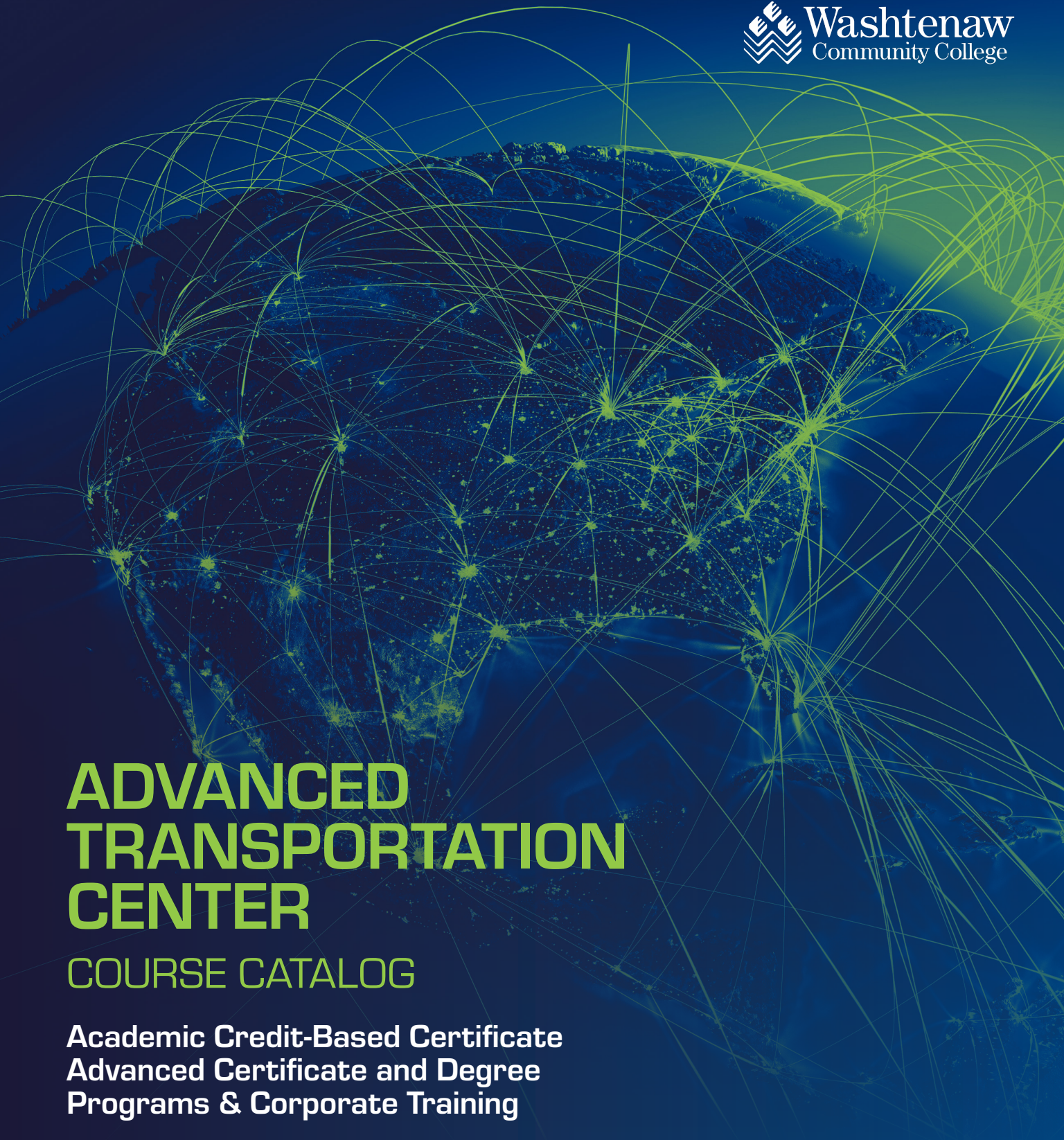
Washtenaw Community College



ADVANCED TRANSPORTATION CENTER

COURSE CATALOG

Academic Credit-Based Certificate Advanced Certificate and Degree Programs & Corporate Training

ADVANCED TRANSPORTATION

Washtenaw Community College is at the forefront of developing curriculum and training that prepares talent for careers in ever-changing industries. To ensure that new and existing employees have the skills necessary, WCC is adding connected and autonomous vehicle, intelligent transportation systems and Industry 4.0 classes and programs into its career pathways curriculum and training.

From Computer Systems Engineer to Business Intelligence Analyst to Research Scientist, WCC offers certificates, associate degrees, training and pathways to four-year degrees. We also provide continuous education training to professionals and introductory classes to students interested in careers in the mobility industry. In this booklet, you will find descriptions of our academic credit-based certificates, advanced certificates and degree programs in Intelligent Transportation Systems, Advanced Manufacturing and Automotive Service as well as corporate training classes in Data Analytics, Connected and Autonomous Vehicles and Cybersecurity.

For more information about the Advanced Transportation Center at Washtenaw Community College, please find us at wccnet.edu/atc.

Or contact: Alan R. Lecz
Advanced Transportation Center Director
734-677-5472

Mobility Solutions for the Next Generation's Workforce

The Advanced Transportation Center at WCC is dedicated to ensuring our region has the talent needed to elevate Michigan as the national leader in mobility.

Our academic programs are multi-disciplinary and developed specifically to provide workforce development training options tailored to the emerging needs of the sector. With input from our mobility partners and industry leaders across the state, we're working together to fill the gaps.

