PROGRAMS OF STUDY

Programs of study are designed to lead to degrees/certificates in particular areas of study. Students may enter the workplace following completion of the degree or certificate and/or continue their education.

While the career programs are occupationally oriented and have a high degree of specialization, many are transferable to four-year colleges for completion of bachelor's degree programs such as education, career and technical education, general studies, etc. Careful course selection is important and should be done with a Monroe County Community College counselor and, to the extent possible, with an advisor of the four-year college to which transfer is planned.

ACCOUNTING

Business Division — Web Site: http://www.monroeccc.edu/business/busdiv.htm

The associate of applied science degree with specialization in accounting is designed to provide practical and theoretical preparation for positions leading to supervisory and administrative assignments. In addition to completion of the required general education courses, students desiring the program designation on their transcript must complete the required core and specialized courses. This curriculum provides preparation for careers in business accounting departments and accounting firms.

Career Opportunities

Accounting remains one of the more sought after disciplines in the job market. According to Randstad USA, the median salary for a staff accountant position can start at $55,000, and the demand for accountants is on the rise. Please see the following link for more info: https://www.randstadusa.com/workforce360/workforce-insights/2014-hot-jobs-finance-accounting/163/.

Transfer Information

An associate degree in accounting from MCCC offers easy transfer to many of the four-year programs in Michigan and surrounding states, such as the University of Michigan, Wayne State University, Eastern Michigan University, Davenport University, Walsh College, University of Toledo, Siena Heights University and more.

For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

Additional Program Highlights

- All MCCC accounting courses are available in an online format, allowing for convenient access.
- Completing the first two years of a four-year accounting program at MCCC and then transferring the credits can result in savings of up to 75 percent of the cost of completing the entire program at a private institution.

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

Required General Education:		**Credits 19-20**
C1	Natural Science Competency	4
C2	Mathematics Competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	Computer Literacy Competency	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

Required Core Courses	**Credits 39**
1st Semester	
ACCTG 151 (Accounting Principles)	4
BUSAD 151 (Introduction to Business)	4
2nd Semester	
ACCTG 152 (Accounting Principles)	4
ACCTG 220 (Payroll Accounting)	3
CIS 109 (Spreadsheet Software)	3
3rd Semester	
ACCTG 201 (Microcomputer Accounting I)	3
ACCTG 251 (Intermediate Accounting I)	4
ACCTG 255 (Introduction to Taxation)	3
4th Semester	
ACCTG 205 (Microcomputer Accounting II)	3
ACCTG 252 (Cost Accounting)	4
ACCTG 254 (Intermediate Accounting II)	4

Suggested General Electives	**3**
(to complete degree requirements, not limited to those courses listed)	
BMGT 201 (Principles of Management)	3
BMGT 220 (International Business)	3
BSLW 251 (Business Law)	4
ECON 251 (Principles of Macroeconomics)	3
ECON 252 (Principles of Microeconomics)	3
ENGL 155 (Technical Writing)	3
PSYCH 151 (General Psychology)	C6
SPCH 151 (Communication Fundamentals)	3

Total Degree Requirements — 61-62 credits

Total Degree Cost — 62 minimum billable contact hours

Certificate Program: Accounting

The accounting certificate prepares students for careers in business accounting departments and accounting firms as accounting clerks, junior accountants or accounting and management trainees. The courses taken to complete the certificate are applicable to the degree program. Students should check course prerequisites when planning their semester schedules.

Required Core Courses	**Credits**
ACCTG 151 (Accounting Principles)	4
ACCTG 152 (Accounting Principles)	4
ACCTG 201 (Microcomputer Accounting I)	3
ACCTG 205 (Microcomputer Accounting II)	3
ACCTG 220 (Payroll Accounting)	3
ACCTG 251 (Intermediate Accounting I)	4
ACCTG 252 (Cost Accounting)	4
ACCTG 254 (Intermediate Accounting II)	4
ACCTG 255 (Introduction to Taxation)	3
BUSAD 151 (Introduction to Business)	4
CIS 109 (Spreadsheet Software)	3

Total Certificate Requirements — 39 credits

Total Certificate Cost — 39 minimum billable contact hours

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the accounting certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/ACCT_CERT/Gedt.html

ADMINISTRATIVE OFFICE SPECIALIST

Business Division Web Site: http://www.monroeccc.edu/business/busdiv.htm

In addition to the associate degree with the administrative professional designation, Monroe County Community College offers certificate programs in administrative office specialist and administrative office assistant. The college recognizes that many employers place value on a certificate which authenticates specialized preparation. Courses taken under the certificate programs are applicable to the associate degree. Those who complete these certificate programs will typically be prepared for entry-level employment as receptionists, clerks and office assistants.

Certificate Program: Administrative Office Specialist

	Credits
Required Core Courses for Administrative Office Specialist Certificate	
ADMN 101 (Introduction to Today's Office)	1
ADMN 106 (Numeric Keypad)	1
ADMN 135 (Intermediate Keyboarding)	3
ADMN 201 (Integrated Office Software)	4
CIS 109 (Spreadsheet Software)	3
CIS 112 (Database Software)	3
CIS 118 (Windows Operating System)	1
CIS 123 (PowerPoint Presentation Software)	3
CIS 188 (InDesign Desktop Publishing)	3
ENGL 151 (English Composition I)	3
WPR 102 (Word Processing I)	3
WPR 103 (Advanced Word Processing)	3

Total Certificate Requirements **31 credits**

Total Certificate Cost **31 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the administrative office specialist certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/AOS_CERT/Gedt.html.

Certificate Program: Administrative Office Assistant

	Credits
Required Core Courses for Administrative Office Assistant Certificate	
ADMN 101 (Introduction to Today's Office)	1
ADMN 106 (Numeric Keypad)	1
ADMN 131 (Beginning Keyboarding)	3
CIS 109 (Spreadsheet Software)	3
CIS 118 (Windows Operating System)	1
ENGL 151 (English Composition I)	3
WPR 102 (Word Processing I)	3

Total Certificate Requirements **15 credits**

Total Certificate Cost **15 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the administrative office assistant certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/AOS_CERT/Gedt.html.

ADMINISTRATIVE PROFESSIONAL

Business Division Web Site: http://www.monroeccc.edu/business/busdiv.htm

The associate of applied science degree with specialization as an administrative professional is designed to provide comprehensive preparation for office employment. The curriculum emphasizes communication skills as well as office applications software usage. Graduates of this program will be prepared for entry-level employment in corporate offices, law firms, medical offices and administrative departments of state or local governments.

Career Opportunities

The administrative assistant job market is changing rapidly in today's organizations. Employment of secretaries and administrative assistants is projected to grow 12 percent from 2012 to 2022. Those with a combination of work experience and computer skills will have the best employment prospects.

Transfer Information

For information regarding transfer opportunities for this or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

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		**19-20**
C1	Natural Science Competency	4
C2	Mathematics Competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	Computer Literacy Competency	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**40**
1st Semester	
ADMN 106 (Numeric Keypad)	1
ADMN 101 (Introduction to Today's Office)	1
SPCH 151 (Communication Fundamentals)	3
CIS 109 (Spreadsheet Software)	3
WPR 102 (Word Processing I)	3
2nd Semester	
ADMN 135 (Intermediate Keyboarding)	3
CIS 170 (Web Design for Non-Designers)	3
WPR 103 (Advanced Word Processing)	3
3rd Semester	
BMGT 201 (Principles of Management)	3
CIS 112 (Database Software)	3
CIS 123 (PowerPoint Presentation Software)	3
CIS 188 (InDesign Desktop Publishing)	3
4th Semester	
ACCTG 151 (Accounting Principles)	4
ADMN 201 (Integrated Office Software)	4

Suggested General Electives

(to earn a minimum of 60 credits)

ACCTG 201 (Microcomputer Accounting I)	3
BMGT 160 (Managing in the Digital Enterprise)	3
BMGT 202 (Business Communication in a Digital Enterprise)	3
BUSAD 151 (Introduction to Business)	4
CIS 182 (Illustrator Graphics)	3
CIS 184 (Photoshop Graphics)	3
ECON 251 (Principles of Macroeconomics)	3
ADMN 131B (Keyboarding Skills Enhancement)	1

Total Degree Requirements: 60 credits

Total Degree Cost: 60 minimum billable contact hours

APPLICATION SOFTWARE SPECIALIST

Business Division Web Site: http://www.monroeccc.edu/business/busdiv.htm

The associate of applied science degree with a concentration in application software is designed to provide comprehensive preparation in the computer support area.

Career Opportunities

Graduates of this program should be prepared for positions as administrative professionals, office and administrative support specialists, entry level computer technicians or data entry specialists. They should also be prepared to be successful in taking Microsoft Office Specialist (MOS) certification examinations.

Transfer Information

For information regarding transfer opportunities for this or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

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		**19-20**
C1	Natural Science Competency	4
C2	Mathematics Competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	CIS 130 (Introduction to Computer Information Systems)	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**24**
ADMN 102 (Keyboarding)	1
ADMN 201 (Integrated Software)	4
CIS 109 (Spreadsheet Software)	3
CIS 112 (Database Software)	3
CIS 118 (Windows Operating System)	1
CIS 123 (PowerPoint Presentation Software)	3
CIS 188 (InDesign Desktop Publishing)	3
WPR 102 (Word Processing I)	3
WPR 103 (Advanced Word Processing)	3

Additional Required CIS Electives: 9

General Electives:
(as required to complete 60 hours)

Total Degree Requirements: 60 credits

Total Degree Cost: 60 minimum billable contact hours

Application Software Specialist Certificate

This certificate program focuses on office application software for today's administrative assistant. Successful completion of these courses helps to prepare students for the certification exams.

	Credits
Required Courses	
ADMN 102 (Keyboarding)	1
ADMN 201 (Integrated Office Software)	4
CIS 109 (Spreadsheet Software)	3
CIS 112 (Database Software)	3
CIS 118 (Windows Operating System)	1
CIS 123 (PowerPoint Presentation Software)	3
CIS 130 (Introduction to Computer Information Systems)	3
WPR 102 (Word Processing I)	3
WPR 103 (Advanced Word Processing)	3

Total Certificate Requirements: 24 credits

Total Certificate Cost: 24 minimum billable contact hours

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the application software specialist certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/ASSP_CERT/Gedt.html.

AUTOMOTIVE ENGINEERING TECHNOLOGY

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

The associate of applied science degree with specialization in automotive engineering technology is structured to provide the technical knowledge and mechanical abilities necessary to work in today's growing automotive research and development industry. Automotive engineering technicians assist engineers in design and development work. They help determine the practicality of a proposed product design change and plan and carry out tests on experimental test devices and equipment for performance, durability and efficiency. As part of the testing procedure, they record data, make computations, plot graphs, analyze results, write reports and often make recommendations for improvements to meet performance requirements. The automotive engineering technician makes use of various mechanical and electrical test instruments and gauges, including engine and chassis dynamometers, road simulators, flow benches and computer-controlled data gathering devices. The curriculum is planned to prepare the graduate to perform duties concerned with design, testing and development activities in direct support of the automotive engineer.

Career Opportunities

Graduates of this program will be prepared for entry-level employment in the following areas:

- Automotive engineering technician
- Engineering technician
- Factory technical representative
- Research and development technician
- Research technician
- Sales engineer

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 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**34**
1st Semester	
MATH 119* (Elementary Technical Mathematics)	2
ELEC 125 (Fundamentals of Electricity and Electronics)	3
AUTO 101 (Internal Combustion Engines)	4
2nd Semester	
AUTO 102 (Automotive Electricity and Electronics)	4
AUTO 103 (Fuel and Emission Control Systems)	4
MATH 124* (Technical Mathematics II)	C2
Winter or Spring Semester	
AUTO 201 (Automotive Digital Electronics)	3
MDTC 160 (Mechanical Drafting and CAD I)	C4
3rd Semester	
AUTO 104 (Automotive Ignition Systems)	3
AUTO 107 (Automotive Chassis Units)	4
4th Semester	
AUTO 105 (Automotive Transmissions)	3
AUTO 114 (Automotive Instrumentation and Testing)	4

Additional Technology Electives	**6-7**
(All recommended for better employment opportunities.)	
AUTO 109 (Welding for Automotive Technicians)	3
MATL 101 (Industrial Materials)	3
MECH 102 (Manufacturing Processes)	4
MECH 103 (Machining Basics and CNC)	4
MECH 111 (Introduction to Fluid Power)	3

Total Degree Requirements	**61-62 credits**
Total Degree Cost	**80 minimum billable contact hours**

**MATH 119 (Elementary Technical Mathematics) and 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.*

Certificate Program: Automotive Engineering Technology

In addition to the two-year associate degree program, Monroe County Community College offers a certificate program in automotive engineering 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
ELEC 125 (Fundamentals of Electricity)	3
AUTO 101 (Internal Combustion Engines)	4
AUTO 102 (Automotive Electricity and Electronics)	4
AUTO 103 (Fuel and Emission Control Systems)	4
AUTO 104 (Automotive Ignition Systems)	3
AUTO 105 (Automotive Transmissions)	3
AUTO 107 (Automotive Chassis Units)	4
AUTO 114 (Automotive Instrumentation and Testing)	4
AUTO 201 (Automotive Digital Electronics)	3
MATH 119 (Elementary Technical Mathematics)	2

Total Certificate Requirements **34 credits**

Total Certificate Cost **50 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the automotive engineering technology certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/AUTOE_CERT/Gedt.html.

BUSINESS MANAGEMENT

Business Division **Web Site:** http://www.monroeccc.edu/business/busdiv.htm

The associate of applied science degree in business management is designed to provide the student with a general background in business and an awareness of the organizational and environmental changes that continually challenge management.

Career Opportunities

Graduates of this program will potentially be prepared for entry-level employment as:

- Retail managers
- Sales managers
- Customer service representatives
- Business analysts
- Office managers
- Human resources managers
- General business managers
- Purchasing agents

Transfer Information

Although this program is a two-year occupational program designed to prepare students for employment, many four-year colleges and universities will accept much of this curriculum in transfer. Please see a counselor in the Office of Admissions and Guidance for details.

For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

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:		**19-20**
C1	Natural Science Competency	4
C2	Mathematics Competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	BMGT 160 (Managing in the Digital Enterprise)	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**27**
1st Semester	
BUSAD 151 (Introduction to Business)	4
ECON 251 (Principles of Macroeconomics)	3
2nd Semester	
BMGT 201 (Principles of Management)	3
BMGT 160 (Managing in the Digital Enterprise)	C4
ACCTG 151 (Accounting Principles)	4
3rd Semester	
ACCTG 152 (Accounting Principles)	4
MCOM 201 (Principles of Marketing)	3
4th Semester	
BMGT 202 (Business Communication in a Digital Age)	3
ECON 252 (Principles of Microeconomics)	3

Required Electives Options	**9**
(to complete degree requirements)	
ACCTG 201 (Microcomputer Accounting I)	3
ACCTG 220 (Payroll Accounting)	3
ACCTG 252 (Cost Accounting)	4
BUSAD 170 (Small Business and Entrepreneurship)	3
BMGT 220 (International Business)	3
BMGT 251 (Human Resource Management)	4
BSLW 251 (Business Law)	4
CIS 109 (Spreadsheet Software)	3
CIS 112 (Database Software)	3
CIS 123 (PowerPoint Presentation Software)	3
MATH 162 (Introduction to Statistics)	3
QSTC 111 (Quality Management)	3

General Electives

(as required to complete 60 hours)

Total Degree Requirements	**60-61 credits**
Total Degree Cost	**61 minimum billable contact hours**

CERTIFIED NURSE AIDE

Health Sciences Division **Web Site:** http://www.monroeccc.edu/health_sciences/cna.htm

The nurse aide program is designed to prepare an individual to fulfill the role of direct caregiver/nursing aide. The course emphasizes the skills and behaviors that are significant to employers of nurse aides, including cardiopulmonary resuscitation (CPR).

This course includes classroom activities, skills practice time in the laboratory and supervised clinical practice at a long-term care facility for a total of 132 hours. Students are expected to show competency in skills before the clinical portion of the course in order to proceed and complete the course. Upon completion of this course, students will be eligible to take the clinical and written exams required for certification as a nurse aide in the State of Michigan.

Major units include: orientation to long term care, understanding long term care and patient ethical/legal aspects of health care, fire/disaster safety, safe patient environment, communication, planning and organizing your work, medical and charting terminology, activities of daily living, measuring intake and output, standard precautions, infection control, body mechanics, positioning, range of motion, lifting, transfers, ambulation, vital signs, nutrition, elimination, the reproductive system of the elderly, care of specific disorders, restorative nursing, spiritual and religious needs, and death and dying.

Being a nurse aide, as well as taking course work to become a nurse aide, requires direct care of clients and is characterized by the application of verified knowledge in the skillful performance of nurse aide duties.

Career Opportunities

Upon completion of this course, students will be eligible to take the clinical and written exams required for certification as a nurse aide in the State of Michigan. The average CNA salary in Michigan is $25,000. Employment opportunities are favorable and exist in long-term care settings, acute care hospitals, in-home healthcare organizations and community settings.

