:

- ☐ Review
- ☒ Remove course(s): MTT-101
- ☒ Add course(s): CAD-105
- ☐ Program title (title was _____)
- ☐ Description
- ☐ Type of award
- ☐ Advisors
- ☐ Articulation information
- ☐ Program admission requirements
- ☐ Continuing eligibility requirements
- ☐ Program outcomes
- ☐ Accreditation information
- ☐ Discontinuation (attach program discontinuation plan that includes transition of students and timetable for phasing out courses)
- ☐ Other _____

Show all changes on the attached page from the catalog.

Rationale for proposed changes or discontinuation:

MTT-101 and CAD-105 are both courses dealing with reading blueprints. We discovered we were competing for the same students in two deparments.

Financial/staffing/equipment/space implications:

None

RECEIVED
OCT 17 2005
EXECUTIVE VICE PRESIDENT FOR INSTRUCTION

List departments that have been consulted regarding their use of this program.

Industrial Tech., CAD/Drafting, and the Business and Industry office have been contacted.

Signatures:

Reviewer	Print Name	Signature	Date
Initiator	Gary Schultz	Gary L Schultz	9/1/05
Department Chair	Gary Schultz	Gary L Schultz	9/1/05
Division Dean/Administrator	Granville Lee	G. Lee	9/6/05
Vice President for Instruction	Roger Palay	Roger M. Palay	9/1/05

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Entered in: Banner ___ **C&A Database** 1/13/06 **Log File** 11/30/05 1/13/06 Saved as 9/12/06

Please submit completed form to the Office of Curriculum and Assessment.

Industrial, Manufacturing, & Automation Technology

Machine Tool Technology (CTMTTC)
Certificate

Program Effective Term: Fall 2006

This program prepares students for manufacturing jobs where they will use advanced machine tool setups for the manufacture of non-production parts or prototype parts for industry. This program provides advanced skills in the use of tool room lathes, mills, precision grinders, and sophisticated measuring instruments. Students will learn machining operations through the production of parts, on modern conventional mills, lathes, and grinding equipment in WCC's extensive machine tool laboratory.

Major/Area Requirements		**(18 credits)**
CAD 105	Blueprint Reading and Analysis	3
MTT 103	Introduction to Materials	3
MTT 111	Machine Shop Theory and Practice	4
MTT 203	Advanced Machine Tool Operations	4
NCT 112	Introduction to Computerized Machining (CNC)	4

Minimum Credits Required for the Program **18**

Notes:
This certificate can also lead to an associate degree in Automation Technology.

WASHTENAW COMMUNITY COLLEGE

PROGRAM CHANGE FORM

new code: CTMTTC

Program Code:	Program Name:	Effective Term:
CVMTTA	Machine Tool Technology Certificate	Fall 2004

Directions:

1. Attach the current program listing from the WCC catalog and indicate any changes to be made.
2. Draw lines through any text that should be deleted and write in additions. Extensive narrative changes can be included on a separate sheet.
3. Check the boxes below for each type of change being proposed. Changes to courses, discontinuing a course, or adding new courses as part of the proposed program change, must be approved separately using a Course Syllabus Form, but should be submitted at the same time as the program change form.

Requested Changes:

☒ Remove course(s):
- MTT 202: Machine Tool Operations/Set-up I
- NCT 121: Manual Programming and NC Tool Operations

☒ Add course(s):
- MTT 101: Blueprint Reading and Computrized Drawings
- MTT 111: Machine Shop Theory and Practice)
- NCT 112: Introduction to Computerized Machining (CNC)

☒ Total credits: Current credits 16 After changes 17

☒ Title (title was Machine Tool Technology Advanced Certificate)

☒ Description Attached

Show all changes on the attached page from the catalog.

☐ Advisors
☐ Articulation information
☒ Program admission requirements
☐ Continuing eligibility requirements
☐ Program outcomes
Other _____

Rationale for proposed changes:
Align with the restructure of the Robotics Technology to Automation Technology Degree Program.

Financial/staffing/equipment/space implications:
None

List departments that have been consulted regarding the use of this program.