Within this publication, you will find a variety of classes designed to prepare current and future mobility employees for the challenges that lie ahead. We are committed to evolving and being in lockstep with the emergent changes that are to come.

WCC is here for you!

Yours for a Stronger Mobility Workforce,

Dr. Brandon Roderick Tucker

Executive Vice President for Instruction
Chief Workforce Development Officer

Contents

ATC CURRICULUM

Intelligent Transportation Systems: Vehicle-to-vehicle and vehicle-to-infrastructure communication

Advanced Manufacturing: The latest manufacturing machines, tools and processes, including light-weighting materials

Automotive Service: Testing, development, maintenance and repair

CORPORATE TRAINING

ATC CURRICULUM

The Advanced Transportation Center provides academic programs that combine information technology and automotive servicing to develop the skills and competencies required to meet the needs of area employers. The following programs are currently offered:

INTELLIGENT TRANSPORTATION SYSTEMS: VEHICLE-TO-VEHICLE AND VEHICLE-TO-INFRASTRUCTURE COMMUNICATION

Certificates:

Automotive Cybersecurity Certificate

This certificate program is designed to meet the emerging demand for highly-skilled automotive cybersecurity professionals. Students are introduced to the skills and strategies needed to test security related to automobile networks and related infrastructure. Students will work with the various automobile networks (CAN, LIN, Ethernet, and FlexRay) and explore protocols and messages produced by the vehicle that could be vulnerable to attacks. Students will consider risk mitigation technologies including authentication, encryption and firewall technologies.

Division: Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: Edward Szurek (eszurek@wccnet.edu) | Sandro Tuccinardi (stuccinardi@wccnet.edu)

Computer Systems Technology*

This program prepares students for employment as a microcomputer service technician. While preparing students to pass the Computer Technology Industry Association's CompTIA A+ Certification Examination, the program goes well beyond the requirements of the exam. The student will develop hands-on troubleshooting skills in solving hardware problems, working with operating systems, and relating to customers. This program also provides the foundation for Washtenaw Community College's two advanced certificates in computer networking.

*Includes an introduction to "Dedicated Short-Range Communications" (DSRC), a WIFI communication channel designed for connected and autonomous vehicles.

Division: Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: James Lewis (lewisja@wccnet.edu) | Sandro Tuccinardi (stuccinardi@wccnet.edu)

Foundations of Information Systems

The Foundations of Information Systems certificate provides a conceptual framework for those students wishing to become a professional in computer information systems or computer programming. The student will be introduced to computer science programming logic, as well as developing algorithms to solve programming problems. In addition, students will acquire an understanding of the impact of information systems and information technology on the business, industrial, and other environments in which they will work as programmers or analysts.

Division: Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: Khaled Mansour (kmansour@wccnet.edu) | Sandro Tuccinardi (stuccinardi@wccnet.edu)

Principles of Cybersecurity

Note: This program is also available online.

This program is designed to meet the emerging demand for highly-skilled cybersecurity professionals within the information technology industry and business community. This certificate program provides an in-depth examination of cybersecurity technology with an emphasis on executing a vulnerability analysis of an organization network and network hardening. The student will be trained to use various tools to analyze networks for vulnerabilities and secure networks through the application of various defense mechanisms including firewalls, intrusion detection and Virtual Private Networks.

Division: Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: Edward Szurek (eszurek@wccnet.edu) | Sandro Tuccinardi (stuccinardi@wccnet.edu)

Advanced Certificates

C++ Programming

Note: This program is also available online.

This program prepares students for jobs as computer programmers where they will write C++ code and develop applications utilizing object-oriented programming techniques. Students will also develop skills that can be applied to the related jobs of programmer/analyst and software architect.

Division: Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: Khaled Mansour (kmansour@wccnet.edu) | Sandro Tuccinardi (stuccinardi@wccnet.edu)

Computer Networking Academy I

Note: This program is also available online.

This Cisco Networking Academy online program prepares students for a job as a network technician where they will install, configure, and troubleshoot local area networks under the supervision of a network administrator. The focus is placed on cabling systems and internet working hardware. It also gives students the knowledge they'll need to pass the Cisco Certified Network Associate Examination.

Division Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: James Lewis (lewisja@wccnet.edu) | John Trame (jtrame@wccnet.edu) | Sandro Tuccinardi (stuccinardi@wccnet.edu)

Computer Networking Operating Systems I

This program lays a foundation in preparation for a profession as a Microsoft Certified IT Professional. Students will install, configure, and troubleshoot Microsoft Client Server Networks. The program is designed to deploy and manage Windows Server 2019 with Client Workstations in simulated real-life situations. Administering, managing, monitoring, and troubleshooting of server 2019 Active Directory, Network Services, and other server functions are all emphasized. All Server configured activities are tested out using Client Workstations to ensure they work, just as in a real business environment. The program is structured for those who are working towards Microsoft Server 2019 certification. Also those already having certification who want to enhance their knowledge with the newer operating systems, as well as those who may just want to learn how to effectively implement these technologies are welcome.

Division: Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: Michael Kidd (mkidd@wccnet.edu) | James Lewis (lewisja@wccnet.edu) | John Trame (jtrame@wccnet.edu) Sandro Tuccinardi (stuccinardi@wccnet.edu)

Associate Degree in Science

Program in Java

Note: This program is also available online.

This program is intended for students who need to acquire skills in the Java programming language. The program also gives students skills that can be applied to the related jobs of programmer/analyst.