Technical Standards:

Technical standards are defined by the Monroe County Community College nursing faculty as the functional abilities determined to be essential to the practice of nursing. The purpose is to notify prospective and current nursing students of these technical standards to enable them to make an informed decision regarding enrollment in the certified nurse aide course at Monroe County Community College. The delivery of safe, effective nursing care requires that students be able to perform functions related to the technical standards. The inability of a student to perform these functions may result in the student being unable to meet course objectives and to progress in the CNA program. Additionally, if a student is unable to perform these required functions, the student may pose a risk of harm to the patient(s) for whom care is provided.

The following list outlines the technical standards and the related functions required by the Monroe County Community College nursing programs. Examples of each standard are available at: http://www.monroeccc.edu/health_sciences/cna.htm

- **Motor**
  The student will have sufficient:
  - Strength, mobility, flexibility and coordination necessary to perform client care activities and emergency procedures.
  - Gross and fine motor skills necessary to perform clinical skills and techniques safely and effectively.
- **Sensory**
  The student will have sufficient function to:
  - See
  - Hear
  - Touch
  - Smell
- **Communication**
  The student will have adequate ability to:
  - Read, write, interpret, comprehend and legibly document in multiple formats using standard English.
  - Recognize, interpret and respond to nonverbal behavior of self and others.
  - Accurately elicit information.
- **Critical Thinking**
  The student will have sufficient problem-solving skills to:
  - Make safe, immediate, well-reasoned judgments, often in unpredictable situations.
- **Emotional, Psychological, Mental Stability**
  The student will display:
  - Effective and empathetic behaviors under stressful and rapidly changing situations while interacting with diverse individuals and groups.

Professional Behavior

The student will demonstrate the appropriate behavior(s) to:

- Establish effective, compassionate relationships with clients, families, staff and colleagues with varied socioeconomic, emotional, cultural and intellectual backgrounds.
- Accept accountability and responsibility for one's actions.
- Effectively work independently and in team situations.
- Comply with the ethical and legal standards of the nursing program.
- Respond effectively to criticism.
- Display integrity, honesty and responsibility.
- Demonstrate comfort with intimate physical care of clients.

A prospective student or participant in the program with an approved documented disability can request reasonable accommodations to meet these standards. The college will provide appropriate accommodations, but is not required to substantially alter the requirements or nature of the program. Requests for accommodations should be directed to a disability services counselor in the Learning Assistance Laboratory (C 218). To make an appointment, please call 734-384-4167.

Students must meet agency health and security requirements prior to the first clinical experience. These include:

- Health physical that indicates good general health and up-to-date immunizations (titers to show immunity), at student's expense.
- Negative P.P.D. tuberculin test (two-step) or chest X-ray.
- Hepatitis B vaccination series (or at least one injection completed, two preferred) or a signed waiver if vaccination is contraindicated.
- Personal health insurance.
- Criminal background check, at student's expense, with results that will allow admission to nursing home environment.
- Drug screening.
- Current basic cardiac life support for healthcare providers.

If a student cannot meet the health/or security requirements to be placed in the clinical setting, they will be dismissed from the course.

	Credits
Required Course:	
CNA 100* (Certified Nurse Aide)	5
Total course requirements:	**5 credits****
Total costs:	**8 billable contact hours**

**Prerequisite: RDG 090 and ENGL 090 and MATH 090 or qualifying scores on ACT or COMPASS tests. Corequisite: None*

***Hours required: Class - 40; Lab – 44; Clinical – 48*

COMPUTER INFORMATION SYSTEMS
ACCOUNTING/CIS

Business Division **Web Site:** http://www.monroeccc.edu/business/busdiv.htm

The associate of applied science degree with specialization in accounting/CIS has a dual focus in combining accounting and computer courses. Students completing this program of study will have entry-level skills in both career areas.

Career Opportunities

Section 404 of the Sarbanes-Oxley Act of 2002, which requires publicly listed companies to establish and maintain internal control standards, has placed the combined skill set in accounting and systems in high demand for over a decade. This associate of applied science degree will help to provide the students with the entry level skills for a career in this combined field.

Transfer Information

An associate degree in accounting/CIS from MCCC offers easy transfer to many of the four-year programs in Michigan and surrounding states, such as the University of Michigan, Wayne State University, Davenport University, Walsh College, University of Toledo, Siena Heights University and more. Completing the first two years at MCCC and then transferring the credits to a four-year program can result in savings of up to 75 percent of the cost compared to its equivalent at a private four-year college.

For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

All Classes Available Online

All MCCC accounting classes are available online, allowing for convenient access.

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:		**19-20**
C1	Natural Science Competency	4
C2	Mathematics Competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	CIS 130 (Introduction to Computer Information Systems)	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Courses	**47**
1st Semester	
ACCTG 151 (Accounting Principles)	4
CIS 109 (Spreadsheet Software)	3
CIS 130 (Introduction to Computer Information Systems)	C4
CIS 132 (Computer Programming Concepts)	3
2nd Semester	
ACCTG 152 (Accounting Principles)	4
CIS 112 (Database Software)	3
3rd Semester	
ACCTG 201 (Microcomputer Accounting I)	3
ACCTG 251 (Intermediate Accounting I)	4
CIS 152 (Visual Basic Programming)	3
CIS 205 (Systems Analysis & Design)	3
4th Semester	
ACCTG 205 (Microcomputer Accounting II)	3
ACCTG 252 (Cost Accounting)	4
ACCTG 254 (Intermediate Accounting II)	4

Additional Required Courses	**6**
ACCTG 220 (Payroll Accounting)	3
CIS Elective. Must be numbered higher than CIS 152	3

Total Degree Requirements	**66-67 credits**
Total Degree Cost	**67 minimum billable contact hours**

COMPUTER INFORMATION SYSTEMS
APP DEVELOPMENT

Business Division **Web Site:** http://www.monroeccc.edu/business/busdiv.htm

The associate of applied science degree with specialization in app development is designed to train students in Web and mobile app development.

Career Opportunities

- Entry-level Web and mobile programming
- Entry-level Web database programming

Transfer Information

For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm

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:		**19-20**
C1	Natural Science Competency	4
C2	Mathematics Competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	CIS 130 (Introduction to Computer Information Systems)	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**29**
CIS 112 (Database Software)	3
CIS 130 (Introduction to Computer Information Systems)	C4
CIS 150 (Computer Science I)	4
CIS 153 (Desktop App Programming)	3
CIS 155 (Database Management Systems)	3
CIS 175 (Android Programming)	3
CIS 177 (Markup Languages)	4
CIS 179 (Web Script Programming)	3
CIS 272 (Database Web Development)	3
Additional Required CIS Courses	**3**
General Elective Courses	
(As required to complete 60 hours)	
Total Degree Requirements	**60 credits**
Total Degree Cost	**61 minimum billable contact hours**

Certificate Program: App Development

This certificate program focuses on Web and mobile app development.

	Credits
Required Courses	
CIS 112 (Database Software)	3
CIS 130 (Introduction to Computer Information Systems)	3
CIS 150 (Computer Science I)	4
CIS 153 (Desktop App Programming)	3
CIS 155 (Database Management Systems)	3
CIS 175 (Android Programming)	3
CIS 177 (Markup Languages)	4
CIS 179 (Web Script Programming)	3
CIS 272 (Database Web Development)	3
Total Certificate Requirements	**29 credits**
Total Certificate Cost	**29 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the app development certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/APLDEV_CERT/Gedt.html.

COMPUTER INFORMATION SYSTEMS
COMPUTER SCIENCE

Business Division **Web Site:** http://www.monroeccc.edu/business/busdiv.htm

The associate of applied science degree with specialization in computer science is designed to train students for the area of computer programming in an engineering/science environment.

Career Opportunities
Entry-level programming positions.

Transfer Information
MCCC has a signed transfer agreement with the University of Michigan-Dearborn that allows students to transfer directly into the bachelor of science in computer and information science, software engineering or information assurance programs. Refer to the Business Division website for specific transfer courses and requirements.

For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

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:		**20**
C1	Natural Science Competency	4
C2	MATH 171 (Calculus I)	4
C3	ENGL 151 (English Composition I)	3
C4	CIS 130 (Introduction to Computer Information Systems)	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**25**
CIS 130 (Introduction to Computer Information Systems)	C4
CIS 150 (Computer Science I)	4
CIS 153 (Desktop App Programming)	3
CIS 167 (Discrete Structures)	4
CIS 175 (Android Programming)	3
CIS 250 (Computer Science II)	4
CIS 267 (Beginning Game Programming)	3
CIS 268 (Assembly Language and Computer Architecture)	4

Additional CIS Electives	**4**
General Electives Courses *(as required to complete 60 hours)*	
Total Degree Requirements	**60 credits**
Total Degree Cost	**60 minimum billable contact hours**

COMPUTER INFORMATION SYSTEMS
INFORMATION ASSURANCE AND SECURITY

Business Division **Web Site:** http://www.monroeccc.edu/business/busdiv.htm

The associate of applied science degree in computer information systems with a program designation of information assurance specialist is designed to provide an opportunity for students to acquire the foundational skills needed for an entry-level position supporting corporate security operations. The term "information assurance" encompasses the scientific, technical and management disciplines required to ensure computer and network security.

Career Opportunities

Graduates of this program will potentially be prepared for entry-level employment as:

- Systems/network administration and operation
- Information assurance systems and product acquisition
- Threat and vulnerability assessment (includes risk management)
- Computer emergency response team operations
- Information assurance training education and management
- Cyber crime investigation
- Cryptography
- Web security
- Computer forensics
- Defensive information operations
- Threat intelligence

For more information, please see the following link on the Bureau of Labor Statistics website: http://www.bls.gov/ooh/computer-and-information-technology/information-security-analysts.htm.

Transfer Information

This program was designed to transfer to institutions offering four-year degrees. There is a significant financial advantage in following this path. Monroe County Community College and Eastern Michigan University have an articulation agreement that will maximize transferability. For more information, go to http://www.emich.edu/ccr/currguide_new/monroe_informationassurance.pdf.

For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

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:		**20**
C1	Natural Science Competency	4
C2	MATH 151 (Intermediate Algebra)	4
C3	ENGL 151 (English Composition I)	3
C4	CIS 130 (Introduction to Computer Information Systems)	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**31**
1st Semester	
CIS 130 (Introduction to Computer Information Systems)	C4
CIS 132 (Computer Programming Concepts)	3
2nd Semester	
CIS 150 (Computer Science I) or CIS 152 (Visual Basic Programming)	3
CIS 208 (PC Operating Systems)	3
CIS 209 (Network Concepts)	3
IAS 103 (Information Security Principles)	3
3rd Semester	
CIS 228 (Linux Administration)	3
IAS 210 (Advanced Networking Practices)	3
4th Semester	
CIS 220 (Hardware Maintenance)	4
IAS 202 (Risk Vulnerability Analysis)	3
IAS 213 (Privacy and Technology)	3

Additional IAS or CIS Electives	**6**
Additional General Electives *(as required to complete 60 hours)*	
Total Degree Requirements	**60 credits**
Total Degree Cost	**61 minimum billable contact hours**

COMPUTER INFORMATION SYSTEMS
PC SUPPORT TECHNICIAN

Business Division **Web Site:** http://www.monroeccc.edu/business/busdiv.htm

The associate of applied science degree with specialization as a PC support technician is designed to train students in PC hardware maintenance and various PC operating systems.

Career Opportunities
Graduates of this program will potentially be prepared for entry-level employment as:

- Computer user support specialists
- Computer support specialists
- Network support specialists
- Software support specialists
- Hardware support specialists

For more information, please see the following link on the Bureau of Labor Statistics website: http://www.bls.gov/ooh/computer-and-information-technology/computer-support-specialists.htm.

Transfer Information
For information regarding transfer opportunities for this or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

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:		**19-20**
C1	Natural Science Competency	4
C2	Mathematics Competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	CIS 130 (Introduction to Computer Information Systems)	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**31**
1st Semester	
CIS 130 (Introduction to Computer Information Systems)	C4
CIS 132 (Computer Programming Concepts)	3
CIS 140 (Help Desk Concepts)	3
2nd Semester	
CIS 109 (Spreadsheet Software)	3
CIS 150 (Computer Science I) or CIS 152 (Visual Basic Programming)	3
CIS 209 (Network Concepts)	3
IAS 103 (Information Security Principles)	3
3rd Semester	
CIS 205 (Systems Analysis & Design)	3
CIS 208 (PC Operating Systems)	3
ELEC 125 (Fundamentals of Electricity)	3
4th Semester	
CIS 220 (Hardware Maintenance)	4
Additional Required CIS Electives	**10**
Total Degree Requirements	**60-61 credits**
Total Degree Cost	**61 minimum billable contact hours**

Certificate Program: PC Support Technician

This certificate program focuses on knowledge and skills that are essential for today's computer technicians.

	Credits
Required Courses	
CIS 130 (Introduction to Computer Information Systems)	3
CIS 132 (Computer Programming Concepts)	3
CIS 140 (Help Desk Concepts)	3
CIS 208 (PC Operating Systems)	3
CIS 209 (Network Concepts)	3
CIS 220 (Hardware Maintenance)	4
IAS 103 (Information Security Principles)	3
Total Certificate Requirements	**22 credits**
Total Certificate Cost	**22 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the PC support certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/PCSUP_CERT/Gedt.html.

COMPUTER INFORMATION SYSTEMS
SYSTEM ADMINISTRATION SPECIALIST

Business Division **Web Site:** http://www.monroeccc.edu/business/busdiv.htm

The associate of applied science degree with specialization as a system administration specialist is designed to train students in LAN, Windows Server networking, hardware maintenance, data communication concepts, various PC operating systems and Web administration fundamentals.

Career Opportunities

Graduates of this program will potentially be prepared for entry-level employment as:

- Network operating system specialists
- Computer system administrators
- Network administrators
- System/software administrators

For more information, please see the following link on the Bureau of Labor Statistics website: http://www.bls.gov/ooh/computer-and-information-technology/network-and-computer-systems-administrators.htm.

Transfer Information

For information regarding transfer opportunities for this or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

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:		**19-20**
C1	Natural Science Competency	4
C2	Mathematics Competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	CIS 130 (Introduction to Computer Information Systems)	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**35**
1st Semester	
CIS 130 (Introduction to Computer Information Systems)	C4
CIS 132 (Computer Programming Concepts)	3
CIS 140 (Help Desk Concepts)	3
2nd Semester	
CIS 150 (Computer Science I) or CIS 152 (Visual Basic Programming)	3
CIS 208 (PC Operating Systems)	3
CIS 209 (Network Concepts)	3
3rd Semester	
CIS 205 (Systems Analysis & Design)	3
CIS 228 (Linux Administration)	3
CIS 230 (Windows Server)	3
4th Semester	
CIS 220 (Hardware Maintenance)	4
CIS 234 (Advanced Windows Server)	4
IAS 103 (Information Security Principles)	3

General Elective Courses
(as required to complete 60 hours)

Total Degree Requirements **60 credits**
Total Degree Cost **61 minimum billable contact hours**

Certificate Program: System Administration Specialist

This certificate program focuses on knowledge and skills that are essential for those specializing in network software.

	Credits
Required Courses	
CIS 130 (Introduction to Computer Information Systems)	3
CIS 132 (Computer Programming Concepts)	3
CIS 208 (PC Operating Systems)	3
CIS 209 (Network Concepts)	3
CIS 228 (Linux Administration)	3
CIS 230 (Windows Server)	3
CIS 234 (Advanced Windows Server)	4
IAS 103 (Information Security Principles)	3

Total Certificate Requirements **25 credits**
Total Certificate Cost **25 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the systems administration specialist certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/SYSADMN_CERT/Gedt.html.

CONSTRUCTION MANAGEMENT TECHNOLOGY

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

The associate of applied science degree with specialization in construction management technology is designed to provide individuals with a sound background for rewarding careers in the construction industry. The program is structured to provide training in both the technical and business components of this industry. Technical courses examine the materials, processes and systems used in construction. The business courses teach basic business practices and computer skills.

Career Opportunities

The program will be valuable for students seeking entry-level positions, as well as individuals who are currently in the construction field seeking to enhance their employment opportunities. Graduates of the program will have sufficient knowledge of the construction process to make a valuable contribution in both the field and office environment.

They will be prepared for entry-level employment in the following areas:

- Assistant construction superintendent
- Construction inspector
- Quality control technician
- Estimator
- Land planning technician
- Architectural drafter
- Materials sales engineer
- Specifications writer trainee
- Structural engineering technician
- Construction supervisor

Transfer Information

Although this program is a two-year occupational program designed to prepare students for employment, four-year colleges and universities may accept much of this curriculum in transfer. In specific, construction management students who wish to pursue the 3+1 transfer program to Eastern Michigan University are advised to meet with a program faculty member for alternate course selections before registering for classes.

