



industrial mechanical technician

Associate in Applied Science (AAS) Program Code: 10-462-1 Total Credits: 60

Mid-State's Industrial Mechanical Technician program will give you the hands-on foundation necessary to confidently maintain, repair, and operate machinery and equipment in an industrial environment. You will learn to align, maintain, repair, and replace machine components as well as gain understanding of predictive and preventive maintenance, reliability-centered maintenance, and many other topics. The program emphasizes safety in the workplace and includes many hands-on and interactive classroom experiences, lab activities, and field trips.

Estimated tuition and fees: mstc.edu/programcosts

ACADEMIC ADVISOR

To schedule an appointment with an academic advisor, call 715.422.5300. Academic advisors will travel to other campuses as necessary to accommodate student needs. For more information about advising, visit mstc.edu/advising.

CHECKLIST:

This section will be completed when meeting with your academic advisor.

- FAFSA (www.fafsa.gov)
- Financial Aid Form(s)
Form(s): _____
- Follow-Up Appointment:
Where: _____
When: _____
With: _____
- Official Transcripts
Mid-State Technical College
Attention CPL Coordinator
500 32nd Street North
Wisconsin Rapids, WI 54494
- Other: _____

mstc.edu
888.575.6782



MID-STATE
TECHNICAL COLLEGE

ADAMS CAMPUS
401 North Main
Adams, WI 53910

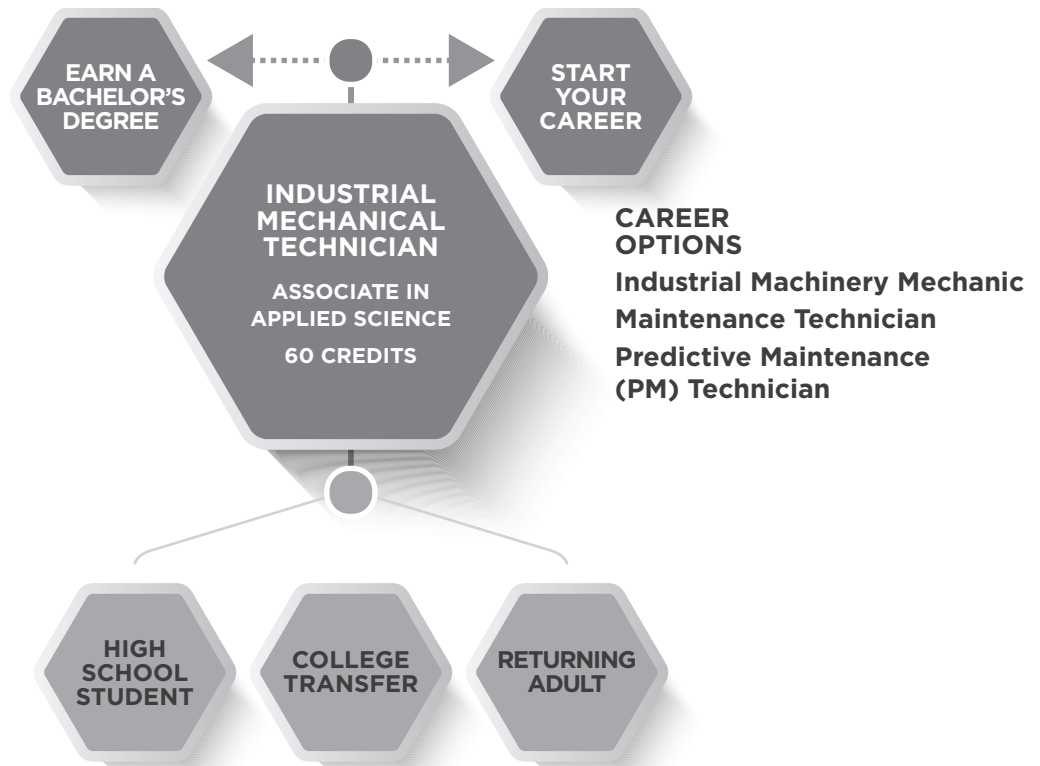
MARSHFIELD CAMPUS
2600 West 5th Street
Marshfield, WI 54449

STEVENS POINT CAMPUS
1001 Centerpoint Drive
Stevens Point, WI 54481

WISCONSIN RAPIDS CAMPUS
500 32nd Street North
Wisconsin Rapids, WI 54494

BACHELOR'S DEGREE OPTIONS

For more information and additional opportunities, visit mstc.edu/transfer.



College Credit • Dual Credit • Military Experience • Work Experience
Learn about Credit for Prior Learning at mstc.edu/cpl.