Division: Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: Jing Bai (Jswanson@wccnet.edu) | Khaled Mansour (kmansour@wccnet.edu) | Sandro Tuccinardi (stuccinardi@wccnet.edu)

Web Database Programming Professional

This program focuses on the development of web databases and e-commerce applications. The coursework emphasizes server-side programming and is intended for students with strong programming background. Students will be exposed to a professional team programming exercise. If a student needs exposure to front-end web development, a certificate in the Web Design and Development discipline should be considered.

Division: Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: Khaled Mansour (kmansour@wccnet.edu) | Scott Shaper (sshaper@wccnet.edu) | Sandro Tuccinardi (stuccinardi@wccnet.edu)

Associate Degree in Science

Computer Science: Programming in Java

This program prepares students to transfer to complete a bachelor's degree in Computer Science or Applied Computer Science and to pursue careers in computer science fields such as computer systems programming and analysis, software development and maintenance, and applications programming.

Division: Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: Jing Bai (Jswanson@wccnet.edu) | Khaled Mansour (kmansour@wccnet.edu) | Sandro Tuccinardi (stuccinardi@wccnet.edu)

Information Systems: Programming in C++

This program prepares students to transfer to complete a bachelor's degree in Business Administration with a major in Computer Information Systems (CIS). Undergraduates and graduates of CIS programs are prepared to create and maintain information systems for organizations, manage information systems projects, and develop strategies for effective use of enterprise information resources.

Division: Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: Khaled Mansour (kmansour@wccnet.edu) | Sandro Tuccinardi (stuccinardi@wccnet.edu)

Associate Degree in Applied Science

Computer Systems and Networking

In this program, students will learn about the latest desktop, server, and networking technologies. This program has a core of hardware, operating system and scripting that all students must complete. In addition to the common core subjects, students will select a specialized track in one of the following areas: Local and Wide Area Networking, Microsoft Network Operating Systems, Linux Network Operating Systems.

Division: Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: James Lewis (lewisja@wccnet.edu) |John Trame (jtrame@wccnet.edu) | Sandro Tuccinardi (stuccinardi@wccnet.edu)

Cybersecurity

In this program, students are introduced to the skills and strategies needed to plan and carry out security measures to protect an organization's computer networks and systems. Students will learn networking and network security skills using server, infrastructure and perimeter technologies working in Linux operating systems, Cisco infrastructure and perimeter devices, and Microsoft operating systems.

Division: Business/Computer Technologies | Department: Computer Science and Information Technology
Advisors: Edward Szurek (eszurek@wccnet.edu) | Sandro Tuccinardi (stuccinardi@wccnet.edu)

ADVANCED MANUFACTURING: THE LATEST MANUFACTURING MACHINES, TOOLS AND PROCESSES, INCLUDING LIGHT-WEIGHTING MATERIALS

Certificate

Advanced Manufacturing (CNC) - Operation Technician

In this program, students learn to setup and operate CNC machine tools with an introduction to programming. They learn how to use basic measurement tools and read blueprints. This certificate will highlight the fundamentals of manufacturing and measurement. Students completing this certificate will be able to safely perform basic skills within a manufacturing facility, including basic part manufacturing as well as the setup and operation of CNC machine tools to manufacture basic parts. Students will also be able to perform basic inspections using appropriate measurement tools.

Students with technology interests who enjoy working with their hands like gaming, manipulating code, robotics, 3D printing are suited for this line of work.

Division: Adv. Tech/Public Serv. Careers | Department: Advanced Manufacturing
For more information please email atp.div@wccnet.edu

Advanced Manufacturing (CNC) - Programming and Setup Technician Program

In this program, students will learn to write, read, and edit programs for CNC machine tools. They will understand core canned cycles for milling and turning operations on CNC machine tools and have the skills to do 2D and 3D modeling and posting of CNC code using CAD/CAM software. Students will obtain a broader knowledge of equipment, geometric dimensioning and tolerancing skills to succeed in the manufacturing environment. Students completing this certificate will be able to create, edit, and debug code for local manufacturing companies.

Division: Adv. Tech/Public Serv. Careers | Department: Advanced Manufacturing
For more information please email atp.div@wccnet.edu

Industrial Electronics Technology

This program prepares students for entry-level jobs in any of the industrial electricity/electronics cluster of occupations. Students will develop skills in the installation, maintenance, and troubleshooting of industrial control systems with a focus on programmable logic controllers, electronic sensors, and electronic control circuits.

Division: Adv. Tech/Public Serv. Careers | Department: Advanced Manufacturing
For more information please email atp.div@wccnet.edu

Robotics Technician

The Robotics Technician certificate is a starting point for those with the desire to enter the field of automation and robotics. Students will learn how robots are programmed and wired into larger systems. Technicians work in industrial settings to operate, maintain, and program robots.