For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm

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:		**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 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**45**
1st Semester	
MATH 119* (Elementary Technical Mathematics)	2
CONM 100 (Introduction to Design and Construction)	3
CONM 101 (Materials of Construction)	3
MDTC 160 (Mechanical Drafting & CAD I)	C4
2nd Semester	
CONM 102 (Construction Practices)	3
CONM 103 (Residence Drafting)	4
CONM 110 (Construction Blueprint Reading)	3
MATH 124* (Technical Mathematics II)	C2
Spring Semester	
CONM 107 (Surveying)	3
3rd Semester	
CONM 160 (Green Building and LEED® Rating System)	3
METC 220 (Statics & Strength of Materials)	4
CONM 202 (Construction Safety)	3
CONM 242 (Construction Documents and Law) or ELEC 156 (Introduction to Renewable Energy Systems) or BMGT 201 (Principles of Management)	3
4th Semester	
CONM 105 (Mechanical Building Systems)	4
CONM 240 (Construction Planning and Scheduling with Primavera)	3
ACCT 151 (Accounting Principles)	4

Total Degree Requirements **66 credits**
Total Degree Cost **81-82 minimum billable contact hours**

**MATH 119 (Elementary Technical Mathematics) and 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.*

Certificate Program: Construction Management Technology

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

Option 1: Residential and Light Commercial Construction

The residential and light commercial construction certificate is for students who have limited construction background. The courses develop the basic skills necessary to gain entry-level employment with residential and light commercial contractors.

	Credits
CONM 100 (Introduction to Design and Construction)	3
CONM 101 (Materials of Construction)	3
CONM 102 (Construction Practices)	3
CONM 103 (Residence Drafting)	4
CONM 105 (Mechanical Building Systems)	4
CONM 107 (Surveying)	3
CONM 110 (Construction Blueprint Reading)	3
CONM 202 (Construction Safety)	3
MDTC 160 (Mechanical Drafting & CAD I)	4

Total Certificate Requirements 30 credits
Total Certificate Cost 41 minimum billable contact hours

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the construction management technology: residential and light commercial construction certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/RLCONST_CERT/Gedt.html.

Option 2: Heavy and Industrial Construction

The heavy and industrial construction certificate is designed for more experienced construction personnel who wish to upgrade skills to gain management positions with large industrial employers.

	Credits
CONM 110 (Construction Blueprint Reading)	3
CONM 202 (Construction Safety)	3
CONM 240 (Construction Planning & Scheduling with Primavera)	3
CONM 242 (Construction Documents & Law)	3
CONM 244 (Construction Estimating)	3
CONM 107 (Surveying)	3
MDTC 160 (Mechanical Drafting & CAD I)	4

Total Certificate Requirements 22 credits
Total Certificate Cost 26 minimum billable contact hours

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the construction management technology: heavy and industrial construction certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/HICONST_CERT/Gedt.html.

CRIMINAL JUSTICE/LAW ENFORCEMENT

Humanities/Social Sciences Division
Web Site: http://www.monroeccc.edu/humaniti/criminaljustice.htm

Criminal Justice

This associate of applied science program prepares students for employment in criminal justice positions that require an associate degree or transfer to baccalaureate programs in criminal justice. Students planning to transfer should consult both their Monroe County Community College advisor and the transfer school for assistance in selecting appropriate electives.

Law Enforcement

This associate of applied science program prepares students for employment in law enforcement positions requiring both an associate degree and Michigan Commission on Law Enforcement Standards (MCOLES) certification (www.michigan.gov/mcoles). MCCC students may take the Police Academy at the Schoolcraft College, Radcliff Campus in Garden City. Please contact Deminique Heiks, instructor of criminal justice, at (734) 384-4157, for additional information.

Specific Criteria for Completion of Prerequisites

1. Students must apply and be admitted to Schoolcraft College.
2. Students must have their official transcripts sent to Schoolcraft College.
3. Students are required to contact the Wayne County Regional Police Training Academy at Schoolcraft College for application materials before the end of the second semester at Monroe County Community College. Call the Public Safety Education Office at Schoolcraft at (734) 462-4306 for information and application materials.
4. Students must complete the general education and required core courses at MCCC with a minimum 2.0 cumulative GPA prior to entering the Police Academy.
5. Schoolcraft College Police Academy is a qualifying admission program. Applicants must meet the requirements in order to be accepted.
6. Applicants must successfully pass the MCOLES pre-enrollment reading and writing test and the pre-enrollment physical agility test.
7. After meeting these requirements, along with a successful interview, criminal history check and driving record check, qualified students will be admitted into the course.

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

Required General Education:		**Credits 20**
C1	Natural Science Competency	4
C2	Mathematics Competency	4
C3	ENGL 151 (English Composition I)	3
C4	CIS 130 (Introduction to Computer Information Systems)	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

Required Core Courses	**Credits 30**
1st Semester	
CRJ 154 (Introduction to Law Enforcement)	3
SOC 151 (Introduction to Sociology)	C6
SPCH 151 (Communication Fundamentals)	3
2nd Semester	
ENGL 155 (Technical Writing) or ENGL 152 (English Composition II)	3
PSYCH 151 (General Psychology)	3
CRJ 170 (Introduction to Corrections)	3
3rd Semester	
CRJ 251 (Criminal Law)	3
CRJ 255 (Police Organization and Administration)	3
CRJ 252 (Juvenile Delinquency)	3
PSYCH 152 (Psychology of Personality & Adjustment)	3

Criminal Justice Option

	Credits
4th Semester	
SOC 251 (Modern Social Problems)	3
PSYCH 253 (Social Psychology)	3
SPCH 155 (Interpersonal Communication)	3
* Elective	3
* Elective	3
Total	**15**
Total Degree Requirements	**62 credits**
Total Degree Cost	**62 minimum billable contact hours**

** Elective courses should be selected in consultation with an advisor.*

Law Enforcement Option

	Credits
4th Semester	
Police Academy	15-21
MCCC accepts police academy transferable credits from accredited colleges and universities with MCOLES licensure.	
Total Degree Requirements	**62-68 credits**
Total Degree Cost	**62 minimum billable contact hours**

Certificate Program: Criminal Justice

In addition to the two-year associate degree program, Monroe County Community College offers a certificate program in criminal justice. We recognize that many employers place value on a certificate which authenticates specialized education 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 in criminal justice or law enforcement.

	Credits
CRJ 154 (Introduction to Law Enforcement)	3
CRJ 170 (Introduction to Corrections)	3
SOC 151 (Introduction to Sociology)	C6
SOC 251 (Modern Social Problems)	3
CRJ 252 (Juvenile Delinquency)	3
ENG 151 (English Composition I)	C3

Total Certificate Requirements **18 credits**

Total Certificate Cost **18 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the criminal justice/law enforcement certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/CMJ_CERT/Gedt.html.

CULINARY SKILLS AND MANAGEMENT

Business Division **Web Site:** http://www.monroeccc.edu/business/culinary/culinary.htm

The culinary skills and management certificate program is designed to prepare students for careers in the food service industry. New labor market projections indicate that opportunities for trained cooks and chefs are expected to increase in the years ahead. New students in the culinary skills and management program take college courses to gain knowledge and skills in cooking and restaurant operation. They receive hands-on experience operating the Cuisine 1300 Restaurant located on the MCCC campus and also gain experience in banquet operations, catering and kitchen management. The work is demanding and the hours are long; however, job security, promotions and good salaries reward the energetic worker.

Students are required to purchase their own uniforms, knives, tools and books. There will be additional expenses for participation in required field trips. It is recommended that students have food service experience prior to enrollment in the program at MCCC.

Students are required to take the culinary skills and management courses in the order listed; however, the remaining courses required for the associate of applied science degree may be selected in accordance with the college schedule and advisor recommendations.

Students are required to successfully complete CSM 111 (Food Sanitation) before they may enroll in CSM 101A-D (Food Preparation I courses). CSM 111 is offered in the six-week Summer Session immediately preceding Fall Semester.

Career Opportunities

Students completing this program are prepared to accept jobs as cooks and chefs in:

- Resorts, hotels and casinos
- Fine dining restaurants
- Hospitals and health care facilities
- Catering and mobile food service enterprises
- Vending
- Food service management and distribution

Transfer Information

The MCCC culinary skills and management program has an articulation agreement with Eastern Michigan University in hotel and restaurant management. For more information, please see http://www.emich.edu/ccr/artguide.php#MON.

Additional information about transferring to a four-year college or university may be found at http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

Culinary Skills and Management Certificate

	Credits
Required Core Courses	**44**
Pre-1st Semester	
CSM 111 (Food Sanitation)	2
Must be completed during the Summer Term before a student will be permitted to enroll for CSM 101 courses.	
1st Semester	
CSM 101 (Food Preparation I)	
CSM 101A (Introduction to Culinary Arts)	4
CSM 101B (Basic Restaurant Production)	2
CSM 101C (Baking I)	2
CSM 101D (Soups, Stocks, Sauce Production)	2
2nd Semester	
CSM 116 (Food Preparation II)	
CSM 116A (Introduction to Buffet Preparation)	4
CSM 116B (Beginning Pastries)	2
CSM 116C (Baking II)	2
CSM 116D (Institutional Food Preparation)	2
Spring Semester	
CSM 114 (Nutrition)	2
3rd Semester	
CSM 201 (Advanced Food Preparation I)	
CSM 201A (Introduction to Hospitality Industry)	2
CSM 201B (Dining Room Procedures)	1
CSM 201C (Menu Planning)	1
CSM 201E (a la Carte Food Preparation)	3
CSM 207 (Restaurant Management and Supervision)	3
CSM 219 (Beverages in Food Service)	2
4th Semester	
CSM 216 (Advanced Food Preparation II)	
CSM 216A (Garde Manger)	2
CSM 216B (Menu Planning)	1
CSM 216D (Advanced Buffet Preparation)	3
CSM 216E (Contemporary Food Design & Architecture)	2

Total Certificate Requirements **44 credits**

Total Certificate Cost **59 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the culinary skills and management certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/CSM_CERT/Gedt.html.

Associate of Applied Science Degree: Culinary Skills and Management Program

Students wishing to pursue the associate of applied science degree in culinary skills and management will be required to successfully complete the General Education coursework outlined below. These courses may be taken anytime during the student's program and should be selected with input and advice from a program advisor or counselor.

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:		**19-20**
C1	Natural Science Competency	4
C2	Mathematics Competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	Computer Literacy Competency	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

Total Degree Requirements	**63-64 credits**
Total Degree Cost	**79 minimum billable contact hours**

Program Application Information and Process

Culinary skills and management is a selective admission, limited space program. For a student to be considered for the culinary skills and management program, the Business Division of Monroe County Community College requires:

1. High school graduation or successful completion of the General Education Development (GED) test.

2. Completed Monroe County Community College Application for Admission.

3. Official transcripts from high school and all post-secondary schools attended (if applicable).

4. Two letters of personal reference (references from food service employers or instructors preferred).

5. One of the following:
   - ACT scores of 20 or higher in math and 18 or higher in reading and English;
   - Take the COMPASS Placement Test – if 090 courses are required, they must be successfully completed prior to – or concurrently with – fall culinary classes;

6. Recent employment record. (The Culinary Skills and Management Admissions Committee is interested in a student's exposure to and experience with the food service industry; therefore, such experience is preferred.)

7. It is mandatory that an applicant complete these steps for candidacy and have a completed folder on file in the Admissions Office no later than April 15 of the year the applicant wishes to enter the program. When all of the steps have been completed, the applicant must contact the Office of Admissions and Guidance to set up an interview appointment. A mandatory admission interview with the chef instructor is required for entry into the program. If openings in the program are available after the May interview and selection process, a second round of applicant reviews and interviews may be conducted. The deadline for this second round process will be June 15 prior to the start of the Summer Term (when CSM 111 must be taken).

The culinary skills and management program at MCCC emphasizes food preparation, restaurant management and food service operations. Applicants to the program should be in good general health; be able to stand for prolonged periods at work stations such as stove tops, prep tables and sinks; move swiftly between work areas within a busy and very active setting, and safely lift and handle up to 30 pounds. Students are regularly required to talk, hear, view and effectively perform in a variety of culinary kitchen/restaurant situations. Keen senses of sight, taste and smell are also vital to a student's success in this program. The student is frequently required to stand, walk, stoop or kneel. The student is exposed to heat generated from the use of kitchen equipment. To insure personal safety of the individual student and fellow class members, all students must be able to hear and understand verbal instructions, follow procedures, be able to multitask, work under stressful situations and meet deadlines.

EARLY CHILDHOOD EDUCATION

Science/Mathematics Division **Web Site:** http://www.monroeccc.edu/scimath/scimath.htm

The early childhood education associate of applied science degree program prepares students to provide high-quality care and education of young children birth through age eight. Through experiential learning, students plan and implement activities appropriate to the developing child. Students also demonstrate knowledge in creating and administering a safe, healthy environment that uses developmentally appropriate curriculum practices. Students will demonstrate professionalism through adherence to the ethical and professional standards of the early childhood education profession. The program provides a theoretical base in the growth and development of young children and early childhood education curricula and activities. The practical experiences in various early childhood education settings facilitate the development of the skills needed to implement curriculum that fosters the cognitive, motor, social and emotional development of the child.

Career Opportunities

The program prepares individuals for staff placement in:

- Child care centers
- Family child care
- Head Start programs
- Preschools
- Great Start Readiness Program preschools
- Public school latchkey programs
- Other programs involved in the care and guidance of children and their families

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		**19-20**
C1	Natural Science Competency	4
C2	MATH 126 (Mathematics for Business) or MATH 151 (Intermediate Algebra) or higher or competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	Computer Literacy Competency	3
C5	ENGL 256 (Children's Literature)	3
C6	PSYCH 151 (General Psychology)	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Courses	**40**

Core Courses*

Fall Semester (First Year)

ECE 100 (Foundations of ECE)	3
ECE 102 (Child Growth and Development)	3
ECE 104 (Nutrition, Health and Safety for ECE)	3

Winter Semester (First Year)

ECE 106 (Observation and Assessment of Child Development)	3
ECE 108 (The Care and Learning of Infants and Toddlers)	4
ECE 110 (Diverse Populations in ECE)	3

Fall Semester (Second Year)

ECE 200 (The Care and Learning of Preschool Children)	4
ECE 202 (The Care and Learning of School-Age Children)	4

Winter Semester (Second Year)

ECE 206 (Early Childhood Education Practicum)	5

**Students must achieve a grade of C or higher in all ECE courses to proceed in the program.*

Additional Required Courses

ART 158 (Art for Elementary Teachers) or MUSIC 165 (Music for Classroom Teachers)	3
HPE 151 (First Aid and Safety)	2
PSYCH 251 (Child Psychology)	3

Additional General Elective

(If needed to complete required total credit hours)

Suggested Elective Courses

ECE 204 (Administration of a Child Care Program)	3
EDUC 151 (Exploring Teaching)	3
ENGL 102 (Business Writing)	3
ENGL 152 (English Composition II)	3
PSYCH 254 (Life Span Psychology)	3
SOC 152 (Marriage and Family)	3
SPCH 151 (Communication Fundamentals)	3
SWK 106 (Child Welfare)	3
SWK 151 (Introduction to Social Services)	3

Total Degree Requirements	**62-63 credits**
Total Degree Cost	**65 minimum billable contact hours**

Certificate Program: Early Childhood Education

The early childhood education certificate program is designed for students who will work with and teach young children. Students may use this curriculum to meet state licensing requirements to provide child care in homes, centers and other facilities or for positions as assistant teachers in child care programs. A minimum of 32 credit hours is required for the early childhood education certificate. Courses for the certificate can be applied toward the associate degree.

	Credits
Required Courses	
ECE 100 (Foundations of ECE)	3
ECE 102 (Child Growth and Development)	3
ECE 104 (Nutrition, Health and Safety for ECE)	3
ECE 106 (Observation and Assessment of Child Development)	3
ECE 108 (The Care and Learning of Infants and Toddlers)	4
ECE 110 (Diverse Populations in ECE)	3
ECE 200 (The Care and Learning of Preschool Children)	4
ECE 202 (The Care and Learning of School-Age Children)	4
HPE 151 (First Aid and Safety)	2
One of the following courses	**3**
ENGL 256 (Children's Literature)	
ART 158 (Art for Elementary Teachers)	
MUSIC 165 (Music for Classroom Teachers)	
Total Certificate Requirements	**32 credits**
Total Certificate Cost	**32 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the early childhood development certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/ECDV_CERT/Gedt.html.

Child Development Associate

Students may pursue formal child care education toward the child development associate credential by completing a program of training, experience and assessment outlined by the Council for Professional Recognition. It is the council's goal to credential qualified caregivers who work with children ages birth to five nationwide. The training consists of 120 clock hours of instruction addressing the competency goals in the functional areas identified by the council. At Monroe County Community College, this training can be obtained by completing three courses: ECE 102, ECE 104 and ECE 108 for the Infant and Toddler credential or ECE 102, ECE 104 and ECE 200 for the Preschool credential. The candidate must document 120 hours of formal training through coursework, complete 480 hours of current experience working with children, and complete documentation as required by the Council for Professional Recognition to be considered for the CDA credential. The Council for Professional Recognition makes the final decision on awarding the CDA credential. Students who have completed the CDA training by completing the courses outlined above may apply that coursework toward the two-year associate of applied science degree program.

ELECTRONICS AND COMPUTER TECHNOLOGY

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

Graduates of Monroe County Community College's associate of applied science degree with specialization in electronics technology typically find employment as engineering aides, laboratory technicians and field service representatives. Many graduates transfer to nearby universities that offer a bachelor of engineering technology or bachelor of applied science degree on a "2+2" basis – two years at the community college and two years at the university. These graduates generally obtain engineering positions and often advance into management.

Career Opportunities

The program provides a solid foundation in general electronics in the first three semesters and moves into some currently and regionally important specialized areas in the fourth semester. Throughout, the program maintains a commitment of "hands-on" laboratory applications to support and reinforce theoretical discussions of circuits. To this end, the Electronics and Electronics Trouble Shooting (ELEC 200) course includes the construction of a finished electronic instrument that students may keep at their option.