**BEGIN AT ANY POINT
IN THE PATHWAY**

OTHER OPTIONS

RELATED PROGRAMS

- Machine Tool Technician
- Stainless Steel Welding
- Welding

APPRENTICESHIP OPPORTUNITIES

- Maintenance Technician Apprenticeship
- Millwright Apprenticeship

SAMPLE FULL-TIME CURRICULUM OPTION

Term		15 credits
10462102	Bearings & Lubrication Systems	2
10462132	Machine Shop Fundamentals	3
10605105	Electrical Circuits I	3
10801136	English Composition 1	3
10804118	Intermediate Algebra with Applications	4

Term		15 credits
10462107	Industrial Safety	2
10462110	Material Handling	2
10605117	Automation 1 - Beginning PLC	3
10623106	Intro to AutoCAD	1
10623114	Intro to Inventor	1
10801196	Oral/Interpersonal Communication -or-	
10801198	Speech	3
10804196	Trigonometry with Applications	3

Term		15 credits
10442117	Welding Fundamentals 1	1
10442118	Welding Fundamentals 2	1
10462104	Fluid Process Systems	3
10462106	Mechanical Power Transmission	3
10462130	Industrial Electric Control Applications	2
10462131	Industrial Electric Power Applications	2
10809188	Developmental Psychology -or-	
10809198	Intro to Psychology	3

Term		15 credits
10442119	Fabrication Fundamentals 1	1
10442120	Fabrication Fundamentals 2	1
10462120	Industrial Hydraulics & Pneumatics	3
10605118	Automation 2 - Advanced PLC	3
10806154	General Physics 1	4
10809166	Intro to Ethics: Theory & Application	3

Total credits 60

Please Note:

- This curriculum sequence is only for student planning. Actual student schedules will vary depending on course availability.
- Program completion time may vary based on student scheduling and course availability. For details, go to mstc.edu/classfinder.

SAMPLE PART-TIME CURRICULUM OPTION

Term		9 credits
10462102	Bearings & Lubrication Systems	2
10462132	Machine Shop Fundamentals	3
10804118	Intermediate Algebra with Applications	4

Term		7 credits
10462107	Industrial Safety	2
10462110	Material Handling	2
10804196	Trigonometry with Applications	3

Term		8 credits
10442117	Welding Fundamentals 1	1
10442118	Welding Fundamentals 2	1
10605105	Electrical Circuits I	3
10801136	English Composition 1	3

Term		8 credits
10605117	Automation 1 - Beginning PLC	3
10623106	Intro to AutoCAD	1
10623114	Intro to Inventor	1
10801196	Oral/Interpersonal Communication -or-	
10801198	Speech	3

Term		7 credits
10462106	Mechanical Power Transmission	3
10462130	Industrial Electric Control Applications	2
10462131	Industrial Electric Power Applications	2

Term		6 credits
10442119	Fabrication Fundamentals 1	1
10442120	Fabrication Fundamentals 2	1
10806154	General Physics 1	4

Term		6 credits
10462104	Fluid Process Systems	3
10809188	Developmental Psychology -or-	
10809198	Intro to Psychology	3

Term		9 credits
10462120	Industrial Hydraulics & Pneumatics	3
10605118	Automation 2 - Advanced PLC	3
10809166	Intro to Ethics: Theory & Application	3

Total credits 60

course descriptions

Automation 1 - Beginning PLC

106051173 credits

An overview of programmable logic controllers (PLCs) that provides a foundation of knowledge of the programming techniques, operation, and maintenance of PLCs used in typical industrial automation.

Automation 2 - Advanced PLC

106051183 credits

A lab intensive course covering advanced PLC topics and programming techniques, analog I/O, VFDs, basic HMI interfaces, industrial robotics and troubleshooting.

Prerequisite: Automation 1 - Beginning PLC 10605117 or consent of instructor

Bearings & Lubrication Systems

104621022 credits

Students are presented with information pertaining to the basic functions of bearing surfaces, bearing inspections, analysis of bearing failures and the importance of preventative maintenance.

Developmental Psychology

108091883 credits

Studies human development throughout the lifespan and explores developmental theory and research with an emphasis on the interactive nature of the biological, cognitive, and psychosocial changes that affect the individual from conception to death. Application activities and critical thinking skills enable students to gain an increased knowledge and understanding of themselves and others.

Prerequisite: High School GPA of 3.0 or Accuplacer Reading Skills of 236, Writing of 237 or ACT of 15 Reading/16 Writing. Students are encouraged to bring transcripts for further evaluation if they do not meet these requirements.