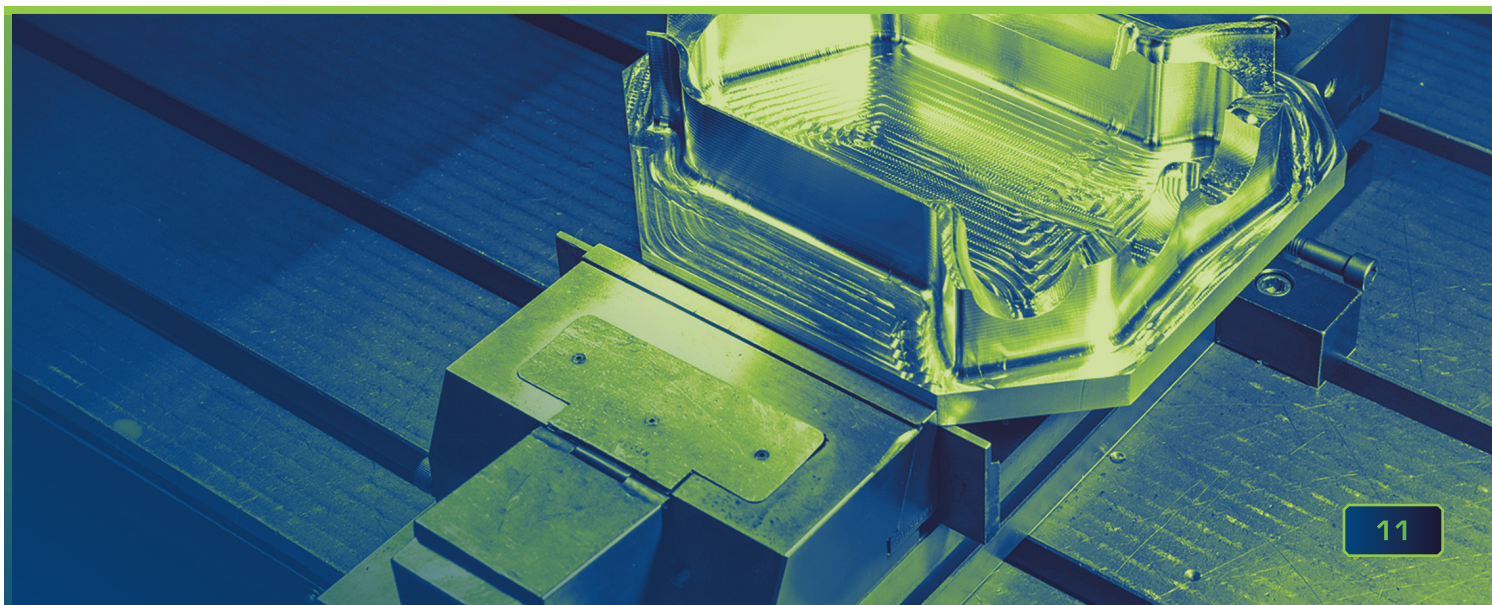
Students with technology interests who enjoy working with their hands like gaming, manipulating code, robotics, 3D printing are suited for this line of work.

Division: Adv. Tech/Public Serv. Careers | Department: Advanced Manufacturing
For more information please email atp.div@wccnet.edu.

Welding and Fabrication Principles

This certificate introduces students to safe welding and cutting practices and principles, including proper technique and position, weld quality requirements, destructive and non-destructive testing and examination methods, print reading and interpretation of welding symbols as well as basic metal fabrication. Students will use the foundation and working knowledge to weld in all processes, perform repair techniques using thermal cutting and gouging, apply the requirements to execute quality welds and apply CNC programming language that can be used to produce parts that can be assembled and welded. This certificate serves as a fundamental pathway into the Welding and Fabrication Advanced Applications certificate and Welding Technology degree. Students who successfully complete this certificate will have learned the skills sought by the workforce as an entry-level welder and fabricator.

Division: Adv. Tech/Public Serv. Careers | Department: Welding and Fabrication
For more information please email atp.div@wccnet.edu.



Advanced Certificate

Automation Specialist

The automation specialist certificate builds on skills obtained in the robotics technician certificate for those with the desire to enter the field of automation and robotics. Students will learn how robots are programmed and wired into larger systems. Technicians work in industrial settings to operate, maintain, and program robots. People that enjoy technology, working with their hands, andmanipulating program code are well suited for this career.

Division: Adv. Tech/Public Serv. Careers | Department: Advanced Manufacturing
For more information please email atp.div@wccnet.edu

Welding and Fabrication Advanced Applications

This advanced certificate combines welding fundamentals with more complex welding, cutting and fabrication techniques and applications aimed to further develop one's skills and core competencies. Students focus on welding using processes and positions common in industry, perform destructive and non-destructive testing, identify weld failures and perform root cause analysis, execute repair techniques, perform advanced fabrication techniques and execute automated welding and cutting programming and operations. Students who successfully complete this advanced certificate will have learned a broad range of essential skill sets critical to the trade and how to apply those skills to manufacturing, automotive, construction, aerospace, oil, military, gas and power industries.

Division: Adv. Tech/Public Serv. Careers | Department: Welding and Fabrication
For more information please email atp.div@wccnet.edu

Welding and Fabrication Advanced Applications

This advanced certificate combines welding fundamentals with more complex welding, cutting and fabrication techniques and applications aimed to further develop one's skills and core competencies. Students focus on welding using processes and positions common in industry, perform destructive and non-destructive testing, identify weld failures and perform root cause analysis, execute repair techniques, perform advanced fabrication techniques and execute automated welding and cutting programming and operations. Students who successfully complete this advanced certificate will have learned a broad range of essential skill sets critical to the trade and how to apply those skills to manufacturing, automotive, construction, aerospace, oil, military, gas and power industries.

Division: Adv. Tech/Public Serv. Careers | Department: Welding and Fabrication. For more information please email atp.div@wccnet.edu.

Associate in Applied Science

Advanced Manufacturing (CNC) - Machine Tool Setup, Operation and Programming

In this program, students will demonstrate proficiency in the operation of automated design and machine tool equipment. Competencies in machine operation (CNC), computer aided design and manufacturing (CAD/CAM), manual programming, and processing materials will be developed. In addition, students will hone skills in the manufacturing and troubleshooting of part programs used for advanced manufacturing systems. Students will apply problem-solving skills learned in the program to create innovative solutions for real-world manufacturing challenges in preparation for entry-level positions within the advanced manufacturing field including CNC machining.