Graduates of this program will be prepared for entry-level employment in the following areas:

- Computer maintenance technician
- Electrical designer
- Electromechanical technician
- Electronic systems test technician
- Electronics technician
- Engineering aide
- Field service technician

Transfer Information

For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

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 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**40**
1st Semester	
MATH 119** (Elementary Technical Mathematics)	2
ELEC 125 (Fundamentals of Electricity)	3
MDTC 160 (Mechanical Drafting & CAD I)	C4
2nd Semester	
ELEC 132 (Electronics I)	4
ELEC 135 (Digital Electronic Logic)	4
ELEC 141 (Industrial Automation and Process Control)	3
MATH 124** (Technical Mathematics II)	C2
3rd Semester	
ELEC 133 (Circuit Analysis)	4
ELEC 137 (Microprocessors)	4
ELEC 200 (Electronic & Electrical Troubleshooting)	4
ELEC 130 (Introduction to Programmable Logic Controllers)	3
4th Semester	
ELEC 136 (Instrumentation)	3
ELEC 138 (Machinery and Power Control)	4
ELEC 144 (PC-Based Data Acquisition and Control)	2

Total Degree Requirements	**61 credits**
Total Degree Cost	**82 minimum billable contact hours**

**Electronics and computer technology students are strongly encouraged to take PHY 101 (Technical Physics) or PHY 151 (General Physics I) for the GE Natural Sciences Competency.*

***MATH 119 (Elementary Technical Mathematics) and 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.*

FINE ARTS

Humanities/Social Sciences Division
Web Site: http://www.monroeccc.edu/humaniti/finearts.htm

The associate of fine arts degree with specialization in fine arts is designed to provide the student with an excellent foundation upon which to build a profession or an avocation. In addition to completion of the required general education courses, students desiring the program designation on their transcript must complete the required core and specialized courses.

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		**19-20**
C1	Natural Science Competency	4
C2	Mathematics Competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	Computer Literacy Competency	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**42**
1st Semester	
ART 151 (Art Fundamentals)	3
ART 180 (Drawing I)	3
ART 280 (Art History: Prehistoric to Gothic) or ART 281 (Art History: Renaissance to Baroque) or ART 282 (Art History: Neo-classic to Modern)	3
Social Science Elective	3
2nd Semester	
ART 160 (2-D Design)	3
ART 181 (Drawing II)	3
ENGL 152 (English Composition II)	3
HUMAN 152 (Exploring Creativity)	3
3rd Semester	
ART 165 (Illustration Techniques)	3
ART 270 (Ceramics I)	3
ART 190 (Painting I) or ART 250 (Watercolor Painting I)	3
ART 170 (Life Drawing)	3
4th Semester	
ART 271 (Ceramics II)	3
ART 191 (Painting II) or ART 251 (Watercolor Painting II)	3
ART 280 (Art History: Prehistoric to Gothic) or ART 281 (Art History: Renaissance to Baroque) or ART 282 (Art History: Neo-classic to Modern)	C5

General Elective
(as required to complete 60 hours)

Total Degree Requirements	**61-62 credits**
Total Degree Cost	**91 minimum billable contact hours**

GENERAL TECHNOLOGY

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/general.htm

The associate of applied science degree with specialization in general technology is designed to provide students with an opportunity to earn a degree that can be molded to fit individual needs and interests. Examples include those who have been in an apprenticeship program, individuals working in an industry who want to design a degree that supports their job-related responsibilities or those who want to prepare themselves for a technical career that does not follow one of the college's existing programs.

A basic core of technical courses is required. However, if a student's needs or interests are better served by other technical subjects, the core can be customized. Students must, however, complete a basic core of 12 credit hours in a defined program area (product and process technology, welding, etc.). This area will be selected by the student. The program provides wide latitude under the technical electives. Students may choose from management courses, computer information systems courses or any technical course offered through the Applied Science and Engineering Technology Division.

Students with apprenticeship training who wish to apply that training toward a degree should see the "Requirements for the Associate of Applied Science Degree-AAS" entry in the Graduation and Degree Requirements section of the college catalog.

Career Opportunities

The career opportunities for this program of study vary depending upon the technical and specialty courses chosen.

Transfer Information

For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm

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 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Technical and Specialty Courses	**32**
MATH 119* (Elementary Technical Mathematics)	2
Basic core in a defined program area	12
Additional Technical and Specialty Courses	18
General Electives *(as required to complete 60 hours)*	**7**
Total Degree Requirements	**60 credits**
Total Degree Cost	**80 minimum billable contact hours**

**MATH 119 (Elementary Technical Mathematics) and 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.*

GRAPHIC DESIGN

Business Division **Web Site:** http://www.monroeccc.edu/business/busdiv.htm

Monroe County Community College's associate of applied science degree in graphic design enables students to obtain a broad introduction to the concepts and techniques used in the field of graphic design. The associate of applied science degree has three concentrations: digital media, illustration and Web design. Students in the digital media concentration will explore the fundamentals of design, creation of graphical assets, publication design, three-dimensional design and time-based media using industry-standard software. Students in the illustration concentration will explore the digital media concepts with a focus on art history and traditional art fundamentals. Students in the Web design concentration will explore the fundamentals of design with a focus on designing for the Web.

Career Opportunities

Students may work as graphic designers, desktop publishers, pre-press technicians, commercial artists, entry-level Web designers and multimedia artists.

Transfer Information

For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm

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		**19-20**
C1	Natural Science Competency	4
C2	Mathematics Competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	CIS 130 (Introduction to Computer Information Systems)	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**16**
ART 151 (Art Fundamentals)	3
ART 160 (Two Dimensional Design)	3
CIS 130 (Introduction to Computer Information Systems)	C4
CIS 178 (Design Concepts)	4
CIS 182 (Illustrator Graphics)	3
CIS 184 (Photoshop Graphics)	3

Choose one of the following concentrations:

Digital Media Concentration	**25**
CIS 186 (Multimedia Development)	3
CIS 187 (Digital Video Editing)	3
CIS 188 (InDesign Desktop Publishing)	3
CIS 189 (3D Animation)	3
CIS 284 (Advanced Photoshop Graphics)	3
CIS/ART Electives	6
General Electives	4

OR

Illustration Concentration	**25**
ART 165 (Illustration Techniques)	3
ART 170 (Life Drawing)	3
ART 180 (Drawing I)	3
ART 181 (Drawing II)	3
ART 280 (Art History: Prehistoric to Gothic) or ART 281 (Art History: Renaissance to Baroque) or ART 282 (Art History: Neo-Classical to Early Modern)	C5
HUMAN 152 (Exploring Creativity)	3
CIS/ART Electives	6
General Electives	4

OR

Web Design Concentration	**25**
CIS 174 (Dreamweaver Web Design)	3
CIS 176 (Web Animation)	3
CIS 177 (Markup Languages)	4
CIS 186 (Multimedia Development)	3
CIS 187 (Digital Video Editing)	3
CIS 189 (3D Animation)	3
CIS/ART Electives	3
General Electives	3

Total Degree Requirements	**60-61 credits**
Total Degree Cost	**69 minimum billable contact hours**

Certificate Programs: Graphic Design-Digital Media

Credits

Required Courses

ART 151 (Art Fundamentals). 3
ART 160 (Two-Dimensional Design) 3
CIS 130 (Introduction to Computer Information Systems). . . .3
CIS 178 (Design Concepts) 4
CIS 182 (Illustrator Graphics) 3
CIS 184 (Photoshop Graphics). 3
CIS 188 (InDesign Desktop Publishing). 3

Select any three of the following courses:

CIS 186 (Multimedia Development: Adobe After Effects). . . . 3
CIS 187 (Digital Video Editing) 3
CIS 189 (3D Animation) 3
CIS 284 (Advanced Photoshop Graphics) 3

Total Certificate Requirements 31 credits
Total Certificate Cost 37 minimum billable contact hours

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the graphic design-digital media certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/GDDM_CERT/Gedt.html.

Graphic Design-Illustration

Credits

Required Courses

ART 151 (Art Fundamentals). 3
Choose 2 of the following:
ART 160 (Two-Dimensional Design)
or ART 165 (Illustrative Techniques)
or ART 170 (Life Drawing) 6
ART 180 (Drawing I). 3
CIS 130 (Introduction to Computer Information Systems). . . 3
CIS 178 (Design Concepts) 4
CIS 182 (Illustrator Graphics). 3
CIS 184 (Photoshop Graphics). 3
HUMAN 152 (Exploring Creativity) 3

Total Certificate Requirements 28 credits
Total Certificate Cost 40 minimum billable contact hours

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the graphic design-illustration certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/GDILL_CERT/Gedt.html.

Graphic Design-Web Design

Credits

Required Courses

CIS 130 (Introduction to Computer Information Systems) . . . 3
CIS 178 (Design Concepts). 4
CIS 174 (Dreamweaver Web Design) 3
CIS 176 (Web Animation) 3
CIS 177 (Markup Languages) 4
CIS 182 (Illustrator Graphics). 3
CIS 184 (Photoshop Graphics). 3
CIS 186 (Multimedia Development) 3
CIS 187 (Digital Video Editing) 3
CIS 189 (3D Animation). 3

Total Certificate Requirements 32 credits
Total Certificate Cost 32 minimum billable contact hours

To earn the graphic design-Web design certificate in addition to the associate of applied science in graphic design-digital media, take CIS 174, CIS 176 and CIS 177 as electives. To earn the graphic design-Web design certificate in addition to the AAS in graphic design-illustration, take CIS 174, CIS 176, CIS 177, CIS 186, CIS 187 and CIS 189 as electives.

To earn the graphic design-illustration certificate in addition to the AAS in graphic design-digital media, take ART 165 or ART 170, ART 180 and HUMAN 152 as electives. To earn the graphic design-illustration certificate in addition to the AAS in graphic design-Web design, take ART 165 or ART 170, ART 180 and HUMAN 152, CIS 174, CIS 176 as electives.

To earn the graphic design-digital media certificate in addition to the AAS in graphic design-illustration, take CIS 188 and three of the following as electives: CIS 186, CIS 187, CIS 189 or CIS 284. To earn the graphic design-digital media certificate in addition to the AAS in graphic design-Web design, take CIS 188 and CIS 284 as electives.

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the graphic design-Web design certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/WEBDES_CERT/Gedt.html.

INDUSTRIAL ELECTRICITY/ELECTRONICS TECHNOLOGY

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

The associate of applied science degree with specialization in industrial electricity/electronics technology is designed to provide the theory and application of principles, procedures and components that technicians encounter in modern industrial environments. Subject matter ranges from fundamental electrical, electronic and digital theory to process control of automated systems. The program also stresses effective oral and written communication, as well as related mathematics and science.

The program is supported by application of theoretical concepts via laboratory exercises in modern, well-equipped facilities. The emphasis of the program is to provide students with the knowledge and skills needed to function effectively in the increasingly technical environment of modern industry.

Electrical apprentices will find this program to be an attractive way to utilize the credits they have earned while pursuing their journeyman status to complete an associate of applied science degree. Other individuals who are working in industrial-electrical/electronics environments will also find it to be a meaningful path to an associate of applied science degree.

Career Opportunities

Graduates of this program will be prepared for entry-level employment in the following areas:

- Industrial electrician
- Electromechanical technician
- Industrial sales technician
- Field service technician
- Automated systems 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 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**43**
1st Semester	
MATH 119** (Elementary Technical Mathematics)	2
ELEC 125 (Fundamentals of Electricity and Electronics)	3
MECH 131 (Introduction to Automated Manufacturing)	3
2nd Semester	
ELEC 132 (Electronics I)	4
ELEC 135 (Digital Electronic Logic)	4
ELEC 141 (Industrial Automation and Process Control)	3
MATH 124** (Technical Mathematics II)	C2
3rd Semester	
ELEC 127 (AC/DC Motors)	3
ELEC 130 (Introduction to Programmable Logic Controllers)	3
ELEC 133 (Circuit Analysis)	4
ELEC 137 (Microprocessors)	4
ELED 214 (National Electrical Code)	2
4th Semester	
ELEC 136 (Instrumentation)	3
ELEC 144 (PC-Based Data Acquisition and Control)	2
ELEC 211 (Medium Voltage Power Distribution Systems)	3

Total Degree Requirements	**64 credits**
Total Degree Cost	**83 minimum billable contact hours**

**Industrial electricity/electronics students are strongly encouraged to take PHY 101 or PHY151.*

***MATH 119 (Elementary Technical Mathematics) and 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.*

MECHANICAL DESIGN TECHNOLOGY

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

The associate of applied science degree with specialization in mechanical design technology is designed to prepare students for careers that follow the design process of a manufactured product from inspiration to final production. Automobiles, furniture, kitchen appliances, laptop computers, cell phones – the list of consumer products designed by people in this field could go on forever. Mechanical design students receive training in the latest solid-modeling computer aided design (CAD) software. The CAD programs utilized in the design program are Draft Sight, SOLIDWORKS, Catia and NX. Possessing skills and knowledge in multiple CAD programs makes our design graduates more marketable – it is all about having an edge. Mechanical design is a dynamic field that attracts talented, creative people. The need for advanced technology products in the medical, transportation and energy fields, as well as the growing global competition among businesses, is expected to keep designers busy for many years to come.

Career Opportunities

According to the Bureau of Labor Statistics, employment of commercial and industrial designers is expected to grow nine percent in the 10 year period leading up to 2018, as fast as the average for all occupations. Employment growth will arise from an increase in consumer and business demand for new or upgraded products. Typical mechanical design titles include:

- Drafter
- CAD operator
- Product designer
- Industrial designer
- Mechanical designer
- Field technician
- Technical sales representative
- Research and development 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 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

		Credits
Required Core Courses		**41-42**
1st Semester		
	MDTC 160 (Mechanical Drafting and CAD I)	C4
	MECH 102 (Manufacturing Processes)	4
	MECH 103 (Machining Basics and CNC)	4
	MATH 119* (Elementary Technical Mathematics)	2
2nd Semester		
	MDTC 161 (Mechanical Drafting and CAD II)	4
	MDTC 152 (Descriptive Geometry)	4
	MDTC 228 (Introduction to SOLIDWORKS-CSWA)	3
	MATH 124* (Technical Mathematics II)	C2
3rd Semester		
	MECH 201 (CAD/CAM I)	3
	MDTC 226 (Geometric Dimensioning and Tolerancing)	3
	METC 220 (Statics & Strength of Materials)	4
	Restricted Elective	3
4th Semester		
	MDTC 242 (Mechanical Design Capstone Project)	4
	METC 170 (Introduction to Parametric CAD/CATIA) or METC 172 (Introduction to Parametric CAD/NX)	3-4

Restricted Electives (select one)
MDTC 232 (Advanced SOLIDWORKS-CSWP)
MATL 101 (Industrial Materials)
QSTC 150 (Introduction to Metrology)

Total Degree Requirements **62-63 credits**
Total Degree Cost **81 minimum billable contact hours**

**MATH 119 (Elementary Technical Mathematics) and 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.*

Certificate Program: Mechanical Design Technology

In addition to the two-year associate degree program, Monroe County Community College offers a certificate program in mechanical design 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 152 (Descriptive Geometry)	4
MDTC 160 (Mechanical Drafting and CAD I)	4
MDTC 161 (Mechanical Drafting and CAD II)	4
MDTC 228 (Introduction to SOLIDWORKS-CSWA)	3
MECH 102 (Manufacturing Processes)	4
MECH 103 (Machining Basics and CNC)	4

Total Degree Requirements	**23 credits**
Total Degree Cost	**34 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the mechanical design technology certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/MDTC_CERT/Gedt.html.

MECHANICAL ENGINEERING TECHNOLOGY

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

The associate of applied science degree with specialization in mechanical engineering technology offers individuals the opportunity to prepare for rewarding and responsible careers in support of technical and engineering activities in business and industry. The mechanical engineering technology curriculum is based on engineering theory, but emphasis is placed on application, implementation skills and computer modeling. The mechanical engineering technologist is responsible for the application and implementation of engineering design methods and analysis techniques for the improvement of products, processes and systems. Coursework within the program includes automation manufacturing processes, strength of materials, computer-aided drafting, computer-aided manufacturing, machine design, quality and thermodynamics. The rapid increase in complexity of technology has produced a demand for professionals who have multi-disciplined applied technical skills. Our mechanical engineering technology graduates have skills to meet that demand.

Career Opportunities

Mechanical engineering technology graduates may seek immediate employment in industry. They will be prepared for entry-level employment in careers such as:

- Mechanical engineering technician
- Product designer
- Field technician
- Lab technician
- Test technician
- Basic machinist
- Research and development technician
- Technical sales representative

Transfer Information

Graduates of this program meet the minimum requirements for placement at the junior level of bachelor of engineering technology programs at many four-year institutions. Students planning to transfer to a four-year program should consult with that institution in order to insure the maximum number of courses that transfer.

Students who intend to transfer into a bachelor of science degree program in mechanical engineering technology should consider taking the calculus (MATH 171, 172) sequence and engineering physics (PHY 251, 252) sequence.