Signatures:

Reviewer	Print Name	Signature	Date
Program Change Initiator	Gary Schultz	Gary L Schultz	3/19/04
Department Chair	Gary Schultz	Gary L Schultz	3/19/04
Division Dean/Administrator	Granville Lee		3/28/04
Vice President for Instruction	Roger Palay	Roger M. Palay	3/25/04

4.1.04

Please submit completed form to the Office of Curriculum and Articulation Services. RMP. 4/5/04

Processed...

MAY 06 2004

Office of Curriculum & Articulation Services

Office of Curriculum & Articulation Services Program Change Form 8-2003

Access Program File 3/30 Log 3/30 Copied and Returned _____

Machine Tool Technology (CTMTTC)
Certificate

Program Effective Term: Fall 2004

This program prepares you for manufacturing jobs where you will use advanced machine tool setups for the manufacture of non-production parts or prototype parts for industry. This program provides advanced skills in the use of tool room lathes, mills, precision grinders, and sophisticated measuring instruments. You will learn machining operations through the production of parts, on modern conventional mills, lathes, and grinding equipment in WCC's extensive machine tool laboratory.

Major/Area Requirements		**(17 credits)**
MTT 101	Blueprint Reading and Computerized Drawings	2
MTT 103	Introduction to Materials	3
MTT 111	Machine Shop Theory and Practice	4
MTT 203	Advanced Machine Tool Operations	4
NCT 112	Introduction to Computerized Machining (CNC)	4

Minimum Credits Required for the Program: 17

Notes:
This certificate can also lead to an associate degree in Automation Technology.

Program Approval Document

Advanced Certificate In

MACHINE TOOL TECHNOLOGY

Prepared by

Roger Dick
Industrial Technology Department
Washtenaw Community College

April 21, 1999

WASHTENAW COMMUNITY COLLEGE
PROGRAM AUTHORIZATION FORM

1. **Program Title:** Machine Tool Technology **Program Code:** M T T A
2. **Division:** TEC **3. Department:** IND **CIP Code:**
4. **Type of Program:** ☐ **A.A.** ☐ A.S. ☐ A.A.S. ☐ A.T.S.
   ☒ Advanced Certificate ☐ Mastery Certificate ☐ Achievement Certificate ☐ Certificate of Completion
5. **Will this program be Perkins funded?** ☒ **yes** ☐ **no** **6. Effective Year:** Fall 1999

7. Program Description (for Catalog, brochures, etc.:
Students entering this program will have achieved the Machine Operator Achievement Certificate and the Machine Tool Operation Mastery Certificate. Emphasis is placed on process planning and advanced machine tool set ups for the manufacture of non-mass produced parts or prototype parts for industry. Advanced skills in the use of tool room lathes, mills, precision grinders, and sophisticated measuring instruments are emphasized. Graduates of this program will have a working knowledge of basic mathematical calculations, Word Address CNC programs, and operation of CNC turning and machining centers.

8. Advisors: Dean Avery, Roger Dick, Jeff Donahey, Burton Lowe

9. Admissions Criteria:	**10. Criteria for Continuing Program Eligibility:**
Successful completion of ~~Machine Operator Achievement Certificate and~~ Machine Tool Operation Mastery Certificate or the equivalent in work experience.	

11. Attach a Program Approval Document [PAD], which includes the following:

A. Program Description
B. Program Goals
C. Needs Assessment
D. Enrollment Projections
E. Program Cost Analysis
F. Course Descriptions
G. Analysis of Affected Instructional Units
H. Articulations
I. Licensure/Accreditation

Approval Recommended:	**Print Name**	**Signature**	**Date**
Program Initiator:	Roger Dick	Roger Dick	May 14, 99
Department Chair/Director:	George Agin		
Dean:	Roger Bertola	Roger R. Bertola	
VP, Instruction/Student Services:	Guy Altieri	Guy Altieri	
President:	Larry Whitworth		

Date of Board Approval: May 25, 1999

Available on disk

COURSE REQUIREMENTS FOR PROGRAM

This program requires completion of all courses in the Machine Tool Operation Mastery Certificate Program (13 credits) and the Machine Operator Achievement Certificate Program (13 credits)