Students with technology interests who enjoy working with their hands like gaming, manipulating code, robotics and 3D printing are suited for this line of work.

Division: Adv. Tech/Public Serv. Careers | Department: Advanced Manufacturing
For more information email atp.div@wccnet.edu

Mechatronics – Robotics and Automated Systems

This technology-driven program prepares students for entry-level positions within the mechatronics field as automated equipment technicians. These technicians assemble, install, program, troubleshoot and maintain robotic systems and other automated equipment. This evolving field is suited towards people who enjoy working with technology to solve problems. Students will gain understanding of all systems involved with automation including: Digital and electromechanical systems and programming them (PLC), control of mechanical systems, computer aided design (CAD), robotics with vision and other systems. It is highly recommended that beginning students take at least one technical class during their first semester. See an advisor for assistance in planning your path.

Students with technology interests who enjoy working with their hands like gaming, manipulating code, 3D printing are suited for this line of work.

Division: Adv. Tech/Public Serv. Careers | Department: Advanced Manufacturing
For more information email atp.div@wccnet.edu.

Welding Technology

The Welding Technology program offers specialized welding and fabrication instruction through theoretical, practical and technical learning objectives and strategies. The core curriculum specializes in welding and fabrication and delves into the expanses of welding technology as a whole. Students are first introduced to welding, cutting and fabrication safety; theory and fundamentals; and then transition to more advanced welding and fabrication processes and applications, including weld quality, inspection, testing and repair, and automated welding, cutting systems and operations. Students who successfully complete this program will have learned a diverse skill set giving them opportunities to enter the workforce as entry-level welders, fabricators and field technicians. It also positions them for degrees in welding engineering, welding education or materials science.

Division: Adv. Tech/Public Serv. Careers | Department: Welding and Fabrication
For more information please email atp.div@wccnet.edu.

AUTOMOTIVE SERVICE: TESTING, DEVELOPMENT, MAINTENANCE AND REPAIR

Certificate

Auto Body Repair

This certificate will appeal to a wide array of automobile enthusiasts wishing to start a career in the collision repair industry. Through the use of NATEF approved curriculum, students will develop core skills such as dent removal, panel replacement, welding, and automobile refinishing techniques and collision-related mechanical repair. Emphasis is placed on preparing students for employment in an ever-changing workplace that adheres to A.S.E. and I-Car standards associated with the collision repair industry. This certificate also provides a stepping-stone to WCC's Advanced Auto Body certificates.

Division: Adv. Tech/Public Serv. Careers | Department: Transportation Technologies
For more information please email email atp.div@wccnet.edu

Automotive Services Technician

This program prepares students for employment as a certificated automotive technician. Students will diagnose and repair malfunctions in automobile engines, suspensions and steering systems, brakes, electrical and electronic systems and engine drivability issues. This program also offers opportunities to explore vehicle performance, diesel, alternative fuel vehicles, hybrid vehicles and to participate in the building of performance vehicles. The program prepares the student for the State of Michigan Mechanic Certification tests as well as the National Institute for Automotive Service Excellence (ASE) Certification Exams.

Division: Adv. Tech/Public Serv. Careers | Department: Transportation Technologies
For more information please email atp.div@wccnet.edu

Electric Vehicle (EV) Safety and Fundamentals Certificate (CTEVSF)

This program will be introduced to the rapidly growing electric vehicle (EV) market. Students will learn the safety standards, precautions, and best practices needed when working around EV's. Topics of study will include basic electrical system identification and testing along with ever evolving new technologies incorporated in alternative energy vehicles such as EV's. This mini-certificate will prepare students for EV specific ASE testing required for the industry.

Division: Advanced Technologies and Public Service Careers (ATP) | Department: Transportation Technologies
Advisors: Julie "Niki" Lee jnlee@wccnet.edu | Justin Morningstar jmorning@wccnet.edu

Electric Vehicle (EV) Service Technician (CTEVST)

Students will be introduced to the skills needed to perform as an entry level technician within the rapidly growing electric vehicle (EV) market. Students will learn how to identify and practice the safety standards and precautions needed when servicing EVs. This certificate will prepare students for EV-specific ASE testing required for the industry.

Division: Advanced Technologies and Public Service Careers (ATP) | Department: Transportation Technologies
Advisors: Julie "Niki" Lee jnlee@wccnet.edu | Justin Morningstar jmorning@wccnet.edu