For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm

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 151 (General Physics I)	4
C2	MATH 164 (Precalculus) or qualifying scores on ACT or COMPASS	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 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**45-47**
1st Semester	
MDTC 160 (Mechanical Drafting and CAD I)	C4
MECH 102 (Manufacturing Processes)	4
MATH 164* (Precalculus)	C2
2nd Semester	
MECH 103 (Machining Basics and CNC)	4
METC 100 (Introduction to Engineering and Technology)	3
ENGL 151 (English Composition I)	C3
ELEC 125 (Introduction to Electricity)	3
METC 170 (Introduction to Parametric CAD/CATIA)	3
Spring/Summer Semester	
Expressions of the Human Experience Competency	C5
Social Systems Competency	C6
3rd Semester	
MATH 160 (Math Applications in Engineering Tech)	2
METC 234 (Thermodynamics and Fluid Sciences)	4
METC 220 (Statics & Strength of Materials)	4
CHEM 151** (General College Chemistry I) or MECH 131 (Introduction to Automation)	4/3
Restricted Tech Elective	3
4th Semester	
MATL 101 (Industrial Materials)	3
MECH 111 (Introduction to Fluid Power)	3
PHY 152** (General Physics II) or MECH 131 (Introduction to Automation)	4/3
Restricted Tech Elective	3

*Or Take MATH 157 and MATH 158
**Chemistry Option: Take CHEM 151 in 3rd Semester and MECH 131 in 4th Semester
Physics Option: Take MECH 131 in 3rd Semester and PHY 152 in 4th Semester

Restricted Tech Electives (3 credits each)

MDTC 226 (Geometric Dimensioning and Tolerancing)
QSTC 115 (Statistical Process Control)
MECH 201 (Introduction to CAD/CAM)
ELEC 141 (Industrial Automation and Process Control)
ELEC 130 (Programmable Logic Controllers)
Cooperative Work Experience (Division Approval)

Total Degree Requirements	**66-68 credits**
Total Degree Cost	**89 minimum billable contact hours**

METROLOGY TECHNOLOGY

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

The associate of applied science degree with specialization in metrology technology (precision measurement) is designed to meet the precision measurement needs of industry by preparing graduates through both theoretical and hands-on laboratory work to successfully enter the work force. Metrology is 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 technology program at MCCC emphasizes dimensional metrology 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:

- Field service technician
- Inspection
- Lab technician
- Layout inspector
- Metrologist
- Metrology technician
- Quality assurance
- Quality control
- Testing 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		**20**
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	CIS 130 (Introduction to Computer Information Systems)	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**42**
1st Semester	
MDTC 160 (Mechanical Drafting and CAD I)	4
MATL 101 (Industrial Materials)	3
MECH 103 (Machining Basics and CNC)	4
MATH 119* (Elementary Technical Mathematics)	2
2nd Semester	
MDTC 226 (Geometric Dimensioning and Tolerancing)	3
MECH 102 (Manufacturing Processes)	4
QSTC 111 (Quality Management)	3
MATH 124* (Technical Mathematics II)	C2
3rd Semester	
METC 220 (Statics & Strength of Materials)	4
QSTC 150 (Introduction to Metrology)	3
4th Semester	
ELEC 125 (Fundamentals of Electricity)	3
ENGL 155 (Technical Writing)	3
QSTC 210 (Advanced Metrology)	3
QSTC 220 (Calibration and Gage R & R)	3

Total Degree Requirements	**62 credits**
Total Degree Cost	**77 minimum billable contact hours**

**MATH 119 (Elementary Technical Mathematics) and 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.*

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
MATL 101 (Industrial Materials)	3
MDTC 160 (Mechanical Drafting and CAD I)	4
MDTC 226 (Geometric Dimensioning and Tolerancing)	3
MECH 102 (Manufacturing Processes)	4
MECH 103 (Machining Basics and CNC)	4
MATH 124 (Technical Mathematics II)	4
QSTC 150 (Introduction to Metrology)	3
QSTC 210 (Advanced Metrology)	3
QSTC 220 (Calibration and Gage R & R)	3

Total Certificate Requirements **31 credits**

Total Certificate Cost **43 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the metrology technology certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/METRO_CERT/Gedt.html.

NON-DESTRUCTIVE TESTING

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

This is a course of study that will cover the basic concepts of the five major non-destructive testing (NDT) methods: visual testing (VT), liquid penetrant testing (PT), magnetic particle testing (MT), ultra sonic testing (UT) and radiographic testing (RT). The classroom hours, grading criteria and test composition associated with this coursework are established in accordance with the American Society for Non-Destructive Testing (ASNT): Recommended Practice SNT-TC-1A. The courses are derivative of the existing nuclear engineering technology associate degree program and have direct relevance to the existing welding technology associate degree program.

Non-destructive testing involves the inspection, testing or evaluation of materials, components and assemblies for materials' discontinuities, properties and machine problems without further impairing or destroying the parts serviceability. Universally, the term NDT applies equally to the NDT inspection methods used for evaluation.

Special Knowledge and Training Required for Evolving Industry

It is recognized that the effectiveness of non-destructive testing application depends upon the capabilities of the personnel who are responsible for and perform NDT. The courses are in accordance with SNT-TC-1A that has been prepared by ASNT to establish guidelines for the qualification and certification of NDT personnel whose specific jobs require appropriate knowledge of the technical principles underlying the non-destructive tests they perform, witness, monitor or evaluate. Through course progression, the student gains a general knowledge of how to apply NDT testing methods and develops a deeper understanding of how non-destructive testing impacts the world in which we live.

Significant Job Growth Projected

There is a need for highly trained and certified non-destructive testing technicians worldwide. More opportunity exists for NDT professionals today than ever before. The American Society for Nondestructive Testing is the world's largest technical society for non-destructive testing professionals.

Career Opportunities

Graduates of this program will be prepared for entry-level employment in the following areas:

- NDT Technician
- Quality Control Technician
- Non Destructive Testing Evaluator
- Nuclear Engineering Technician
- Welding Inspector

Certificate Program: Non-Destructive Testing (NDT) Technician

MCCC offers a certificate program that concentrates on the basic and intermediate core competencies required to prepare the student for an ASNT Level I or II position in the non-destructive testing field.

	Credits
Required Courses	**24**
ELEC 125 (Fundamentals of Electricity)	3
MATL 101 (Introduction to Materials)	3
NUET 102 (Introduction to Non-Destructive Testing)	3
NUET 103 (Liquid Penetrant & Magnetic Particle Testing)	2
NUET 104 (Visual Testing)	2
ELEC 136 (Instrumentation)	3
NUET 105 (Radiography – Level I)	2
NUET 106 (Radiography – Level I)	2
NUET 107 (Ultrasonic – Level I)	2
NUET 108 (Ultrasonic – Level I)	2

Total Certificate Requirements **24 credits**

Total Certificate Cost **33 minimum billable contact hours**

Note: Students graduating from both the existing nuclear engineering technology and welding programs can broaden their employability chances after completion of the ASNT certificate.

Note: Completion of the MCCC certificate program in non-destructive testing does not complete the ASNT certification requirements. ASNT certification requires further hours of field experience working under a certified inspector. These hours may vary depending on the inspection method. The MCCC NDT program will satisfy classroom requirements for certification.

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the non-destructive testing technician certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/NDTEST_CERT/Gedt.html.

NUCLEAR ENGINEERING TECHNOLOGY

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

The associate of applied science degree with specialization in nuclear engineering technology will enable prospective students to seek employment as nuclear engineering technicians in various sectors of the nuclear power industry. This specialization utilizes a learning approach that emphasizes both theory and hands-on skills necessary to function effectively in the technical environment of the nuclear industry. The program stresses effective oral and written communication as well as related mathematics, science and technical skills.

In addition to completion of this program, graduates will eventually need to pass appropriate background checks to be employable in the nuclear industry. Please check with the Admissions and Guidance Office for details.

It is strongly recommended that students follow the prescribed course sequence, as some courses are only offered once in an academic year.

Career Opportunities

The program is based on the Nuclear Uniform Curriculum Program (NUCP), a uniform standard administered by the Nuclear Energy Institute. Students who complete the program with an 80 percent score (B or better) in core classes will qualify for the National Academy for Nuclear Training (NANT), which is recognized throughout the industry.

Graduates of this program will be prepared for entry-level employment in the following areas:

- Mechanical technician
- Electrical technician
- Instrumentation and control (I&C) technician

Graduates with additional training experiences will be prepared for employment in the following areas:

- Radiation protection technician
- Non-licensed operator
- Senior reactor operator

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		**20 or 21**
C1	PHY 151 (General Physics I)	4
C2	MATH 164 (Precalculus) or competency (MATH 151 Intermediate Algebra or qualifying score on ACT or COMPASS must be met prior to entry in the program)	4
C3	ENGL 151 (English Composition I)	3
C4	CIS 130 (Introduction to Computer Information Systems) or MDTC 160 (Mechanical Drafting CAD I)	3 or 4
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**48**
1st Semester	
PHY 151 (General Physics I)	C1
MATH 164* (Precalculus)	C2
METC 100 (Introduction to Engineering & Technology)	3
NUET 100 (Nuclear Industry Fundamentals)	2
CIS 130 (Introduction to Computer Information Systems) or MDTC 160 (Mechanical Drafting CAD I)	C4
2nd Semester	
ENGL 151 (English Composition I)	C3
NUET 120 (Radiation Protection)	3
NUET 130 (Plant Systems I)	3
ELEC 125 (Fundamentals of Electricity)	3
MATL 121 (Nuclear Plant Materials)	3
Spring/Summer Semester	
NUET 205 (Nuclear Plant Experience)	2
Expressions of the Human Experience Competency	C5
3rd Semester	
CHEM 151 (Chemistry I)	4
MATH 160 (Math Applications in Engineering Technology)	2
ELEC 133 (Circuit Analysis)	4
METC 234 (Thermodynamics and Fluid Sciences)	4
NUET 230 (Plant Systems II)	3
4th Semester	
ELEC 141 (Industrial Automation and Process Control)	3
NUET 240 (Reactor Theory, Safety and Design)	3
NUET 220 (Power Plant Components)	3
Social Systems Competency	C6
ELEC 211 (Medium Voltage Power Distribution System)	3

Total Degree Requirements	**68 or 69 credits**
Total Degree Cost	**87 minimum billable contact hours**

**MATH 157 and MATH 159 may substitute for MATH 164.*

NURSING, PRACTICAL

Health Sciences Division **Web Site:** http://www.monroeccc.edu/health_sciences/nursing-lpn.htm

A practical nursing certificate prepares students to function as beginning licensed practical nurses and members of the health team, under the supervision of the registered nurse, physician or dentist, in the care of stable individuals with acute and chronic illnesses.

Licensed practical nurses provide basic bedside nursing care and are qualified for employment in structured practice settings, including acute care hospitals, extended care facilities, community settings, nursing homes, clinics and physicians' offices.

Monroe County Community College's program offers learning opportunities in the classroom, laboratory setting, and clinical setting. After admission to the program, a total of 39.5 credit hours of study are required. The Certificate in Practical Nursing program is fully approved through the Michigan Board of Nursing.

Career Opportunities

Upon program completion, students will be prepared and eligible to apply for licensure in the State of Michigan. Students must meet the Michigan Board of Nursing eligibility requirements and successfully pass the National Council Licensure Exam (NCLEX-PN) in order to become a licensed practice nurse.

Currently, the greatest employment opportunities for practical nurses are in extended care and community settings. With experience, practical nurses may also function in providing nursing care in specialized areas, including home health and hospice settings, and in charge nurse and management positions in extended care facilities and nursing homes.

The salary for licensed practical nurses in Michigan ranges from $40,000-$50,000 per year with benefits. Practical nursing is an excellent entry-level career choice, and graduates may qualify to complete advanced degrees in nursing with more education.

Transfer Information

Upon program completion, students may be eligible to transfer to a registered nursing completion program. For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

Additional Program Information:

Admission to the program involves three steps:

1. Admission to the college.
2. Completion of prerequisites as indicated by the Admissions and Guidance Office; the Office of Admissions and Guidance confirms that the criteria listed below have been met by the application date of the first Monday in October.
3. Verification of the completion of the program application. Applications will be date stamped upon receipt in the Admissions and Guidance Office and must be submitted by the first Monday in October each year. Students must apply every year.

Applications submitted after the deadline will only be considered if seats are available. Students who will complete required pre-requisite course work at the end of the Fall semester (after the application deadline) are encouraged to submit application materials for consideration and may be offered conditional acceptance into the program pending successful completion of those courses. If necessary, the tie breaker criteria will be used to rank applicants.

Meeting minimum requirements does not guarantee acceptance into the practical nursing program.

Specific Criteria for Completion of Prerequisites

Develop a folder in the Admissions and Guidance Office consisting of the following:

1. Evidence of high school graduation (official high school transcripts or GED).
2. Official transcripts from all post-secondary schools must be submitted for evaluation.
3. Cumulative grade point average of 2.5 (on a 4.0 scale) from most recent academic institution attended.
4. Completion of the following course work with a "C" or better:
   a. ENGL 151 (Composition I)
   b. PSYCH 151 (General Psychology)
   c. BIOL 157 (Anatomy & Physiology I). *NOTE: BIOL 157 and 158 (Anatomy & Physiology II) credits cannot be more than 10 years old.*
   d. Completion of MATH 092 or MATH 150 or qualifying score on ACT or COMPASS
   e. Successful completion of MCCC's computer skills graduation requirement (either by a passing score on the computer competency test or by taking a course which meets the requirement). CIS 130 is recommended.
   f. HLTSC 110 (Medical Terminology) *NOTE: Strongly recommended but not required.*

Enrollment in the practical nursing program is limited. If the number of qualified applicants exceeds the number of seats available, the following **tie breakers** will be used in this order:

1. Completed BIOL 158 (Anatomy & Physiology II) with a "C" or higher*
2. Completed HLTSC 120 (Pharmacology) with a "C" or higher*
3. County resident over non-county resident
4. Higher cumulative GPA over lower GPA in the following courses: ENGL 151, PSYCH 151, BIOL 157

   * Completion of BIOL 158 (Anatomy & Physiology II) and HLTSC 120 (Pharmacology) are strongly recommended prior to admission, but not required.

Nursing program admission requirements are separate from general admission to the college and are subject to change. To be accepted into the nursing program, a student must meet the requirements in effect for the class and year of admission.

General Information

1. A physical examination and immunizations are required of students selected for the program at the student's expense which verify capabilities and general health status.
2. Applicants should be aware that any previous or current conviction of a crime and/or treatment for substance abuse may result in ineligibility to be licensed as a practical nurse. The determination of (in)eligibility is made by the Michigan State Board of Nursing. Any questions or concerns about licensing should be directed to the State Board of Nursing at www.michigan.gov/healthlicense.
3. Any criminal history, including misdemeanors, could prohibit a student from participating in the Nursing Program. Students admitted to the nursing program must consent to security checks consisting of a national criminal background check and drug screening. Other positive background checks, either criminal or drug screening, may also be grounds for prohibiting admission, but will be considered on a case-by-case basis. All positive security checks, including misdemeanors, that prohibit student clinical placement are usually enough to prohibit admission to the program. Failure to disclose criminal history will also prevent admission to the nursing program. All costs incurred are the student's responsibility.

   **See Criminal Background Check section of the PN Student Information Handbook for further information.*
4. Technical Standards are defined by the MCCC nursing faculty as the functional abilities determined to be essential to the practice of nursing. The purpose of these standards is to notify prospective and current nursing students and enable them to make an informed decision regarding enrollment and continued participation in the nursing program.

   The delivery of safe, effective nursing care requires that students be able to perform functions related to the Technical Standards. The inability of a student to perform these functions may result in the student being unable to meet course outcomes and to progress in the nursing program. Additionally, if a student is unable to perform these required functions, the student may pose a risk of harm to the patient(s) for whom care is provided.

The following list outlines the technical standards and the related functions required by the Monroe County Community College nursing programs. Examples of each standard are available at: http://www.monroeccc.edu/health_sciences/TechnicalStandardsMCCCNursingProgramOrigFeb2010.pdf.

- **Motor**

  The student will have sufficient:
  - Strength, mobility, flexibility and coordination necessary to perform client care activities and emergency procedures.
  - Gross and fine motor skills necessary to perform clinical skills and techniques safely and effectively.
- **Sensory**

  The student will have sufficient function to:
  - See
  - Hear
  - Touch
  - Smell
- **Communication**

  The student will have adequate ability to:
  - Read, write, interpret, comprehend and legibly document in multiple formats using Standard English.
  - Recognize, interpret and respond to nonverbal behavior of self and others.
  - Accurately elicit information.
- **Professional Behavior**

  The student will demonstrate the appropriate behavior(s) to:
  - Establish effective, compassionate relationships with clients, families, staff and colleagues with varied socioeconomic, emotional, cultural and intellectual backgrounds.
  - Accept accountability and responsibility for one's actions.
  - Effectively work independently and in team situations.
  - Comply with the ethical and legal standards of the nursing program.

- Respond effectively to criticism.
- Display integrity, honesty and responsibility.
- Demonstrate comfort with intimate physical care of clients.

- **Critical Thinking**

  The student will have sufficient problem-solving skills to:

  - Make safe, immediate, well-reasoned judgments often in unpredictable situations.

- **Emotional, Psychological, Mental Stability**

  The student will display:

  - Effective and empathetic behaviors under stressful and rapidly changing situations while interacting with diverse individuals and groups.