Course	Title	Credit	Pre-requisites/Co-requisites
MTT 123	Machine Tool Operation & Setup II	4	MTT 122 or consent
MTT 201	Machine Tool Technology	4	MTT 123 or consent
MTT 103	Introduction to Materials	3	None
Prior credits from Machine Operator Achievement Certificate:		13	
Prior credits from Machine Tool Operation Mastery Certificate:		13	
	Total Credits:	37 11	

A. PROGRAM DESCRIPTION

Students will have achieved the Machine Operator Achievement Certificate and the Machine Tool Operation Mastery Certificate. Emphasis is placed on process planning and advanced machine tool set ups for the manufacture of non-mass produced parts or prototype parts for industry. Advanced skills in the use of tool room lathes, mills, precision grinders, and sophisticated measuring instruments are emphasized. He/she will have a working knowledge of basic mathematical calculations, Word Address CNC programs, and operation of CNC turning and machining centers.

B. PROGRAM GOALS

- To provide short term advanced career training in the Machine Tool Technology field
- To increase advanced skills in the use of lathes, mills, precision grinders, and measuring instruments.

C. NEEDS ASSESSMENT

Employment Outlook:

According to the U.S. Bureau of Labor statistics and the Michigan Occupational Information System, there are approximately 51,000 machine tool setters employed nationally. Employment is expected to increase about as fast at the average for all occupations through the year 2005. A growing population and higher incomes should create a demand for more machined goods, which machine too setters help produce.

There are approximately 8,325 machine tool setters employed in Michigan and most work in urban areas. All were employed in the manufacturing industry in plants and machine shops. In Michigan, employment is expected to grown much faster than the average for all occupations. An average of 480 annual openings is expected, with 360 due to growth and 120 due to replacement of workers who retire, die or leave the labor force for other reasons.

Estimated Earnings:

Nationally, hourly earnings of unionized machine tool setters in the auto industry ranged between $19.85 and 20.38.

In Michigan, the average hourly earnings were approximately $19.49.

D. ENROLLMENT PROJECTIONS

Enrollments:

We expect to enroll approximately 10-20 students the first semester and expect increase enrollments once this program becomes established.

Longevity:

The need for this program is expected to remain at the current level for the foreseeable future.

E. PROGRAM COST ANALYSIS

There are no additional costs for this program.

F. COURSE DESCRIPTIONS

MTT 123 Machine Tool Operation & Setup

A continuation of MTT 122, this class is designed for mechanical technology students or for those who simply want to gain more machining experiences. Students experience new advanced operations on familiar machines along with new operations on entirely new machine tools, the new operations include spiral milling, taper grinding, and tracing techniques. New machine tools include the electrical discharge machine, optical comparater, turret lathe, and cutter grinder. Projects are designed to facilitate the completion of these operations and to gain experience on these machine tools.

MTT 201 Machine Tool Technology
The last and most advanced machine shop class, this course emphasizes students' individual goals and proficiencies of specific machining operations. After completing the assigned projects, the students choose additional projects to manufacture using several advanced techniques to meet individual needs.

MTT 103 Introduction to Materials
This course includes an introduction to the basic terms, processes and structures of materials. Hardness testing, classification systems and demonstrations of testing equipment are studied. Principles of heat treatments are studied and demonstrated.

G. ANALYSIS OF AFFECTED INSTRUCTIONAL UNITS
No other instructional units will be affected.

H. ARTICULATIONS
This advanced certificate articulates with the Mastery Certificate in Machine Tool Operation and the Associate in Technical Studies in Machine Tool Technology.