Advanced Certificate

Advanced Automotive Services Technician

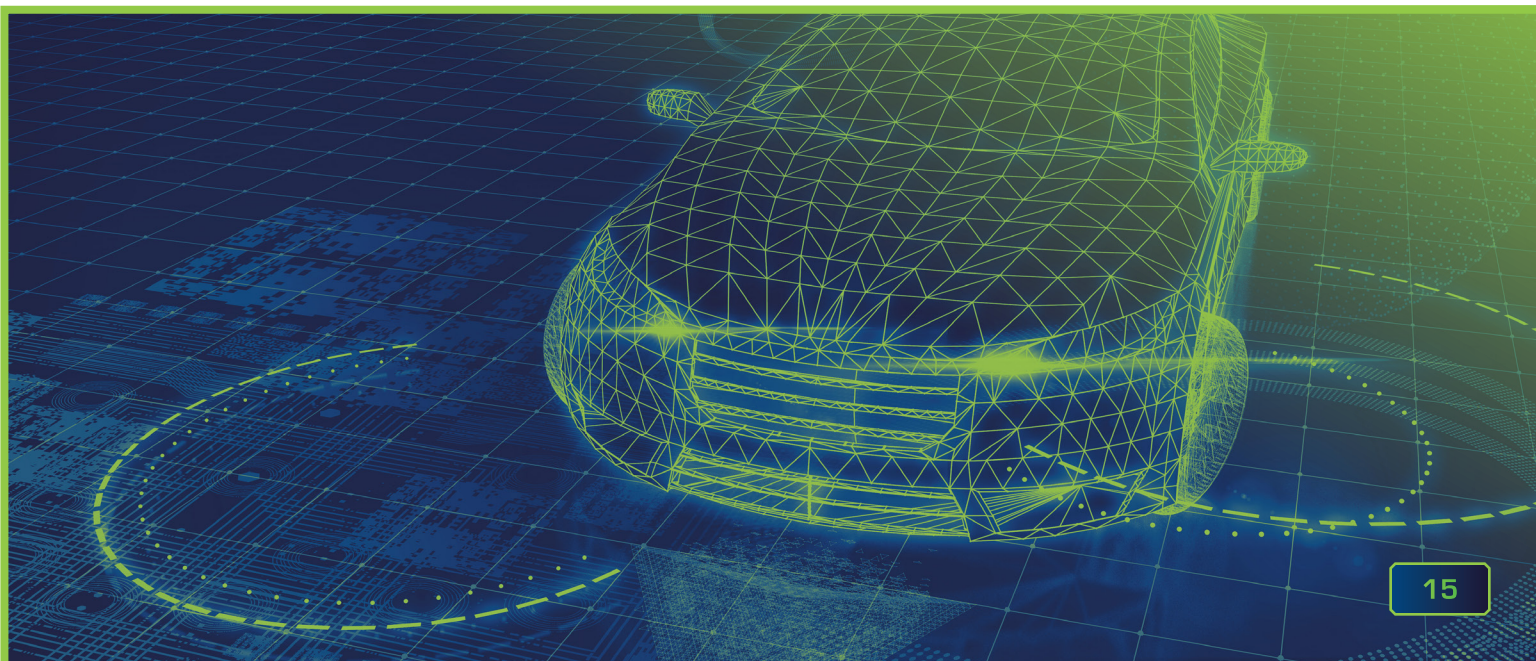
This advanced certificate builds on the electrical and mechanical skills developed in the Automotive Services Technician (CTASVT) certificate. This advanced certificate prepares students for employment as a certified automotive technician. It also prepares the student for the State of Michigan certification exams. Using specialized electrical diagnostic equipment students will diagnose and repair vehicle systems such as Automotive Engines, Automatic and Manual Transmissions, Automotive HVAC systems and Powertrain Drivability systems.

This is a high-demand, high-skill and high-wage program, as defined by the Michigan Community College Network.

Custom Auto Body Fabrication and Chasis Design

The Custom Auto Body Fabrication and Chassis Design certificate focuses on advanced body and paint techniques used to customize automobiles and turn them into “rolling showpieces.” Students will expand on knowledge acquired in the Auto Body Repair program. Working in teams, students will build, complete and show a project vehicle. Students will learn advanced sheet metal fabrication and construction of a custom automobile chassis. Areas of study will include various types of building materials and their uses, measurement, pattern development, mechanical drawing, fastener selection, MIG and TIG welding and frame design and suspension types. Other topics such as candies, pearls, tristage paint jobs and the application of custom graphics will be discussed. Upon acquiring this advanced certificate, employment possibilities may include specialty shop technician, custom paint technician and metal fabricator/welder.

Division: Adv. Tech/Public Serv. Careers | Department: Transportation Technologies. For more information please email atp.div@wccnet.edu



Associate in Applied Science (AAS)

Automotive Test Technician

In this program, students will be introduced to the test and data acquisition processes used in automotive testing. Students will learn to assemble and disassemble components for automotive testing. Diagnosis, maintenance and proper operation of complex data acquisition equipment are essential. Students will learn to monitor and calibrate testing instruments. Job possibilities include working in a crash lab or other testing facility.

Division: Adv. Tech/Public Serv. Careers | Department: Transportation Technologies. For more information please email atp.div@wccnet.edu

Powertrain Development Technician

In this program, students will develop the knowledge and skills to perform in-car powertrain testing in unique testing environments. Jobs in this area require knowledge of automotive engine and electrical systems and experience with an automotive dynamometer. Students will learn about dynamometer set-up and testing including the operation of complex analytical test equipment and test software.

Division: Adv. Tech/Public Serv. Careers | Department: Transportation Technologies. For more information please email atp.div@wccnet.edu

Transportation Technologies

In this AAS degree, students have a choice to follow any of three different specialty tracks that will prepare them for employment in the transportation industry. This option can be selected if an associate's degree is required for employment or advancement in a field. Each track features a variety of application level classes where students perform lab-oriented practice for the required skills in the automotive service related and auto body repair fields. Students will learn using the latest technology, methods and tooling in their area of concentration.

Students will select a specialized track in one of the following areas, each of which has its own associated certificated program(s): Auto Service, Auto Body or Electric Vehicle (EV). The program prepares the student for the State of Michigan Mechanics Certification tests as well as the National Institute for Automotive Service Excellence (ASE) Certification Exams. Meet with a divisional advisor or faculty.