A prospective student or participant in the program with an approved documented disability can request reasonable accommodations to meet these standards. The college will provide appropriate accommodations but is not required to substantially alter the requirements or nature of the program. Requests for accommodations should be directed to a disability services counselor in the Learning Assistance Laboratory (C 218). To make an appointment, please call (734) 384-4167.

5. Students must complete the practical nursing program within two years of initial entry into the program. Failure to meet the time framework necessitates reapplication to the nursing program.
6. All practical nursing courses utilize Internet services and resources to supplement instruction. It is recommended that students have access to a reliable computer with Internet connection. MCCC offers open access computer laboratories, but students should also be familiar with community resources for computer access, such as public libraries, as needed. A personal computer is helpful.
7. Nursing education offered at MCCC is provided in collaboration with multiple clinical partners located in southeast Michigan and northwest Ohio. As a part of these partnerships, MCCC students and faculty are required to meet and follow the policies and procedures of these clinical partners. Given the number of students in the program, faculty must be able to place students at any of the clinical agencies for clinical and observational experiences during the course of the program. Students need to be in good standing with all clinical agencies, both as a student and as a member of the community. Therefore, any condition (i.e. criminal history, positive drug screening, unprofessional/unethical behavior, negative employment history) that prevents a student from being placed in any clinical agency during a semester may jeopardize the student's ability to meet the course objectives and may lead to course failure and program dismissal.
8. Students will be expected to maintain a flexible schedule for the nursing program. Clinical assignments vary and are subject to change. This may include any day of the week and any shift, including weekends. On days that are not scheduled for class or clinical, students may be expected to view audiovisual material, study in the skills laboratory or participate in other on-campus activities. Usually, these activities are self-scheduled. There may be added classes on other days, but students will receive notice of these in advance.
9. In addition to the general college rules, practical nursing students are required to adhere to policies and procedures outlined in the Practical Nursing Program Student Information Handbook.*

   **More information can be found at http://www.monroeccc.edu/health_sciences/nursing-lpn.htm*

Certificate Program: Practical Nursing

	Credits
Required Core Courses	**39.5**
Winter Semester	
PNUR 121 (Fundamentals of Practical Nursing)	9
PNUR 123 (Mental Health Concepts for Practical Nursing)	2
HLTSC 120 (Pharmacology)	3
BIOL 158 (Anatomy and Physiology II)	4
Spring/Summer Semester (12 weeks)	
Weeks 1-8	
PNUR 124 (Practical Nursing Care of Adults I)	6.5
Weeks 9-12	
PNUR 125 (Practical Nursing Care of Pediatric Clients)	3
Early Fall Start	
PNUR 126 (Practical Nursing Care of Obstetrical Clients)	2
Fall Semester	
Weeks 1-10	
PNUR 128 (Issues in Practical Nursing)	2
Weeks 1-11 **(concurrent with PNUR 128):**	
PNUR 127 (Practical Nursing Care of Adults II)	5
Weeks 12-16	
PNUR 129 (Management Concepts for the Practical Nurse)	3
Total Certificate Requirements	**39.5 credits**
Total Certificate Cost	**68 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the practical nursing certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/PN_CERT/Gedt.html.

NURSING, REGISTERED

Health Sciences Division
Web Site: http://www.monroeccc.edu/health_sciences/nursing/index.htm

The associate of applied science degree with specialization in nursing prepares graduates to function as beginning registered nurse practitioners and members of the health care team in the care of acutely and chronically ill individuals with common illnesses. Registered nurses are qualified for employment in structured practice settings, including acute care hospitals, extended care facilities, nursing homes, clinics and physicians' offices. With experience, nurses may also participate in providing skilled care in more specialized areas, including psychiatric units, emergency departments, pediatric and obstetric units, critical care units and home health settings. Job pay is exceptional, averaging $64,000 annually for practicing nurses, according to the Bureau of Labor Statistics, and is a flexible and mobile career choice.

Career Opportunities

Upon program completion, students will be prepared and eligible to apply for licensure in the State of Michigan. Students must meet the Michigan Board of Nursing eligibility requirements and successfully pass the National Council Licensure Exam (NCLEX-RN) in order to become a licensed registered nurse.

Transfer Information

Upon program completion, students may be eligible to enroll in a RN to BSN completion program. MCCC's RN program has articulation with several four-year university partners. For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

A student who desires to transfer into the MCCC registered nursing program from another nursing program must meet all criteria as listed on the MCCC registered nursing website at http://www.monroeccc.edu/health_sciences/nursing/index.htm.

Additional Program Information:

This nursing program is accredited by the Accreditation Commission for Education in Nursing and is approved by the Michigan Board of Nursing.

ACEN
3343 Peachtree Road NE
Suite 850
Atlanta, GA 30326
Phone: (404) 975-5000
Fax: (404) 975-5020
www.acenursing.org
info@acenursing.org

Nursing Admission Criteria

The registered nursing program is a selective admissions program. Nursing program applicants must meet established minimum criteria to be considered for the nursing program. Applications will be accepted two times per year, in June and October. Only applicants who meet established minimum criteria by the first Monday in June or the first Monday in October will be considered for the Nursing Program. The potential nursing applicant needs to be aware that meeting minimum standards does not ensure admission to the nursing program. Applicants for the nursing program tend to be well qualified and will be accepted until each class is fully enrolled. Returning students in good standing with the program will be considered for reenrollment/readmission first. Additional candidates will be accepted according to the selection criteria below until a class is fully enrolled; up to 30 students for the Winter Semester (June application deadline) and up to 30 students for the Fall Semester (October application deadline).

Minimum admission criteria and Nursing Program Selection Criteria for each application deadline are available for review by visiting the program's webpage at http://www.monroeccc.edu/health_sciences/nursing/index.htm. Students can also receive application information by contacting the Health Sciences Division Office at (734) 384-4102 or by contacting the MCCC Admission's Office at (734) 384-4104.

General Information

1. The class will be selected from the pool of applicants by use of the numerical process.
2. A physical examination and immunizations are required of students selected for the program at the student's expense, which verify capabilities and general health status.
3. Applicants should be aware that any previous or current conviction of a crime and/or treatment for substance abuse may result in ineligibility to be licensed as a registered nurse. The determination of eligibility to take NCLEX-RN is made by the Michigan State Board of Nursing. Any questions or concerns about licensing should be directed to the State Board of Nursing at www.michigan.gov/healthlicense.
4. Students admitted to the nursing program must consent to security checks that consist of criminal background checks and drug screening. In order to comply with Michigan Compiled Laws, no student will be admitted to the program if convicted of a felony or attempt/conspiracy to commit a felony

within 15 years preceding the date of admission; or a misdemeanor conviction involving abuse, neglect, assault, battery, or criminal sexual conduct or fraud or theft (or similar misdemeanor in state or federal law) against a vulnerable adult within 10 years of the date of admission. No student will be admitted with a positive drug screen for illegal substances. Other positive background checks, either criminal or drug screening, may also be grounds for prohibiting admission, but will be considered on a case-by-case basis. Positive security checks that typically prohibit clinical placement for students are usually enough to prohibit admission to the program. Any cost incurred with the security checks is the student's responsibility.

5. Registered nursing at the associate degree level involves the provision of direct care for individuals and families and is characterized by the application of verified knowledge in the skillful performance of nursing functions. Therefore, in order to be considered for admission or to continue in the program, all applicants should possess:
    a. sufficient visual acuity, such as needed in the accurate preparation and administration of medications and for observation necessary for patient assessment and nursing care;
    b. sufficient auditory perception to receive verbal communication from patients and members of the health team and to assess health needs of people through the use of monitoring devices such as a cardiac monitor, stethoscope, I.V. infusion pumps, doppler, fire alarms, etc.;
    c. sufficient gross and fine motor coordination to respond promptly and to implement the skills, including the manipulation of equipment, required in meeting health needs;
    d. sufficient communication skills (speech, reading, writing) to interact with individuals and to communicate their needs promptly and effectively as may be necessary in the individual's interest;
    e. sufficient intellectual and emotional functions to plan and implement care for individuals;
    f. psychological stability, allowing the student to perform at the required levels in the clinical portions of the program;
    g. the capability to concentrate for long periods of time in selecting correct techniques, equipment and safety measures to assure maximum care and safety of the patient. Therefore, the applicant must be able to exercise independent judgments under both routine and emergency conditions. A person under the influence of alcohol or consciousness-altering drugs could not meet the above criteria; and
    h. the ability to tolerate and function safely in environmental conditions, such as exposure to a variety of substances (such as latex products) and conditions within the laboratory and clinical environment, including, but not limited to: temperature fluctuations; electromagnetic radiation; hazardous waste, chemicals, poisonous substances, blood, body tissue or fluids; loud or unpleasant noises; high humidity and inhalants, such as dust or latex particles.
6. Applicants with documented disabilities must be able to meet course and program outcomes. Said applicants may be entitled to classroom and instructional accommodations, as well as access to all college facilities and programs. Access is provided while maintaining high academic standards. Questions should be directed to the Special Populations Coordinator in the Learning Assistance Laboratory (LAL).
7. Incoming students must complete the program in three years of initially starting nursing classes. Failure to meet the three year program completion timeframe necessitates application to the nursing program according to the admission criteria requirements in place at that time. If accepted, the student must start the nursing sequence with NURS 103.
8. Nursing courses utilize Internet services and resources to supplement instruction. It is recommended that students have access to a reliable computer with Internet connection. MCCC offers open access computer laboratories, but students should also be familiar with community resources for computer access, such as public libraries, as needed. A personal computer is helpful.
9. Nursing education offered at MCCC is provided in collaboration with multiple clinical partners located in southeast Michigan and northwest Ohio. As a part of these partnerships, MCCC students and faculty are required to meet and follow the policies and procedures of these clinical partners. Given the number of students in the program, faculty must be able to place students at any of the clinical agencies for clinical and

observational experiences during the course of the program. Students need to be in good standing with all clinical agencies, both as a student and as a member of the community. Therefore, any condition (i.e. criminal history, positive drug screening, unprofessional/unethical behavior, negative employment history) that prevents a student from being placed in any clinical agency during a semester may jeopardize the student's ability to meet the course objectives and may lead to course failure and program dismissal.

10. Students will be expected to maintain a flexible schedule for the nursing program. Clinical assignments vary and are subject to change. This may include any day of the week and any shift, including weekends. On days that are not scheduled for class or clinical, students may be expected to view audiovisual material, study in the skills laboratory, or participate in other on-campus activities. Usually, these activities are self-scheduled. There may be added classes on other days, but students will receive notice of these in advance.
11. In addition to the general college rules, nursing students are required to adhere to policies and procedures outlined in the Nursing Program Student Information Handbook. A copy of the Student Information Handbook can be accessed through the College's website, www.monroeccc.edu, or by contacting the Health Sciences Division office at (734) 384-4102.

Technical Standards

Technical Standards are defined by the Monroe County Community College Nursing Faculty as the functional abilities determined to be essential to the practice of nursing. The purpose of these standards is to notify prospective and current nursing students and enable them to make an informed decision regarding enrollment and continued participation in the nursing program at Monroe County Community College.

The delivery of safe, effective nursing care requires that students be able to perform functions related to the Technical Standards. The inability of a student to perform these functions may result in the student being unable to meet course outcomes and to progress in the nursing program. Additionally, if a student is unable to perform these required functions, the student may pose a risk of harm to the patient(s) for whom care is provided.

The following list outlines the technical standards and the related functions required by the Monroe County Community College nursing programs.

Examples of each standard are available at: http://www.monroeccc.edu/health_sciences/TechnicalStandardsMCCCNursingProgramOrigFeb2010.pdf

- **Motor**
  - The student will have sufficient:
    - Strength, mobility, flexibility and coordination necessary to perform client care activities and emergency procedures.
    - Gross and fine motor skills necessary to perform clinical skills and techniques safely and effectively.
- **Sensory**
  - The student will have sufficient function to:
    - See
    - Hear
    - Touch
    - Smell
- **Communication**
  - The student will have adequate ability to:
    - Read, write, interpret, comprehend and legibly document in multiple formats using Standard English.
    - Recognize, interpret and respond to nonverbal behavior of self and others.
    - Accurately elicit information.
- **Professional Behavior**
  - The student will demonstrate the appropriate behavior(s) to:
    - Establish effective, compassionate relationships with clients, families, staff and colleagues with varied socioeconomic, emotional, cultural and intellectual backgrounds.
    - Accept accountability and responsibility for one's actions.
    - Effectively work independently and in team situations.
    - Comply with the ethical and legal standards of the nursing program.
    - Respond effectively to criticism.
    - Display integrity, honesty and responsibility.
    - Demonstrate comfort with intimate physical care of clients.
- **Critical Thinking**
  - The student will have sufficient problem-solving skills to:
    - Make safe, immediate, well-reasoned judgments often in unpredictable situations.

- **Emotional, Psychological, Mental Stability**
  - The student will display:
    - Effective and empathetic behaviors under stressful and rapidly changing situations while interacting with diverse individuals and groups.

A prospective student or participant in the program with an approved documented disability can request reasonable accommodations to meet these standards. The college will provide appropriate accommodations, but is not required to substantially alter the requirements or nature of the program. Requests for accommodations should be directed to a disability services counselor in the Learning Assistance Laboratory (C 218). To make an appointment, please call (734) 384-4167.

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		**20**
C1	BIOL 151 (Biological Sciences)	4
C2	Mathematics Competency	4
C3	ENGL 151 (English Composition I)	3
C4	Computer Literacy Competency)	3
C5	Expressions of the Human Experience Competency	3
C6	PSYCH 151 (General Psychology)	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

Required Courses and Sequence
June accepted applicants:

Fall 2015 (Non-Nursing Semester)
[1]ENGL 151 (English Composition I) . . . C3
[1]PSYCH 151 (General Psychology) . . . C6
[1]BIOL 151 (Biological Sciences) . . . C1
[1]BIOL 157 (Anatomy & Physiology I) . . . 4

Winter 2016 (1st Nursing Semester)
*NURS 100 (RN Student Nurse Success) . . . 1
NURS 103 (Fundamental Nursing Care) . . . 9
[1]BIOL 158 (Anatomy & Physiology II) . . . 4
[1]ENGL 152 (English Composition II) . . . 3

Fall 2016 (2nd Nursing Semester)
[1]HLTSC 120 (Pharmacology) . . . 3
NURS 105 (Medical Surgical Nursing Care I) . . . 5
NURS 110 (Mental Health Nursing Care) . . . 3.5

Winter 2017 (3rd Nursing Semester)
NURS 204 (Obstetrical Nursing Care) . . . 4
NURS 205 (Pediatric Nursing Care) . . . 3.5
NURS 210 (Nursing Leadership & Management) . . . 3

Fall 2017 (4th Nursing Semester)
NURS 208 (Medical Surgical Nursing Care II) . . . 8.5
NURS 212 (Nursing Practicum) . . . 2.5

Required Courses and Sequence
October accepted applicants:

Winter 2016 (Non-Nursing Semester)
[1]ENGL 151 (English Composition I) . . . C3
[1]PSYCH 151 (General Psychology) . . . C6
[1]BIOL 151 (Biological Sciences) . . . C1
[1]BIOL 157 (Anatomy & Physiology I) . . . 4

Fall 2016 (1st Nursing Semester)
NURS 100* (RN Student Nurse Success) . . . 1
NURS 103 (Fundamental Nursing Care) . . . 9
[1]BIOL 158 (Anatomy & Physiology II) . . . 4
[1]ENGL 152 (English Composition II) . . . 3

Winter 2017 (2nd Nursing Semester)
[1]HLTSC 120 (Pharmacology) . . . 3
NURS 105 (Medical Surgical Nursing Care I) . . . 5
NURS 110 (Mental Health Nursing Care) . . . 3.5

Fall 2017 (3rd Nursing Semester)
NURS 204 (Obstetrical Nursing Care) . . . 4
NURS 205 (Pediatric Nursing Care) . . . 3.5
NURS 210 (Nursing Leadership & Management) . . . 3

Winter 2018 (4th Nursing Semester)
NURS 208 (Medical Surgical Nursing Care II) . . . 8.5
NURS 212 (Nursing Practicum) . . . 2.5

[1]Courses may be taken prior to entry into the nursing program.
**Optional Course*

Additional courses to satisfy General Education Graduation Requirements:
These courses are not program requirements; however, they must be completed in order to be eligible to graduate from the college. Students may chose a satisfier course from the college catalog and take the course during a semester of their preference. Suggested semesters to take the courses are listed below.

(C2) Mathematics Competency[1]
(Suggested: 3rd semester)

(C4) Computer Literacy Competency[1]
(Suggested: 2nd semester)

(C5) Human Experience Competency
(Suggested: Non-Nursing semester)

[1]Can be satisfied through ACT/COMPASS scores (Math Competency) or through a competency test (Computer Literacy Competency)

Total Degree Requirements	**73 maximum**
Total Degree Costs	**106.5 billable contact hours maximum**

PHLEBOTOMY TECHNICIAN

Health Sciences Division
Web Site: http://www.monroeccc.edu/health_sciences/phlebotomy.htm

A phlebotomist has a vital role in the healthcare system. Phlebotomists may work in free-standing laboratories, hospitals, clinics, physicians' offices, home care areas and blood donation centers. Additionally, phlebotomists may be cross-trained as patient care technicians. The starting yearly pay range for a phlebotomist is $23,000 to $27,000.