I. LICENSURE/ACCREDITATION (IF APPLICABLE)

NUMERICAL CONTROL PROGRAMS
CURRENT AND PROPOSED

CURRENT PROGRAMS	PROPOSED PROGRAMS
	Machine Operation Achievement Certificate Same program as in the Machine Tool Program Proposal
	Machine Tool Operation Mastery Certificate Same program as in the Machine Tool Program Proposal
Numerical Control Machine Operations Mastery Certificate (NC) Total Credits hours: 33-35 Program Goals: • To prepare students to set up and operate numerical controlled machine tools • To increase skills in the areas of precision measurement, blueprint interpretation, and CNC program editing.	Title chg. **Numerical Control Technology Mastery Certificate** Total Credits hours: 37 Program Goals: • To prepare students for positions as CNC Machine Tool Operators and Programmers • To master skills in manual and computer assist programming languages, engineering drawing interpretation, visualizing the machining operations, and the required machine setups. • To increase skills in selecting cutting tools, incorporating speeds and feeds into CNC programs.
	New **Numerical Control Programming Advanced Certificate** (NCP) Total Credits hours: 65-69 Program Goals: • To provide high level training in the computer numerical control field either to obtain an advanced position or to update current skills. • Graduates will qualify as Computer Assist CNC Programmers.
Numerical Control Technology Associate in Technical Studies Total Credits hours: 65-69 Program Goals: • To provide career training as Numerical Control Technician; these positions are considered the link between design and the actual manufacture of products by firms using computer controlled equipment. • To develop increase skills in the areas of: Set up and operation of various types of numerical control machine tools; writing the programs which control the machine motion required to manufacture parts; and use the many N/C machine tool languages • Provide training in CAD hardware and software machining techniques, precision measurement, blueprint interpretation and industrial processes, and design and manufacture of jigs and fixtures.	NCTT Same

MACHINE TOOL PROGRAMS
CURRENT AND PROPOSED

CURRENT PROGRAMS	PROPOSED PROGRAMS
Machine Operation Achievement Certificate (MOPC) Total Credits hours: 11 Program Goals: • To prepare students for entry-level employment in the machining industry • To give students a foundation to continue in the Machine Tool Technology degree program or another technical program. • Increase skills in the areas of blueprint reading, statistical process control and hands on machine operation.	**Machine Operation Achievement Certificate** Total Credits hours: 13 change credit Program Goals: • To prepare students to become semi-skilled operators of production manufacturing equipment. • To increase skills in the following areas: use of precision measuring tools to gauge parts; adjustment of cutting tools and setup of machines; operation and set up of conventional lathes, mills, grinders, CNC turning and machining centers; and the interpretation of engineering drawings and metal cutting techniques.
Toolroom Machine Operation (TOMO) Total Credits hours: ~~30~~ 33-34 Program Goals: • To provide training for a career as a toolroom machine operator. • To prepare students to operate the following machines: engine lathes, saws, grinding machines, drilling machines, and milling machines. • To develop the following skills: Set up the correct sequence of operation based on blueprint information; adjust speed and other controls, select the proper cutting tools or instruments for the operation; use special attachments for the machine and use precision measuring instruments.	Title change **Machine Tool Operation Mastery Certificate** Total Credits hours: 26 Program Goals: • As a continuation of the Machine Operator Achievement Certificate Program, students completing this program will qualify for entry-level positions in the skilled machine trade industry such as a machinist, toolmaker or diemaker. • Increase skills in the areas of: set up and operate both conventional and CNC machine tools, make adjustments to NC controllers and perform editing commands to enhance productivity. • Increase mathematical skills and calculations including those used to calculate correct speeds and feeds of machines and basic S.P.C. charting techniques.
	MTTA **Machine Tool Technology Advanced Certificate** Total Credits hours: 37 Program Goals: • To provide short term advanced career training in the Machine Tool Technology field • To increase advanced skills in the use of lathes, mills, precision grinders, and measuring instruments.
Machine Tool Technology Associate in Technical Studies Total Credits hours: 65-69 Program Goals: • To prepare students to be machine tool technicians who assist mechanical engineers in a broad range of functions involving the design, building, maintenance, and modification of many kinds of machines, mechanical devices, and tools. • Increase skills in the areas of: reviewing blueprints and project instructions, analyzing costs and practical values of design plans, sketching rough layouts of proposed machines and machine parts, assembling new or modified devices or components, setting up and conducting tests of completed assemblies or components, analyzing test results, and writing reports.	MTT