Electrical Circuits I

106051053 credits

An introduction to AC/DC electricity and the physical laws that apply to electronic circuits. Direct current (DC) covers basic definitions of voltage, current, and resistance and analysis of series and parallel resistive circuits. Alternating current (AC) includes an introduction to AC generation, capacitors, inductors, and transformers and their applications in electronic circuits. Approximately 50 percent of the course is spent in the laboratory applying the principles and theory presented in the classroom.

Corequisite: Intermediate Algebra with Applications 10804118

English Composition 1

108011363 credits

Designed for learners to develop knowledge and skills in all aspects of the writing process. Planning, organizing, writing, editing, and revising are applied through a variety of activities. Students analyze audience and purpose, use elements of research, and format documents using standard guidelines. Individuals develop critical reading skills through analysis of various written documents.

Prerequisite: High School GPA of 3.0 or Accuplacer Writing of 262 or ACT of 20 or Intro to College Writing 10-831-103 with a grade of "C" or better or equivalent. Students are encouraged to bring transcripts for further evaluation if they do not meet these requirements. Proficiency in word processing skills recommended.

Fabrication Fundamentals 1

104421191 credit

An introduction to structural shapes and sheet metal fabrication. Presents fabrication techniques, metal selection, and layout, cutting, bending, drilling, threading, and joining using manual equipment and techniques. Information is presented to the student and followed up with lab activities to provide a hands-on experience. Emphasizes developing an understanding of the tools, techniques, safe work habits, and application of sheet metal fabrication skills.

Corequisite: Welding Fundamentals 1 10442117 or Intro to Welding 10442100

Fabrication Fundamentals 2

104421201 credit

An introduction to plate steel and heavy fabrication. Presents fabrication techniques using heavy fabrication equipment. CNC Cutting, Plate and Tube bending, Sawing and Shearing equipment will be presented and followed up with lab activities to provide a hands-on experience. Emphasizes developing an understanding of the equipment, techniques, safe work habits, and application of heavy metal fabrication skills.

Fluid Process Systems

104621043 credits

Provides a "hands-on" approach to the study of fluid handling systems. A wide variety of system components, including pumps, piping, seals and packing, flow control devices, flow measuring devices, and pressure vessels, are studied. System design considerations for fluid media temperature, pressure, specific gravity, viscosity, solids concentrations, and volume requirements are analyzed. An introduction to refrigeration and air conditioning provides the student with a basic understanding of these systems.

General Physics 1

108061544 credits

Presents the applications and theory of basic physics principles. This course emphasizes problem solving, laboratory investigation, and applications. Topics include unit conversion and analysis, vectors, translational and rotational kinematics, translational and rotational dynamics, heat and temperature, and harmonic motion and waves.

Corequisite: Trigonometry with Applications 10804196

Industrial Electric Control Applications

104621302 credits

Introduces the fundamentals of industrial motor controls, relay logic, ladder diagrams, industrial automation, and integrated manufacturing systems. The purpose of the course is to familiarize students with the terminology, capabilities, applications, and limitations of automated industrial controls through classroom and lab activities.

Prerequisite: Electrical Circuits 1 10605105

Industrial Electric Power Applications

104621312 credits

Introduces concepts and applications of typical 3-phase power systems used in industry with focus on selection of overload devices, fuse sizing, wire selection, electrical motor theory and applications, and introduction to variable frequency drives through lecture and lab activities.
Corequisite: Industrial Electric Control Applications 10462130

Industrial Hydraulics & Pneumatics

104621203 credits

Studies basic principles of hydraulics and pneumatics. Covers the advantages, disadvantages, and inherent problems with these systems. Includes the principles of operation and the constructional features of pumps, motors, valves, seals, packing, and conductors as well as the physical properties of liquids. Students learn to identify various parts of a circuit and analyze them for their use.
Prerequisite: Intermediate Algebra with Applications 10804118

Industrial Safety

104621072 credits

Provides an overview of safety, health, and environmental issues as they relate to industry. Various types of hazards and the controls and equipment used to reduce risks from hazards are discussed. Focuses on understanding the Occupational Safety and Health Administration (OSHA) and its function as well as other regulatory and enforcement agencies associated with industrial safety, health, and the environment.

Intermediate Algebra with Applications

10804118 4 credits

This course offers algebra content with applications. Topics include properties of real numbers; order of operations; algebraic solution for linear equations and inequalities; operations with polynomial and rational expressions; operations with rational exponents and radicals; and algebra of inverse, logarithmic, and exponential functions.
Prerequisite: High School GPA of 3.0 or Accuplacer Arithmetic of 263 and QAS 234 or ACT of 19 or QAS of 245, or Pre-Algebra 10834109 with a grade of "C" or better or equivalent. Students are encouraged to bring transcripts for further evaluation if they do not meet these requirements.

