
ENGINEERING - AUTOMATED MANUFACTURING TECHNOLOGY

PROGRAM OVERVIEW

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The Engineering-Automated Manufacturing Technology program is designed to prepare students with the opportunity for theory-based (knowledge) and performance-based (hands-on) experiences crucial to advanced and automated manufacturing processes. 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) the Associate in CAM 2.5 Axis Milling and Turning for Machinist and (2) the Associate in AutoCAD for Design and Drafting (150 hours of relevant Autodesk software experience is required for the Associate in AutoCAD). 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 in Engineering - Automated Manufacturing Technology.

COURSE REQUIREMENTS

REQUIRED ENGINEERING - AUTOMATED MANUFACTURING TECHNOLOGY COURSES

| | |
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| 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

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|------------------------|--|
| 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-120 | Pre-Calculus II |
| MATH-201 | Calculus I |
| PHYS-101 | Introductory Physics I |
| PSYC-101 or SOC-101 | General Psychology or Introduction to Sociology |

PROGRAM PATH

ENGINEERING-AUTOMATED MANUFACTURING TECHNOLOGY

TWO-YEAR CAREER PROGRAM

PREPARATION FOR EMPLOYMENT

| <u>FIRST SEMESTER</u> | <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 |
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| <u>SECOND SEMESTER</u> | |
| 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 120 (Pre-Calculus II) | 4 |
| Total: | 16 |
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| <u>THIRD SEMESTER</u> | |
| 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 |
| Mathematics 201 (Calculus I) | 4 |
| Total: | 18 |
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| <u>FOURTH SEMESTER</u> | |
| 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 |
| Physics 101 (Introductory Physics I) | 4 |
| English 112 (Business and Technical Communication) | 3 |
| Total: | 17 |
| Total Credit Hours: | 67 |

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