A phlebotomy technician performs dermal and venipuncture techniques to collect blood specimens necessary in the diagnosis and treatment of a client. In addition to blood collection skills, successful specimen collection requires a phlebotomist to demonstrate competence, professionalism, and good communication and public relations skills. Moreover, the phlebotomist may perform point-of-care testing, obtain non-blood specimens for analysis, process and transport specimens, and maintain safety and quality control procedures. The aforementioned procedures, as well as anatomy and physiology, communication, legal, ethical and professional concepts related to the role of the phlebotomist will be studied in this program.

The phlebotomy certificate program consists of two classes. Students must be 18 years of age to participate in either class. HLTSC 156, Phlebotomy Basics, is a six-credit hour course that includes the theory of phlebotomy as well as laboratory skills experience in the classroom. HLTSC 157, Phlebotomy II, is a three-credit hour course and includes a 120 hour clinical externship at a CMS-approved and accredited laboratory facility, and preparation to take the American College for Clinical Pathology national phlebotomy certification exam.

The requirements for a clinical externship include:

1. Passing HLTSC 156 with a grade of "C" or better.
2. HLTSC 156 and the clinical externship course, HLTSC 157, must be taken in consecutive semesters.
3. Have physician documented good mental and physical health.
4. Proof of immunizations for hepatitis B, measles, mumps, rubella, varicella (chickenpox), tetanus, diphtheria, pertussis, and seasonal influenza.
5. Two-part tuberculosis test prior beginning the externship (results not more than one year old).
6. An active American Heart Association or American Red Cross cardiopulmonary resuscitation (CPR) certificate for professional rescuer of infant, child and adult.
7. Pass a criminal background check.
8. Pass an impromptu drug screen conducted during HLTSC 156.
9. Active medical health insurance (required for both HTLSC 156 & HLTSC 157).

Note: Any expense accrued for the above requirements is the responsibility of the student.

In addition to college rules, phlebotomy technician students are required to adhere to policies and procedures outlined in the Phlebotomy Technician Student Handbook provided in HLTSC-156. Students must be available to work 120 hours in consecutive days during the clinical externship. Be aware that afternoon shifts cannot be guaranteed for the clinical externship. The clinical externship will be arranged by the phlebotomy instructor in a CMS-regulated laboratory facility. The clinical externship will be completed without monetary compensation.

The student must complete both HLTSC 156 & HLTSC 157 with a "C" average or better in order to be awarded the phlebotomy technician certificate.

	Credits
Required Courses	
HLTSC 156 (Phlebotomy Basics)	6
HLTSC 157 (Phlebotomy II)	3
Total Certificate Requirements	**9 credits**
Total Certificate Cost	**16.3 minimum billable contact hours**

NOTE: A minimum of 10 students is required for this class to run.

Technical Standards

Technical standards are defined by the Monroe County Community College phlebotomy faculty as the functional abilities determined to be essential to the practice of phlebotomy.

The purpose is to notify prospective and current phlebotomy students of these technical standards to enable them to make an informed decision regarding enrollment and continued participation in the phlebotomy program at MCCC.

The delivery of safe, effective phlebotomy care requires that students be able to perform functions related to the technical standards. The inability of a student to perform these functions may result in the student being unable to meet course objectives and to progress in the phlebotomy program.

Additionally, if a student is unable to perform these required functions, the student may pose a risk of harm to the patient(s) for whom care is provided.

The following list outlines the technical standards and the related functions required by the MCCC phlebotomy program. Examples of each standard are available at: http://www.monroeccc.edu/health_sciences/phlebotomy.htm

- **Motor**
  - The student will have sufficient:
    - Strength, mobility, flexibility and coordination necessary to perform client care activities and emergency procedures.
    - Gross and fine motor skills necessary to perform clinical skills and techniques safely and effectively.
- **Sensory**
  - The student will have sufficient function to:
    - See
    - Hear
    - Touch
    - Smell
- **Communication**
  - The student will have adequate ability to:
    - Read, write, interpret, comprehend and legibly document in multiple formats using Standard English.
    - Recognize, interpret and respond to nonverbal behavior of self and others.
    - Accurately elicit information.
- **Professional Behavior**
  - The student will demonstrate the appropriate behavior(s) to:
    - Establish effective, compassionate relationships with clients, families, staff and colleagues with varied socioeconomic, emotional, cultural and intellectual backgrounds.
    - Accept accountability and responsibility for one's actions.
    - Effectively work independently and in team situations.
    - Comply with the ethical and legal standards of the nursing program.
    - Respond effectively to criticism.
    - Display integrity, honesty and responsibility.
    - Demonstrate comfort with intimate physical care of clients.
- **Critical Thinking**
  - The student will have sufficient problem-solving skills to:
    - Make safe, immediate, well-reasoned judgments often in unpredictable situations.
- **Emotional, Psychological, Mental Stability**
  - The student will display:
    - Effective and empathetic behaviors under stressful and rapidly changing situations while interacting with diverse individuals and groups.

A prospective student or participant in the program with an approved documented disability can request reasonable accommodations to meet these standards. The college will provide appropriate accommodations, but it is not required to substantially alter the requirements or nature of the program. Requests for accommodations should be directed to a Disability Services counselor in the Learning Assistance Lab (C-218).To make an appointment, please call (734) 384-4167.

Students who wish to review or enhance phlebotomy skills may elect to take HLTSC 156 (Phlebotomy Basics) and not HLTSC 157(Phlebotomy II), but a certificate will not be awarded.

Students must complete the necessary prerequisites before the beginning of a clinical rotation. Each student must pass both the lab and theory portion of the class with a "C" average (78 percent) or better to be eligible for a phlebotomy externship, HLTSC 157.

PRODUCT AND PROCESS TECHNOLOGY
(FORMERLY MANUFACTURING TECHNOLOGY)

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

The associate of applied science degree with specialization in product and process technology is designed to prepare students for careers in high-performance manufacturing of consumer goods. This degree will provide students with a foundation in manufacturing design, precision machining and tooling, and complex computer-aided design and computer-aided manufacturing (CAD/CAM). Students will learn tooling process and equipment requirements, design, analysis and process planning and also receive instruction in manual and computer-numerical-control (CNC) mills, machining centers, lathes, grinders, robotic integration and support processes, procedures and practices. This program is focused on beginner, intermediate and advanced levels in product and process technology. Students will learn "soft" skills in problem solving, teamwork, communication dynamics and lean manufacturing principles, as well as hands-on technical skills in CNC programming and CAD/CAM.

Career Opportunities

Graduates of this program will be prepared to pursue careers in the product and process technology field such as:

- Automation and control technician analyst
- CAD tool engineer
- CAD/CAM technician
- CAM operator
- CNC operator
- CNC programmer
- CNC set-up technician
- Designer
- Engineering technician
- Industrial engineer production team leader
- Machine technician
- Machinist
- Manufacturing technician
- Process planner lab technician
- Production control specialist
- Sales and service engineer

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

Required General Education Courses		**Credits 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 CAD I)	4
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

Required Core Courses	**Credits 47-49**
1st Semester	
MECH 102 (Manufacturing Processes)	4
MECH 103 (Machining Basics and CNC)	4
MDTC 160 (Mechanical Drafting and CAD I)	C4
MATH 119* (Elementary Technical Mathematics)	2
2nd Semester	
ELEC 125 (Fundamentals of Electricity)	3
MATL 101 (Industrial Materials)	3
MECH 104 (CNC II)	3
MECH 201 (CAD/CAM I)	3
MATH 124* (Technical Mathematics II)	C2
3rd Semester	
MECH 131 (Introduction to Automated Manufacturing)	3
MECH 105 (CNC III)	3
MECH 221 (CAD/CAM II)	3
MDTC 226 (Geometric Dimensioning and Tolerancing)	3
Restricted Electives	3-4
4th Semester	
METC 220 (Statics & Strength of Materials)	4
MECH 231 (CAD/CAM III)	3
Restricted Electives	3-4

Restricted Electives List (select two)

QSTC 150 (Introduction to Metrology)	3
METC 170 (Introduction to Parametric CAD/CATIA)	3
WELD 100 (Introduction to Welding Processes)	4
MDTC 228 (Introduction to Solid Modeling – SOLIDWORKS)	3

Total Degree Requirements **68-70 credits**
Total Degree Cost **84 minimum billable contact hours**

**Program requires at least 6 credit hours of Math. MATH 119 (Elementary Technical Mathematics) and 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.*

Certificate Program: Product and Process Technology

In addition to the two-year associate degree program, Monroe County Community College offers a certificate program in product and process 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.

Certificate: CNC Technician

	Credits
MECH 103 (Machining Basics and CNC)	4
MECH 104 (CNC II)	3
MECH 105 (CNC III)	3
MECH 201 (CAD/CAM I)	3
MDTC 160 (Mechanical Drafting and CAD I)	4

Total Certificate Requirements **17 credits**

Total Certificate Cost **24 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the product and process technology: CNC technician certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/PPCNC_CERT/Gedt.html.

Certificate: CAD/CAM Technician

	Credits
MECH 103 (Machining Basics and CNC)	4
MECH 201 (CAD/CAM I)	3
MECH 221 (CAD/CAM II)	3
MECH 231 (CAD/CAM III)	3
MDTC 160 (Mechanical Drafting and CAD I)	4

Total Certificate Requirements **17 credits**

Total Certificate Cost **24 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the product and process technology: CAD/CAM certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/PPCAD_CERT/Gedt.html.

QUALITY SYSTEMS TECHNOLOGY

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

The associate of applied science degree with specialization in quality systems technology is designed to prepare students to assume responsibilities in a wide variety of technical and management support roles. The program combines quality tools to monitor production and management practices to develop the environment that is most conducive to establishing quality systems in organizations. In today's business and industrial environments, "quality" is an integral part of the way companies are organized and managed to produce quality products and services.

Career Opportunities

Graduates of this program will be prepared for employment in the following areas:

- Inspector
- Lab technician
- Quality engineer
- Quality auditor
- Quality control technician
- Quality manager
- Quality technician
- Testing 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		**20**
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 MATH 151 (Intermediate Algebra) or competency	4
C3	ENGL 151 (English Composition I)	3
C4	CIS 130 (Introduction to Computer Information Systems)	3
C5	Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**38**
1st Semester	
MATL 101 (Industrial Materials)	3
CIS 109 (Spreadsheet Software)	3
MATH 119* (Elementary Technical Mathematics)	2
2nd Semester	
MDTC 109 (Mechanical Blueprint Reading)	2
MECH 102 (Manufacturing Processes)	4
QSTC 111 (Quality Management)	3
MATH 162 (Introduction to Statistics)	3
3rd Semester	
ENGL 102 (Business Writing) or SPCH 151 (Communication Fundamentals)	3
QSTC 115 (Statistical Process Control)	3
QSTC 150 (Introduction to Metrology)	3
QSTC 160 (Team Problem Solving)	3
4th Semester	
CIS 112 (Database Software)	3
QSTC 230 (Documentation and Audit Preparation)	3

General Electives
(as required to complete 60 hours)

Total Degree Requirements	**56-60 credits**
Total Degree Cost	**61-64 minimum billable contact hours**

**or MATH 151 (Intermediate Algebra)*

Certificate Program: Quality Systems 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 160 (Team Problem Solving)	3
QSTC 230 (Documentation and Audit Preparation)	3
CIS 109 (Spreadsheet Software)	3
MDTC 109 (Mechanical Blueprint Reading)	2
ENGL 102 (Business Writing) or SPCH 151 (Communication Fundamentals)	3
MATH 119 (Elementary Technical Mathematics)	2

Total Certificate Requirements 25 credits
Total Certificate Cost 26 minimum billable contact hours

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the quality systems technology certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/QST_CERT/Gedt.html.

Basic Quality Technician Certificate

A certificate is also available for a basic quality technician. This certificate is designed for the entry-level production or quality assurance employee who seeks additional skills for assuming greater responsibility in a production environment.

	Credits
QSTC 105 (SPC Basics)	1
QSTC 111 (Quality Management)	3
QSTC 150 (Introduction to Metrology)	3
CIS 109 (Spreadsheet Software)	3
MDTC 109 (Mechanical Blueprint Reading)	2

Total Certificate Requirements 12 credits
Total Certificate Cost 13 minimum billable contact hours

NOTE: This certificate is not federal financial aid eligible

RENEWABLE ENERGY

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

Renewable energy is one of the fastest growing industries in Michigan and the U.S. Michigan is poised to become a major force in renewable energy technologies, with jobs ranging from entry level assembly, production and installation to technician-level maintenance, support and operation. Career opportunities within the field are also emerging in technical sales and marketing, office and business management, and engineering design. Renewable energy jobs require special knowledge and training that is just becoming available because the industry is so new and continues to evolve so rapidly. The job market is made up of both large multi-national companies that typically require apprenticeships or formal degrees, as well as a significant number of smaller family-owned and operated businesses and service providers. These smaller contractors represent opportunities for people who have acquired the proper skills to find useful work at reasonable pay.

The renewable energy field is expected to create major job growth during the next several years, and demand for trained qualified individuals is expected to remain high. These are well paying technical jobs that cannot be exported overseas.

MCCC offers several paths into a renewable energy career:

1. Individual specialty classes for the small business owner or skilled tradesperson wishing to add specific skills to an existing business or career.
2. Certificates in wind energy and solar energy showing basic, entry-level knowledge. MCCC recognizes that many employers place value on certificates which show specialized education and training in a particular job skill. These certificates concentrate on the basic core courses with skill development and job upgrading being the primary objectives. Each certificate can be completed in just two or three semesters. And, since the basic core courses are the same, it is possible to complete both certificates with some additional course work.
3. A formal two-year associate of applied science degree in electronics with a specialization in renewable energy is planned for the near future.

Certificate Program: Solar Energy

This certificate concentrates on the basic core competencies required to prepare the student for entry-level positions in the solar energy field.

Career Opportunities:
Graduates of this program will be prepared for entry-level employment in the following areas:

- Crop and slab engineer
- Crystal growing engineer
- Laser operations technician
- Logistics manager
- Module manufacturing engineer
- Production planner/scheduler
- Quality insurance manager
- Silicon crystal grower
- Wire technology engineer

Required Courses	Credits
CONM 101 (Materials of Construction)	3
ELEC 125 (Fundamentals of Electricity)	3
ELEC 127 (AC/DC Motors)	3
ELEC 132 (Electronics I)	4
ELEC 156 (Introduction to Renewable Energy)	3
ELEC 157 (Introduction to Solar Energy)	3
ELEC 214 (National Electric Code)	2
ELEC 257 (Applied Solar Photovoltaics)	3
MATH 119 (Elementary Technical Mathematics)	2

Total Certificate Requirements **26 credits**
Total Certificate Cost **34 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the solar photovolaic energy certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/SOLPV_CERT/Gedt.html.

Certificate Program: Wind Energy

This certificate concentrates on the basic core competencies required to prepare the student for entry-level positions in the wind renewable energy field.

Career Opportunities:

Graduates of this program will be prepared for entry-level employment in the following areas:

- Senior buyer
- Senior property agent
- Senior risk management analyst
- Site prospector
- Site supervisor
- Wind data analyst
- Wind energy forecasting and resource assessment
- Wind field technician
- Wind plant administrator
- Wind plant monitoring technician

	Credits
Required Courses	
CONM 101 (Materials of Construction)	3
ELEC 125 (Fundamentals of Electricity)	3
ELEC 127 (AC/DC Motors)	3
ELEC 132 (Electronics I)	4
ELEC 156 (Introduction to Renewable Energy)	3
ELEC 158 (Introduction to Wind Energy)	3
ELEC 214 (National Electric Code)	2
MATH 119 (Elementary Technical Mathematics)	2

Total Certificate Requirements **23 credits**

Total Certificate Cost **30 minimum billable contact hours**

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE

Gainful employment information for the wind turbine technician certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/WTTECH_CERT/Gedt.html.

RESPIRATORY THERAPY

Health Sciences Division
Web Site: http://www.monroeccc.edu/health_sciences/respiratory_therapy.htm

Respiratory therapy, or respiratory care, is an allied health profession specializing in cardiopulmonary disorders and diseases. A respiratory therapist can be instrumental in assisting a physician in the diagnosis, treatment and prevention of a wide spectrum of disorders affecting the heart and lungs.

A registered respiratory therapist requires a minimum of a two-year degree program and most RRTs work in a hospital. Monroe County Community College graduates of the respiratory therapy program exceed the national averages for success on board exams.

Future employment for registered respiratory therapists is considered excellent nationwide.

Graduate therapists are prepared to:

- Assume basic or advanced respiratory care positions in hospitals, nursing homes, sub-acute care centers, rehabilitation facilities, long-term care facilities, home care companies, asthma clinics, sleep disorders laboratories and pulmonary function laboratories;
- Continue higher education, if desired.

Transfer Information

For information regarding transfer opportunities for this, or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm

Additional Program Information

The Monroe County Community College respiratory therapy program is accredited by the Commission on Accreditation for Respiratory Care (CoARC). Interested parties may contact CoARC or visit the website for additional information on program performance comparisons.