Intro to AutoCAD

10623106 1 credit

This introductory course in computer-aided drafting (CAD) using AutoCAD software provides foundation skills in using CAD software to create and print two-dimensional technical drawings. This course is available to students in any program. Computer skills and prior knowledge of drawing/drafting techniques is recommended.

Intro to Ethics: Theory & Application

108091663 credits

Provides a basic understanding of the theoretical foundations of ethical thought. Diverse ethical perspectives are used to analyze and compare relevant issues. Students critically evaluate individual, social, and/or professional standards of behavior, and apply a systemic decision-making process to these situations.
Prerequisite: High School GPA of 3.0 or Accuplacer Reading Skills of 236, Writing of 237 or ACT of 15 Reading/16 Writing. Students are encouraged to bring transcripts for further evaluation if they do not meet these requirements.

Intro to Inventor

10623114 1 credit

This course is an introduction to Inventor by AutoDesk. Students will learn how to create 3D models of basic objects, add dimensioning, and generate multiview projections.
Corequisite: Intro to AutoCAD 10623106

Intro to Psychology

108091983 credits

This introductory course surveys the multiple aspects of human behavior. It involves a survey of the theoretical foundations of human functioning in such areas as learning, motivation, emotions, personality, deviance and pathology, physiological factors, and social influences. It directs the student to an insightful understanding of the complexities of human relationships in personal, social, and vocational settings.
Prerequisite: High School GPA of 3.0 or Accuplacer Reading Skills of 236, Writing of 237 or ACT of 15 Reading/16 Writing. Students are encouraged to bring transcripts for further evaluation if they do not meet these requirements.

Machine Shop Fundamentals

104621323 credits

Students participating in this class will be introduced to common machine tools and their functions. Classroom activities and hands-on lab exercises will be used to introduce participants to some of the most common applications in machining. Lab activities will introduce students to shop safety and identification of machine tools. Students will also gain understanding of the basic processes performed with different machine tools and basic machine set up and operations.

Material Handling

104621102 credits

Introduces the concepts and equipment that transport solid materials in the industrial production process. Various types of equipment, including rigging, cranes, mechanical conveyors, pneumatic conveyors, elevators, and lift trucks, are discussed. Practical applications and use guidelines are presented to promote the safe and efficient use of this type of material handling equipment.

Mechanical Power Transmission

104621063 credits

A study of the systems and components that transmit power from the prime mover through the system. Gear trains, linkages, clutches, couplings, and flexible drives are evaluated mathematically in lab situations.

Oral/Interpersonal Communication

108011963 credits

Focuses upon developing speaking, verbal, and non-verbal communication, and listening skills through individual presentations, group activities, and other projects.

Prerequisite: High School GPA of 3.0 or Accuplacer Reading Skills of 236, Writing of 237, or ACT of 15 Reading/16 Writing. Students are encouraged to bring transcripts for further evaluation if they do not meet these requirements.

Speech

108011983 credits

Explores the fundamentals of effective oral presentation to small and large groups. Topic selection, audience analysis, methods of organization, research, structuring evidence and support, delivery techniques, and other essential elements of speaking successfully, including the listening process, form the basis of this course. Bring transcripts for further evaluation if they do not meet these requirements.

Prerequisite: High School GPA of 3.0 or Accuplacer Reading of 253, Writing of 262, or ACT of 21 Reading/19 Writing, or completion of Intro to College Writing and/or Intro to College Reading with a "C" or better or equivalent. Students are encouraged to bring transcripts for further evaluation if they do not meet these requirements.

Trigonometry with Applications

108041963 credits

Topics include circular functions, graphing of trigonometry functions, identities, equations, trigonometric functions of angles, inverse functions, solutions of triangles, complex numbers, DeMoivre's Theorem, polar coordinates, and vectors.

Prerequisite: Intermediate Algebra with Applications 10804118 with a grade of "C" or better. Students without Intermediate Algebra with Applications are encouraged to bring transcripts for individual course evaluation.

Welding Fundamentals 1

10442117 1 credit

An introduction to fundamental welding techniques with an emphasis on safe work habits that covers the processes of SMAW, GMAW, and OXY-Fuel cutting. Classroom instruction paired with lab activities are designed to provide fundamental skills in each of the welding processes covered in the class.

Welding Fundamentals 2

10442118 1 credit

An introduction to fundamental welding techniques with an emphasis on safe work habits that covers the processes of GTAW, FCAW and Plasma cutting. Classroom instruction paired with lab activities are designed to provide fundamental skills in each of the welding processes covered in the class.

Corequisite: Welding Fundamentals 1 10462117