
ENGINEERING - AUTOMATED MANUFACTURING TECHNOLOGY (AOC)

PROGRAM OVERVIEW

Jennifer Light, Program Director, *Western Maryland Works*
 jlight@allegany.edu
 301-784-5281

The Area of Concentration in Engineering-Automated Manufacturing Technology A.A.S. is designed to prepare students with theory-based (knowledge) and performance-based (hands-on) experiences crucial to advanced and automated manufacturing processes. This pathway is suggested for students seeking direct entry into the workforce upon graduating. Through the integration of mathematics, robotics, metallurgy, manual tooling skills, programmable machinery applications, computer-assisted machining techniques and additive manufacturing, students can acquire the critical skills leading to successful employment. Students will be eligible for National certification based on industry-written, industry-approved standards through the National Institute of Metalworking Skills (NIMS). Rigorous and highly disciplined, NIMS credentials have been vetted in partnership with the American National Standards Institute (ANSI).

NIMS credentialing opportunities throughout the coursework will include fourteen skill specific credentials and a special merit certificate. These credentials will include the following: (1) Measurement, Materials, and Safety, (2) Job Planning, Benchwork, and Layout, (3) Drill Press Skills I, (4) Manual Milling Skills I, (5) Turning Operations: Between Centers I, (6) Turning Operations: Chucking Skills I, (7) CNC Milling: Programming Setup & Operations, (8) CNC Milling: Operator, (9) CNC Turning: Programming Setup & Operations, (10) CNC Turning: Operator, (11) Metalforming, (12) Electrical Discharge Machining (EDM): Plunge, (13) Electrical Discharge Machining (EDM): 2-Axis Wire, (14) Grinding Skills I, and (15) NIMS Machining Certificate of Special Merit. Through coursework in computer-aided design/ computer-aided manufacturing, students will be prepared to test for two additional industry credentials. Credentials include (1) Autodesk Certified User and (2) Mastercam 2D Mill Certification. Students will be eligible for three additional certifications in automation and additive manufacturing. These include the following: (1) FANUC Certified Robot Operator I, (2) FANUC Certified Robot Operator II, and (3) Stratasys Additive Manufacturing Certification.

Successful completion of this program qualifies a student to apply for an Associate of Applied Science Degree in Engineering-Automated Manufacturing Technology – Area of Concentration in Engineering.

COURSE REQUIREMENTS

REQUIRED ENGINEERING - AUTOMATED MANUFACTURING TECHNOLOGY COURSES

ENGT-101	Machine Tool Applications, Material Handling/Fluid Power & Metallurgy
ENGT-102	Quality Control with Geometric Dimensions & Tolerances
ENGT-103	Mill Applications
ENGT-104	Lathe Applications
ENGT-110	Introduction to Computer-Aided Design/Computer-Aided Manufacturing
ENGT-120	Introduction to Computerized Numeric Control Programming and Machining
ENGT-201	Fixture Design and Fabrication
ENGT-210	Advanced Computer-Aided Design/Computer-Aided Manufacturing
ENGT-212	Electrical Discharge Machining
ENGT-215	Abrasive Machining and Heat Treatment
ENGT-220	Advanced Computerized Numeric Control Programming and Machining
ENGT-225	Robotics Material Handling and Automation or Manufacturing Capstone

REQUIRED GENERAL COURSES

COMP-103	Computer Logic
ENG-101	English Composition I
ENG-112	Business and Technical Communication
HUM-110 or SPCH-101	Interdisciplinary Leadership or Speech Communication
MATH-102	College Algebra
MATH-109	Probability and Statistics
PSYC-101 or SOC-101	General Psychology or Introduction to Sociology

REQUIRED ELECTIVE COURSES

Please consult with your advisor or the Advising Center staff for selecting appropriate elective courses for graduation.

Laboratory Science Elective - 4 credits

PROGRAM PATH

ENGINEERING-AUTOMATED MANUFACTURING TECHNOLOGY

ENGINEERING AREA OF CONCENTRATION

Preparation for Employment

Two Year Career Program

FIRST SEMESTER

	<u>Credit Hours</u>
Engineering-Automated Manufacturing Technology 101 (Machine Tool Applications, Material Handling/Fluid Power & Metallurgy)	3
Engineering-Automated Manufacturing Technology 102 (Quality Control with Geometric Dimensions & Tolerances)	3
Engineering-Automated Manufacturing Technology 110 (Introduction to Computer-Aided Design/Computer-Aided Manufacturing)	3
Computer Technology 103 (Computer Logic)	4
English 101 (English Composition I)	3
Total:	16

SECOND SEMESTER

Engineering-Automated Manufacturing Technology 103 (Mill Applications)	3
Engineering-Automated Manufacturing Technology 104 (Lathe Application)	3
Engineering-Automated Manufacturing Technology 120 (Introduction to Computerized Numeric Control Programming and Machining)	3
Engineering-Automated Manufacturing Technology 210 (Advanced Computer-Aided Design/Computer-Aided Manufacturing)	3
Mathematics 102 (College Algebra)	3
Total:	15

THIRD SEMESTER

Engineering-Automated Manufacturing Technology 201 (Fixture Design and Fabrication)	4
Engineering-Automated Manufacturing Technology 220 (Advanced Computerized Numeric Control Programming and Machining)	4
Psychology 101 or Sociology 101 (General Psychology or Introduction to Sociology)	3
Humanities 110 or Speech 101 (Interdisciplinary Leadership I or Speech Communication)	3
Laboratory Science Elective	4
Total:	18

FOURTH SEMESTER

Engineering-Automated Manufacturing Technology 212 (Electrical Discharge Machining)	3
Engineering-Automated Manufacturing Technology 215 (Abrasive Machining & Heat Treatment)	3
Engineering-Automated Manufacturing Technology 225 (Robotics Material Handling and Automation or Manufacturing Capstone)	4
Mathematics 109 (Probability and Statistics)	3
English 112 (Business and Technical Communications)	3
Total:	16
Total Credit Hours:	65

NOTE: All courses specifically identified by course number are graduation requirements for this program.