Commission on Accreditation
for Respiratory Care
1248 Harwood Road
Bedford, Texas 76021-4244
(817) 283-2835
www.coarc.com

Admission Criteria

Applicants to the respiratory therapy programs are encouraged to apply prior to completing pre-requisites.

Admission requirements are subject to change. A student must meet the admission requirements in effect for the class and year students are entering. The program follows a selective admission process. To be eligible for evaluation and selection, all required information must be included in the student's folder at application deadline, which is June 1st of the year the student wishes to enter the respiratory therapy program. Applicants enrolled in any pre-requisite classes that finish after the June 1st deadline but before the start of fall semester may still be considered for admission to the program contingent upon completion with "C" or better in the missing pre-requisite class(es). However, the total points for admission will be considered only for coursework that is completed by June 1st.

For a student to be considered for the program, the MCCC Division of Health Sciences requires:

1. Graduation from high school or successful completion of the GED (General Education Development) test. Official transcripts from high school must be sent to the MCCC Admissions and Guidance Office. Official transcripts from all colleges or universities, if transfer credit is desired, must be sent directly to the MCCC Registrar's Office.
2. Completion of one-year high school chemistry or CHEM 150, Fundamental Principles of Chemistry, or a higher-level (e.g. 151, 152, etc.) chemistry course with a "C" or better. It is required that chemistry be repeated if it has not been taken within 10 years of the application deadline. Completion of BIOL 157 or BIOL 158 within five years of the application deadline with a "C" or better will waive the requirement to repeat chemistry older than 10 years.
3. Completion of BIOL 151, Biological Sciences I or BIOL 152 if taken prior to the Fall 2008 Semester with a "C" or better. It is required that biology be repeated if it has not been taken within 10 years of the application deadline date. Completion of BIOL 157 or BIOL 158 within five years of the application deadline with a "C" or better will waive the requirement to repeat biology that is older than 10 years.
4. Completion of MATH 151, Intermediate Algebra with a "C" or better. It is required that algebra or a higher math be repeated if it has not been taken within 10 years of the application deadline. A recent score of 54 or higher on the algebra section of the COMPASS exam will waive the requirement that math be repeated if it has not been taken within 10 years of the application deadline.
5. Completion of the computer skills graduation requirement. This can be done by completing CIS 130, MDTC 160, BMGT 160 or achieving a satisfactory score on the computer skills assessment (please contact the Admissions and Guidance Office for details of this assessment at 734-384-4104).

6. Completion of BIOL 157 (Anatomy and Physiology I) or MCCC equivalent. It is required anatomy and physiology be repeated if it has not been taken within five years of the application deadline and the applicant is unable to achieve a satisfactory score on an exam of the respiratory therapy program's choosing (such as the NLN Anatomy and Physiology exam). Please direct inquiries to the respiratory therapy program director for further information. Students who have taken anatomy and physiology at another accredited institution of higher learning that does not transfer as equivalent to the MCCC course will have their course(s) evaluated on an individual basis.
7. MELAB (80 percentile) or IBN TOEFL (79-80) tests may be required to show proof of English language proficiency for individuals whose native language is not English.
8. Students in the respiratory therapy program must consent to a criminal history check to comply with the Michigan Compiled Laws, Section 333.20173. No student will be admitted to the program if convicted of a felony or attempt/conspiracy to commit a felony within 15 years preceding the date of admission or a misdemeanor conviction involving abuse, neglect, assault, battery or criminal sexual conduct or fraud or theft (or similar misdemeanor in state of federal law) against a vulnerable adult within 10 years of the date of admission. Any cost incurred with the criminal check is the student's responsibility.

Selection of qualified respiratory therapy applicants is done with a numerical process. Meeting the minimum requirements for admission does not insure admission to the program. Applicants to the program tend to be well qualified and only the top 30 candidates are selected each year. For specific information on the point-based selection criteria, please contact the Admissions and Guidance Office or the respiratory therapy program director. A physical examination, immunizations and drug screening are required of students selected for the program at the student's expense to verify capabilities and general health status. A positive drug screening may render the student ineligible for the program pending further evaluation. The position of a registered respiratory therapist involves providing direct care to individuals. As such, it is characterized by the application of verified knowledge in the skillful performance of respiratory care modalities.

Technical standards are defined by the Monroe County Community College respiratory therapy faculty as the functional abilities determined to be essential to the scope of practice in respiratory care.

The purpose of this document is to notify prospective and current respiratory therapy students of these technical standards to enable them to make an informed decision regarding enrollment and continued participation in the respiratory therapy program at Monroe County Community College.

The delivery of safe, effective respiratory care requires that students be able to perform functions related to the technical standards. The inability of a student to perform these functions may result in the student being unable to meet course objectives and to progress in the respiratory therapy program. Additionally, if a student is unable to perform these required functions, the student may pose a risk of harm to the patient(s) for whom care is provided.

The following list outlines the abbreviated technical standards and the related functions required by the Monroe County Community College respiratory therapy program. An extended version and examples of each standard are available at www.monroeccc.edu

- **Motor**
  The student will have sufficient:
  - Strength, mobility, flexibility and coordination necessary to perform client care activities and emergency procedures.
  - Gross and fine motor skills necessary to perform clinical skills and techniques safely and effectively.
- **Sensory**
  The student will have sufficient function to:
  - See
  - Hear
  - Touch
  - Smell
- **Communication**
  The student will have adequate ability to:
  - Read, write, interpret, comprehend and legibly document in multiple formats using standard English.
  - Recognize, interpret and respond to nonverbal behavior of self and others.
  - Accurately gather information.

- **Professional Behavior**
  The student will demonstrate the appropriate behavior(s) to:
  - Establish effective, compassionate relationships with clients, families, staff and colleagues with varied socioeconomic, emotional, cultural and intellectual backgrounds.
  - Accept accountability and responsibility for one's actions.
  - Effectively work independently and in team situations.
  - Comply with the ethical and legal standards of the medical profession and the policies of the phlebotomy program.
  - Respond appropriately and effectively to criticism.
  - Display integrity, honesty and responsibility.
- **Critical Thinking**
  The student will have sufficient problem-solving skills to:
  - Make safe, immediate, well-reasoned judgments often in unpredictable situations.
  - Adapt ideas and resources to meet changing and often unpredictable client needs during medical emergencies.
  - Recall, collect, analyze, synthesize and integrate information from a variety of sources.
- **Emotional, Psychological, Mental Stability**
  The student will display:
  - Effective and empathetic behaviors under stressful and rapidly changing situations while interacting with diverse individuals and groups.

A prospective student or participant in the program with an approved documented disability can request reasonable accommodations to meet these standards. The college will provide appropriate accommodations, but is not required to substantially alter the requirements or nature of the program. Requests for accommodations should be directed to a Disability Services counselor in the Learning Assistance Laboratory (C-218). To make an appointment, please call 734-384-4167.

Applicants should have reasonable expectations that they can complete the program of study and meet the educational objectives. Accommodations are unreasonable if they essentially impair or change the curriculum. Questions should be directed to the special populations coordinator in the Learning Assistance Laboratory. In addition to the general college rules, respiratory therapy students are required to adhere to policies and procedures outlined in the Respiratory Therapy Student Handbook.

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		**20**
C1	BIOL 151 (Biological Sciences)	4
C2	MATH 151 (Intermediate Algebra) or competency	4
C3	ENGL 151 (English Composition I)	3
C4	Computer Literacy Competency	3
C5	Expressions of the Human Experience Competency	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Pre-Admission	
ENGL 151* (English Composition I)	C3
MATH 151 (Intermediate Algebra)	C2
BIOL 151 (Biological Sciences I)	C1
BIOL 157 (Anatomy & Physiology I)	4
Computer Literacy Competency[1]	C4
CHEM 150[2] (Fundamental Principles of Chemistry)	0-4
	4 to 8
Fall Semester (1st)	
RTH 100 (Respiratory Care Techniques I)	6.5
RTH 104 (Cardiopulmonary Assessment)	3
BIOL 158** (Anatomy & Physiology II)	4
	13.5
Winter Semester (2nd)	
RTH 110 (Respiratory Care Techniques II)	5
RTH 111 (Respiratory Care Clinical Practice I)	4.5
RTH 116 (Cardiopulmonary Pathophysiology)	4
	13.5
Spring/Summer Semester (3rd)	
RTH 120 (Respiratory Care Techniques III)	4
RTH 121 (Respiratory Care Clinical Practice II)	2
RTH 220 (Pharmacology for Respiratory Therapists)	2
	8

Fall Semester (4th)

RTH 211 (Respiratory Care Clinical Practice III) 4.5
RTH 212 (Advanced Cardiopulmonary Physiology) 4
RTH 214 (Adult Critical Care) 3
RTH 216 (Neonatal/Pediatric Critical Care) 2

13.5

Winter Semester (5th)

RTH 221 (Respiratory Care Clinical Practice IV) 4
RTH 222 (Seminar) 2
RTH 226 (Respiratory Care Techniques IV) 2
Human Experience Competency
(suggested semester) C5
Social Systems Competency (suggested semester) C6

8

**General Education requirement. Suggested as a pre-admission course; however, not required to be completed prior to application.*

***Required non-respiratory course: must be completed in the order presented above or prior to the semester indicated.*

[1]Can be satisfied through a competency test (Computer Literacy Competency)

[2]Can be satisfied through one year of high school chemistry with "C" or better

Total Degree Requirements 71.5-84.5 credits

Total Degree Cost 119-134 minimum billable contact hours

TEACHER PARAPROFESSIONAL

Science/Mathematics Division **Web Site:** http://www.monroeccc.edu/scimath/scimath.htm

This program leads to the associate of applied science degree and will fulfill the requirements of the No Child Left Behind legislation. After completing these program requirements, graduates will be able to apply for teacher paraprofessional positions in K-12 school districts.

Transfer Information

Because many of the courses transfer to four-year institutions, students interested in becoming certified teachers will be able to benefit from this program. Check with your advisor and planned transfer school for more details about transferring. For information regarding transfer opportunities for this or any program, please go to http://www.monroeccc.edu/academicadv-transfer/transindex.htm.

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:		**19-20**
C1	Natural Science Competency	4
C2	MATH 151 (Intermediate Algebra) or higher or competency	3 or 4
C3	ENGL 151 (English Composition I)	3
C4	CIS 130 (Introduction to Computer Information Systems)	3
C5	ENGL 256 (Children's Literature)	3
C6	PSYCH 151 (General Psychology)	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

	Credits
Required Core Courses	**26**
ENGL 152 (English Composition II)	3
POLSC 151 (Introduction to Political Science)	3
ART 158 (Art for Elementary Teachers)	3
EDUC 151 (Exploring Teaching)	3
ENGL 256 (Children's Literature)	C5
HPE 151 (First Aid and Safety)	2
ECE 104 (Nutrition, Health & Safety for ECE)	3
PSYCH 251 (Child Psychology)	3
ECE 110 (Diverse Populations in ECE)	3
SPCH 151 (Communication Fundamentals)	3

Additional General Electives **11**

(To earn a minimum of 60 credits)

Additional general electives must be selected from:
ACCT (Accounting)
ANTHR (Anthropology)
ART (Art)
ASTRN (Astronomy)
BIOL (Biology)
CHEM (Chemistry)
COMM (Communication)
ECE (Early Childhood Education)
ESC (Earth Science)
ENGL (English)
FREN (French)
GEOG (Geography)
GERMN (German)
HPE (Health-Physical Education)
HIST (History)
HUMAN (Humanities)
JOURN (Journalism)
MATH (Mathematics)
MUSIC (MUSIC)
PHIL (Philosophy)
PHYSC (Physical Science)
PHY (Physics)
POLSC (Political Science)
PSYCH (Psychology)
SWK (Social Work)
SOC (Sociology)
SPAN (Spanish)
SPCH (Speech)
THEA (Theater)

Total Degree Requirements	**60 credits**
Total Degree Cost	**62 minimum billable contact hours**

WELDING TECHNOLOGY

Applied Science and Engineering Technology Division
Web Site: http://www.monroeccc.edu/aset/default.htm

The associate of applied science degree with specialization in welding technology parallels the highly technological demands in the joining and fabrication areas of the industry. The welding laboratory contains state-of-the-art equipment for Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), Gas Tungsten Arc Welding (GTAW), Submerged Arc Welding (SAW), Plasma Arc Cutting and Oxy-Fuel Cutting (OFC). The subject matter and laboratory experiences in the welding technology program provide training for the serious welding technologist, with emphasis on welding skill development, welding metallurgy, weldment evaluation and testing, and related technical courses. A pathway to certification in nondestructive testing (NDT) is also available for students with prior experience in welding. Students can take individual NDT courses or pursue the entire certificate for additional credentials. The MCCC welding technology program will fully articulate with Ferris State University's four-year degree program starting fall of 2015.

For welding courses 102, 104 and 106, it is possible to enroll for specific subdivisions of the courses. As an example, WELD 102, Advanced SMAW, is shown as a single, six credit-hour course. The course can be subdivided into WELD 102A, Multi-Pass Arc Welding–two credits; WELD 102B, Code Welding Techniques–two credits, and WELD 102C, Multi-Pass Pipe Fillet Welding – two credits. This allows greater flexibility in terms of advanced placement for those with prior welding experience/training and also in the amount of time one has to commit to class during any one semester. Similar options exist in GMAW and GTAW applications. See the division dean or faculty member for more information. Students may, within certain parameters, progress at their own rate of speed. This allows students to complete course requirements based on their own ability rather than be locked into a set rate of progress for a given class.

Career Opportunities

Students are prepared for many welding-related careers, including welding inspection, sales, service, design, maintenance and engineering. The college offers state and American Welding Society welder certification testing. Graduates of this program will be prepared for entry-level employment in the following areas:

- Welder/fabricator
- Welding metallurgy technician
- Welding sales/service technician
- Engineering technician
- Pipefitter
- Weld inspector
- Production welder

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:		**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 CAD I)	4
C5	Human Experience Competency.	3
C6	Social Systems Competency	3

See the General Education Requirements on Page 38 or the college website (www.monroeccc.edu) for a list of courses that satisfy the General Education Learning Competencies.

		Credits
Required Core Courses:		**43**
1st Semester		
	MATL 101 (Industrial Materials)	3
	WELD 100 (Introduction to Welding Processes)	4
	MATH 119* (Elementary Technical Mathematics)	2
2nd Semester		
	WELD 110 (Welding Symbols and Blueprint Reading)	2
	WELD 114 (GMAW and GTAW Applications)	6
	MATH 124* (Technical Mathematics II)	C2
3rd Semester		
	METC 220 (Statics & Strength of Materials)	4
	WELD 102 (Advanced SMAW)	6
	WELD 103 (Weldment Evaluation and Testing)	3
4th Semester		
	WELD 105 (Welding Metallurgy)	3
	WELD 106 (Basic Pipe Welding)	6
Spring		
	WELD 216 (Basic Pipefitting)	4

Total Degree Requirements **64 credits**
Total Degree Cost **83 minimum billable contact hours**

**MATH 119 (Elementary Technical Mathematics) and 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.*

Welding Technology Certificate Programs

The college offers two levels of certificate programs in welding. The basic certificate is oriented toward developing those skills required for entry level jobs in the welding field. The advanced certificate program is also a skills intensive program but takes students through higher-level skill proficiencies, utilizing additional welding procedures and applications. All courses taken in the certificate program are applicable toward the associate of applied science degree.

Certificate Program: Basic Welding*

	Credits
WELD 100 (Introduction to Welding Processes)	4
WELD 102 (Advanced SMAW) or WELD 114 (GMAW and GTAW Applications)	6
WELD 103 (Weldment Evaluation and Testing)	3
WELD 110 (Welding Symbols and Blueprint Reading)	2

Total Certificate Requirements 15 credits
Total Certificate Cost 20 minimum billable contact hours

**This certificate is not federal financial aid eligible.*

Certificate Program: Advanced Welding

	Credits
MATL101 (Industrial Materials)	3
WELD 100 (Introduction to Welding Processes)	4
WELD 102 (Advanced SMAW) or WELD 114 (GMAW and GTAW Applications)	6
WELD 103 (Weldment Evaluation and Testing)	3
WELD 105 (Welding Metallurgy)	3
WELD 216 (Basic Pipefitting)	4
WELD 110 (Welding Symbols and Blueprint Reading)	2

Total Certificate Requirements 25 credits
Total Certificate Cost 34 minimum billable contact hours

GAINFUL EMPLOYMENT INFORMATION—CERTIFICATE
Gainful employment information for the welding technology certificate is available on our website at http://www.monroeccc.edu/consumer/gainfulemp/WELDADV_CERT/Gedt.html

American Welding Society Certification

The college also offers course work to prepare students to qualify for American Welding Society certification at entry and advanced levels of proficiency. In addition to verification of skill levels to national standards, AWS certification also includes nationwide registry in the AWS bank. Equivalencies to associate of applied science degree requirements in welding are available upon completion of the certifications. See the division dean for further details.

American Welding Society (AWS) Entry Level Welding Certification (conforms to AWS-QC-10 standard)

WELD 115 (Entry Level Welding)	12

Total Certificate Requirements 12 credits
Total Certificate Cost 16.67 minimum billable contact hours

American Welding Society (AWS) Advanced Level Welding Certification (conforms to AWS-QC-11 standard)

WELD 215 (Advanced Level Welding)	12

Total Certificate Requirements 12 credits
Total Certificate Cost 16.67 minimum billable contact hours