Division: Adv. Tech/Public Serv. Careers | Department: Transportation Technologies. For more information please email atp.div@wccnet.edu

Empower Your Future with an In-demand High Paying EV Career

Whether you're upgrading your skills, changing careers or starting fresh, our accessible and affordable program prepares you for immediate employment in the high-demand field of EV technology.

Through a blend of practical training and theoretical knowledge. you will become a certified professional ready to tackle the challenges of electric vehicles' emerging technologies.

Position yourself at the forefront of the automotive industry's shift toward sustainability and innovation with a

Corporate Training

Traditional classroom setting.	Traditional online class.	Sign up at any time and complete the class within six months online.

For information about Corporate Training contact:
Abigail Hathaway, Program Development Manager
abhathaway@wccnet.edu
734-477-8943

CORPORATE TRAINING

Meeting current and future business and industry needs and providing solutions for next generation mobility, is a top priority for the WCC Workforce Development team. Emerging transformations in technology are opening doors to new career opportunities. WCC is positioned to prepare the future and existing workforce with training that supports smart cities and advanced transportation.

Data Analyst Technician

Class ID: CIS 1087

★**Online - Anywhere, Anytime**

Gain a thorough understanding of Microsoft Excel, data collection and data management techniques. Learn how to enter data and create formulas to analyze and present complex information. These skills are important in the field of data analysis, as well as, business intelligence, management and engineering. Using actual mobility data, this course will cover concepts from Excel, the Excel 2016 course certification exams. Additional topics show the relationship of XML with Microsoft Excel, including importing, mapping Schema, and exporting content.

Clock Hours: 120 | CEUs: 11 | College Credential: Certificate of Completion

Data Analytics: Level 1 (using Excel)

Class ID: CIS 1022

★**Online - Anywhere, Anytime**

A good spreadsheet provides accurate data. The most important tools for entering, formatting and calculating information is Microsoft Excel. It is a key middle technical skill and vital to all management positions. Using real mobility data, this course will cover BEGINNING concepts from the Excel MO 200 (Excel 2019) and the Excel 2016 Course certification exams.

Clock Hours: 15 | CEUs: 3.0 | College Credential: Certificate of Completion

Data Analytics: Level 2 (using Excel)

Class ID: CIS 1023

★**Online - Anywhere, Anytime**

Understanding formulas is an important middle technical skill in mobility analysis, as well as the related fields of management and engineering. Formulas transform data into decisions. Logical and Statistical formulas can analyze the data set and return an answer based on your criteria. Learn how to use logical, statistical, and text functions. Using actual mobility data, this course will cover INTERMEDIATE concepts from the Excel MO 200 (Excel 2019) and the Excel 2016 Course certification exams.

Clock Hours: 15 | CEUs: 30 | College Credential: Certificate of Completion

Data Analytics: Level 3 (using Excel)

Class ID: CIS 1063

★**Online - Anywhere, Anytime**

Learn how to control and validate data entry. Using actual county and other municipality data, you will learn how to enter, analyze and create advanced reports, including PivotTables and PivotCharts. This course will cover expert concepts from the Excel certification exams.

Clock Hours: 30 | CEUs: 3.0 | College Credential: Certificate of Completion

Data Analytics: Level 4 (using XML)

Class ID: CIS 1078

***Online - Anywhere, Anytime**

Data collection and data management are growing fields related to data analysis and business intelligence. XML is an in-demand coding language that is increasingly used in data management. Learning XML doesn't have to be intimidating! The components of code, to the characters, are labeled and color-coded to enhance understanding of the building blocks of XML code. Learn how to understand XML documents in the context of commonly used companion codes for restricting content with XML schema, navigating nodes with XPATH and transforming content with styles from XSLT. Additional topics include the relationship of XML with Microsoft Excel, including importing, mapping schema and exporting content.

Clock Hours: 15 | CEUs: 1.5 | College Credential: Certificate of Completion

Data Analytics: Level 5 - Visualization (Using Power BI)

Class ID: CIS 1106

***Online - Anywhere, Anytime**

Power BI uses Microsoft technology to integrate data and create meaningful reports. Users familiar with Microsoft Excel Business Intelligence and/ or Microsoft Access will appreciate the integration of both into one smooth, cloud-friendly platform. PivotTables, PivotCharts, and Filters are all supercharged in Power BI. Power BI tables and charts are interactive reports that users can customize, share and publish. Power BI can be mastered in a few weeks. These lessons are quick and often introduces useful features.

Clock Hours: 15 | CEUs: 1.5 | College Credential: Certificate of Completion

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CYBERSECURITY

Certificate in Cybersecurity

Class ID: CIS 1028

★**Online - Anywhere, Anytime**

This user-friendly platform is designed for those people who are looking for cybersecurity certificate programs online. Therefore, this class is for anyone who wants to learn more about information technology and pursue a career in that field. What's more, the program is built on a user-friendly platform. This way, more users can use this educational platform and make the most of it. Some of the knowledge that this certificate in cybersecurity will provide you with includes, critical elements of information security and important information on certifications that professionals in the industry will need. There is a total of eight courses in this cybersecurity program. Each of these tackles a unique topic that you must know as a professional in the industry will need.

Clock Hours: 40 | CEUs: 4 | College Credential: Certificate of Completion

Note: Exam prep class for CISSP Certification exam.

