METROLOGY AND QUALITY TECHNOLOGY

Applied Science and Engineering Technology Division

The associate of applied science degree with specialization in metrology and quality technology (precision measurement and quality) is designed to meet the precision measurement and quality needs of industry by preparing graduates through both theoretical and hands-on laboratory work to successfully enter the work force. Metrology and quality are used throughout the world in such areas as telecommunications, manufacturing, electrical power, aerospace, transportation, medicine, pharmaceuticals, food production, packaging, construction, national defense, atmospheric research and environmental protection. The metrology and quality technology program at MCCC emphasizes dimensional metrology and quality standards for the manufacturing industry.

Career Opportunities

Individuals with dimensional metrology skills, especially coordinate measuring machine (CMM) operators, are in high demand. MCCC is one of only a handful of colleges offering a program in dimensional metrology technology (one of only two in Michigan).
Graduates of this program will be prepared for employment in the following areas:

- Calibration technician
- CMM (coordinate measuring machine) operator
- Inspection
- Lab technician
- Layout inspector
- Metrologist
- Metrology technician
- Quality assurance
- Quality auditor
- Quality control
- Quality manager
- Quality technician

Note: The following codes identify courses that satisfy MCCC's General Education Requirements:
(C1) GE Natural Sciences Competency
(C2) GE Mathematics Competency
(C3) GE Writing Competency
(C4) GE Computer Literacy Competency
(C5) GE Human Experience Competency
(C6) GE Social Systems Competency

		Credits
Required General Education Courses		**21**
C1	PHY 101 (Technical Physics) or PHY 151 (General Physics I) or CHEM 150 (Fundamental Principles of Chemistry) or CHEM 151 (General College Chemistry I)	4
C2	MATH 124* (Technical Mathematics II) or competency	4
C3	ENGL 151 (English Composition I)	3
C4	MDTC 160 (Mechanical Drafting and CAD I)	4
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on page 33 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**39**
1st Semester	
MDTC 160 (Mechanical Drafting and CAD I)	C4
MATL 101 (Industrial Materials)	3
MECH 102 (Manufacturing Processes)	4
MATH 119* (Elementary Technical Mathematics)	2
2nd Semester	
MDTC 228** (Introduction to SOLIDWORKS-CSWA)	3
MATH 124* (Technical Mathematics II)	C2
ELEC 125 (Fundamentals of Electricity)	3
MDTC 109 (Mechanical Blueprint Reading)	2
3rd Semester	
MECH 103 (Machining Basics and CNC)	4
QSTC 150 (Introduction to Metrology)	3
QSTC 111 (Quality Management)	3
MDTC 226 (Geometric Dimensioning and Tolerancing)	3
4th Semester	
QSTC 230 (Documentation and Audit Preparation)	3
QSTC 210 (Advanced Metrology) or QSTC 115 (Statistical Process Control)	3
QSTC 220 (Calibration and Gage R & R)	3

Total Degree Requirements	**60 credits**
Total Degree Cost	**72-74 minimum billable contact hours**

** MATH 119 (Elementary Technical Mathematics) and MATH 124 (Technical Mathematics II) are required for students whose goal is to complete the associate of applied science degree and seek employment. MATH 157 (College Algebra) and MATH 159 (Trigonometry and Analytical Geometry) are recommended for students interested in transferring to a four-year institution. Other MATH courses may be selected for transfer depending on the student's choice of transfer institution. Students interested in transfer are encouraged to seek the assistance of a faculty advisor or admissions counselor.*

*** Will substitute for METC 170 (Introduction to Parametric Modelling-CAD/CATIA) or METC 172 (Computer Aided Design UG/NX)*

Certificate Program: Metrology Technology

In addition to the two-year associate degree program, Monroe County Community College offers a certificate program in metrology technology. We recognize that many employers place value on a certificate which authenticates specialized educational preparation. The program concentrates upon basic core courses with skill development and job upgrading being the primary objectives. All courses taken in the certificate program are applicable toward the associate of applied science degree.

	Credits
MDTC 160 (Mechanical Drafting and CAD I)	4
MDTC 226 (Geometric Dimensioning and Tolerancing)	3
MECH 103 (Machining Basics and CNC)	4
MATH 119 (Technical Mathematics I)	2
MATH 124* (Technical Mathematics II)	4
QSTC 150 (Introduction to Metrology)	3
QSTC 210 (Advanced Metrology)	3

Total Certificate Requirements	**23 credits**
Total Certificate Cost	**29 minimum billable contact hours**

**Students should be able to test into MATH 124 (Technical Mathematics II) or take MATH 119 (Elementary Technical Mathematics) if the standard is not met.*

Certificate Program: Quality Technology

In addition to the two-year associate degree program, Monroe County Community College offers a certificate program in quality systems technology. We recognize that many employers place value on a certificate which authenticates specialized educational preparation. The program concentrates on basic core courses with skill development and job upgrading being the primary objectives. All courses taken in the certificate program are applicable toward the associate of applied science degree.

	Credits
QSTC 111 (Quality Management)	3
QSTC 115 (Statistical Process Control)	3
QSTC 150 (Introduction to Metrology)	3
QSTC 230 (Documentation and Audit Preparation)	3
MDTC 109 (Mechanical Blueprint Reading)	2
ENGL 151 (English Composition I)	3
MATH 119 (Elementary Technical Mathematics)	2
MATH 124 (Technical Mathematics II)	4

Total Certificate Requirements	**23 credits**
Total Certificate Cost	**24 minimum billable contact hours**