MACHINE TOOL PROGRAMS
CURRENT AND PROPOSED

CURRENT PROGRAMS	PROPOSED PROGRAMS
Machine Operation Achievement Certificate Total Credits hours: 11 Program Goals: • To prepare students for entry-level employment in the machining industry • To give students a foundation to continue in the Machine Tool Technology degree program or another technical program. • Increase skills in the areas of blueprint reading, statistical process control and hands on machine operation.	**Machine Operation Achievement Certificate** Total Credits hours: 13 Program Goals: • To prepare students to become semi-skilled operators of production manufacturing equipment. • To increase skills in the following areas: use of precision measuring tools to gauge parts; adjustment of cutting tools and setup of machines; operation and set up of conventional lathes, mills, grinders, CNC turning and machining centers; and the interpretation of engineering drawings and metal cutting techniques.
Toolroom Machine Operation Total Credits hours: 16 Program Goals: • To provide training for a career as a toolroom machine operator. • To prepare students to operate the following machines: engine lathes, saws, grinding machines, drilling machines, and milling machines. • To develop the following skills: Set up the correct sequence of operation based on blueprint information; adjust speed and other controls, select the proper cutting tools or instruments for the operation; use special attachments for the machine and use precision measuring instruments.	**Machine Tool Operation Mastery Certificate** Total Credits hours: 26 Program Goals: • As a continuation of the Machine Operator Achievement Certificate Program, students completing this program will qualify for entry-level positions in the skilled machine trade industry such as a machinist, toolmaker or diemaker. • Increase skills in the areas of: set up and operate both conventional and CNC machine tools, make adjustments to NC controllers and perform editing commands to enhance productivity. • Increase mathematical skills and calculations including those used to calculate correct speeds and feeds of machines and basic S.P.C. charting techniques.
	Machine Tool Technology Advanced Certificate Total Credits hours: 37 Program Goals: • To provide short term advanced career training in the Machine Tool Technology field • To increase advanced skills in the use of lathes, mills, precision grinders, and measuring instruments.
Machine Tool Technology Associate in Technical Studies Total Credits hours: 65-69 Program Goals: • To prepare students to be machine tool technicians who assist mechanical engineers in a broad range of functions involving the design, building, maintenance, and modification of many kinds of machines, mechanical devices, and tools. • Increase skills in the areas of: reviewing blueprints and project instructions, analyzing costs and practical values of design plans, sketching rough layouts of proposed machines and machine parts, assembling new or modified devices or components, setting up and conducting tests of completed assemblies or components, analyzing test results, and writing reports.	

MACHINE TOOL CERTIFICATE
PROPOSED CURRICULUM

MACHINE OPERATOR CERTIFICATE OF ACHIEVEMENT

MTT 100	MACHINE SHOP THEORY	3 CR	45 HRS	1 Day/ WK
MTT 111	MACHINE TOOL THEORY & PRACTICE	4 CR	90 HRS	2 Days/WK
NCT 112	INTRODUCTION TO CNC MACHINING	3 CR	75 HRS (10 WKS)	2 Days/Wk
~~BPR~~ MTT 101	BLUEPRINT READING	3 CR	45 HRS	1 Day/WK
		13 CR.		

MASTERY OF MACHINE TOOL OPERATION CERTIFICATE

	MACHINE OPERATOR CERTIFICATE OF ACHIEVEMENT	13 CR.		
MTT 122	MACHINE TOOL OPERATION & SETUP	4 CR	90 HRS	2 Days/WK
NCT 121	MANUAL PROGRAMMING & NC TOOL OPERATION & SETUP	4 CR	90 HRS	2 Days/WK
QCT 100	CHARTING TECHNIQUES FOR OPERATORS	2 CR	45 HRS	1 Day/ WK
ENG 107	TECHNICAL COMMUNICATIONS	3 CR	45 HRS	1 Day/ WK
		26 CR.		

MASTERY OF MACHINE TOOL TECHNOLOGY CERTIFICATE

	MASTERY OF MACHINE TOOL OPERATION CERTIFICATE	26 CR.		
MTT 123	MACHINE TOOL OPERATION & SETUP	4 CR	90 HRS	2 Days/WK
MTT 201	MACHINE TOOL TECHNOLOGY	4 CR	90 HRS	2 Days/WK
MTT 103	INTRODUCTION TO MATERIALS	3 CR	45 HRS	1 Day/ WK
		37 CR.		