Certified Information Systems Pro (CISSP) Prep Course and Exam

Class ID: CIS 1088

★**Online - Anywhere, Anytime**

This program will prepare students for the CISSP exam so that they may secure positions, such as Chief Information Security Officers, Security Architects, or Security Analysts. This course is for professionals who want to improve their qualifications with a CISSP certification. This program contains two practice exams that include 120 CISSP practice questions, allowing you to test your knowledge. These practice exams cover eight domains from ISC, which include:

1. Asset security
2. Risk and security management
3. Communications and network security
4. Security engineering
5. Security assessment and testing
6. Identity and access management
7. Security operations
8. Software development security

Along with the two extensive practice exams, this course includes various assessment material in the form of quizzes and activities that will help you prepare for the CISSP exam by ISC2. It also incorporates multimedia-based learning material to help make the learning experience more engaging. With a CISSP certification, you can expect to improve your opportunities to work as security personnel significantly, as it is recognized all across the world.

Clock Hours: 100 | CEUs: 10 | College Credential: Certificate of Completion

Note: Exam prep class for CISSP Certification exam.

FIBER OPTICS

Certified Fiber Optics Technician (CFOT)

Class ID: CIS 4081

★**In-Person**

This introductory fiber optic tech course is designed for anyone interested in becoming a Certified Fiber Optic Technician. This Fiber Optic Training combines theory and 85% hands-on activities to prepare the student to take the Certified Fiber Optic Technician (CFOT) test, sanctioned by the Fiber Optics Association (FOA). This test will be given and graded the final class day. The course introduces the student to industry standards governing Fiber To The Desk (FTTD), Fiber To The Home (FTTH), and distribution cabling. Students will learn how to identify fiber types, recognize various connectors used in fiber installation; and install, terminate, splice, and properly test installed fiber cable to existing standards. This program explores the history and future of fiber optics and fiber optics capabilities, and basic testing and troubleshooting.

Clock Hours: 22 | CEUs: 2.2 | College Credential: Certificate of Completion

Note: This class prepares participants to take the Certified Fiber Optic Technician - CFOT exam.

Certified Fiber Optics Specialist in Splicing (CFOS/S)

Class ID: CIS 4083

★**In-Person**

This Splicing Specialist Training covers high-performance fiber optic splicing. An overview of OTDR functions and trace understanding is provided during this presentation. This course is designed so that 85% of the class activities are hands-on. Training in both fusion and mechanical splicing of either single or multi-mode fiber optic cables will be covered. Inside or outside plant fiber optic cable types will be utilized at instructor's discretion during these hands-on sessions along with fiber optics enclosures and splice trays. The student will be responsible for successfully making and testing both mechanical and fusion splices. In addition to the basic splicing activities outlined above, the student will further be required to correctly and efficiently install spliced fibers into splice trays and enclosures. The student will be required to achieve a splice loss of less than 0.15 dB for all splices and demonstrate proficiency in interpretation of splice loss using OTDR splice traces.

Clock Hours: 9 | CEUs: 0.9 | College Credential: Certificate of Completion

Note: This class prepares participants to take the Certified Fiber Optic Technician - CFOS/S exam.

Certified Fiber Optics Specialist in Testing and Maintenance (CFOS/T)

Class ID: CIS 4082

★**In-Person**

This program is designed to offer advanced training to anyone involved with the testing and maintenance of fiber optics networks. A focal point in the program is to offer a general, easy to understand, approach to fiber optics testing standards with little theory and considerable hands on activities. This comprehensive program explains the variety of testing standards, equipment and technological approaches used in fiber network testing and splicing and how to choose among them. This 85% hands on course explores the overall spectrum of testing and maintenance of single mode fiber optics networks and provides a detailed overview and demonstration of various pieces of equipment used in testing and maintenance. Subject matter includes a detailed study of ANSI/TIA/EIA-526-(7)A, OTDR fundamentals and uses, OTDR vs. Insertion Loss Testing, Return Loss Testing, and Attenuation testing using the Power Source and Light Meter.

Clock Hours: 9 | CEUs: 0.9 | College Credential: Certificate of Completion

INFORMATION TECHNOLOGY

CompTIA Certification (200-1001 and 220-1002 Voucher Included)

Class ID: CIS 1083

★**Online - Anywhere, Anytime**

For anyone wanting to enter the IT world, the CompTIA A+ certification is a great start! The A+ by CompTIA is recognized as one of the top entry-level certifications in the industry. It provides you with a solid foundation in hardware, software and troubleshooting skills in order to build or supplement your technical knowledge. This online course will prepare you for the CompTIA A+ 220-1001 and 220-1002 exams (CompTIA A+ 1000 Series).

Clock Hours: 60 | CEUs: 6.0 | College Credential: Certificate of Completion

Note: This class prepares participants to take the CompTIA+ 220-901 and 220-902 Certification exams.

Washtenaw Community College is Becoming a Laboratory for Emerging Technologies

WCC is paving the way to an array of emerging careers in the mobility ecosystem.

A new certificate program will prepare semiconductor technicians to advance the electrification of vehicles. Wtihin the next year, WCC will launch this new short-term program in partnership with KLA, imec, the University of Michigan, General Motors and the Michigan Economic Development Corporation.

WCC is also working in partnership with industry to develop the Electric Battery and Electric Charging Station Maintenance certificate programs. These certificate programs will train the workforce to service and maintain electric batteries and electric charging stations. These programs are funded thanks to $2.5 million in appropriations from the federal Omnibus Bill.

For more information, contact wccnet.edu/atc.

Washtenaw Community College | *What do you call someone who attended WCC?* **Employed.**

ADVANCED TRANSPORTATION CENTER

For more information:

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