

manufacturing operations management

Associate in Applied Science (AAS) Program Code: 10-196-5 Total Credits: 60-61

The Manufacturing Operations Management program is designed to help those with some prior experience in manufacturing advance into management positions. Graduates are prepared to supervise and coordinate the activities of production and operating workers, such as inspectors, precision workers, machine setters and operators, assemblers, fabricators, and plant and system operators. Supply chain, automation, quality, lean leadership, and supervisory skills are all emphasized along with creative problem solving and team building. Students in the program will have opportunities to explore manufacturing facilities where they will analyze manufacturing operations, identify process efficiencies, and identify management strategies leading to quality production and processing.

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
Student Services Assistant
1001 Centerpoint Drive
Stevens Point, WI 54481
- Other: _____

mstc.edu
888.575.6782
TTY: 711



ADAMS CAMPUS
401 North Main
Adams, WI 53910

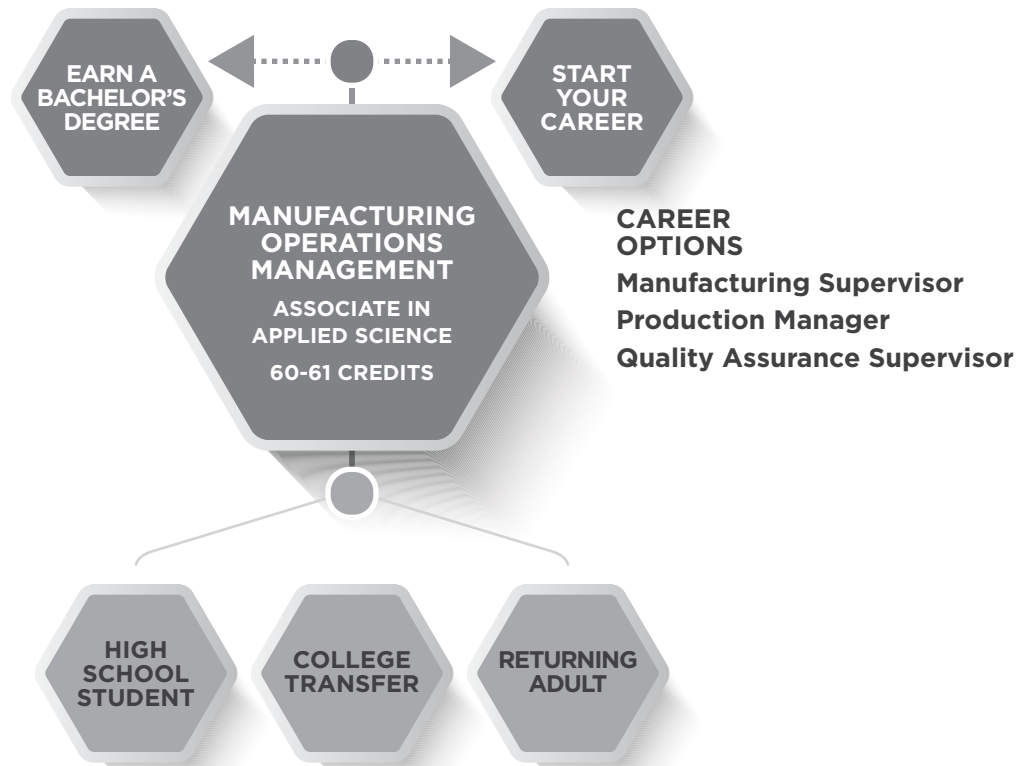
MARSHFIELD CAMPUS
2600 West 5th Street
Marshfield, WI 54449

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

- Industrial Mechanical Technician
- Machine Tool Technician
- Stainless Steel Welding
- Welding

PROGRAM OUTCOMES

Employers will expect you, as a Manufacturing Operations Management graduate, to be able to:

- Organize resources to achieve the goals of the organization.
- Direct individuals and/or processes to meet organizational goals.
- Implement safe work practices.
- Design, implement, and evaluate industrial processes.
- Apply leadership skills and tools to facilitate problem solving.
- Develop and maintain a continuous improvement environment.

TECHNICAL SKILLS ATTAINMENT

The Wisconsin Technical College System (WTCS) has implemented a requirement that all technical colleges measure program outcomes attained by students. This requirement is called Technical Skills Attainment (TSA). The main objective of TSA is to ensure graduates have the technical skills needed by employers. Students are notified of TSA reporting in their final few courses of the program.

NOTES:

STUDENT HANDBOOK

Visit mstc.edu/studenthandbook to view Mid-State’s student handbook, which contains information about admissions, enrollment, appeals processes, services for people with disabilities, financial aid, graduation, privacy, Mid-State’s Student Code of Conduct, and technology.

GRADUATION REQUIREMENT

The GPS for Student Success course is required for all Mid-State program students and is recommended to be completed before obtaining 12 credits. (Not counted in the total credit value for this program.) Some students are exempt from this requirement. Please see your program advisor for more information.

GPS for Student Success

10890102 1 credit
Integrate necessary skills for student success by developing an academic plan, identifying interpersonal attributes for success, adopting efficient and effective learning strategies, and utilizing Mid-State resources, policies, and processes. This course must be completed prior to obtaining 12 credits and is a graduation requirement.

ADDITIONAL COURSES AS NEEDED

The following courses may be recommended or required if the student does not achieve minimum Accuplacer scores.

Intro to College Reading

10838104 2 credits
Provides learners with the opportunities to develop and expand reading skills, including comprehension and vocabulary skills. Learners apply reading skills to academic tasks and read to acquire information from a variety of sources.

Intro to College Writing

10831103 3 credits
Introduces basic principles of composition, including organization, development, unity, and coherence in paragraphs and multi-paragraph documents. The purpose of this course is to prepare students for successful entry into required program courses. This course is tuition bearing and under certain circumstances may qualify for financial aid. This course cannot be used to satisfy program completion requirements at Mid-State.
Prerequisite: Accuplacer Sentence Skills score of 60 or equivalent. Proficiency in word processing skills recommended.

Pre-Algebra

10834109 3 credits
Provides an introduction to algebra. Includes operations on real numbers, solving linear equations, percent and proportion, and an introduction to polynomials and statistics. Prepares students for elementary algebra and subsequent algebra-related courses.
Prerequisite: Accuplacer Math score of 65, Accuplacer Algebra score of 30, ABE Math Prep V 76854785 and ABE Math Prep VI 76854786 with a grade of “S.” (Note: ABE Math Prep V and VI courses cannot be used to satisfy program completion requirements at Mid-State.)

SAMPLE FULL-TIME CURRICULUM OPTION

Term		15-16 credits
10196189	Team Building & Problem Solving	3
10196191	Supervision	3
10462107	Industrial Safety	2
10623114	Intro to Inventor	1
10801136	English Composition 1	3
10804107	College Mathematics	3
	-or-	
10804118	Intermediate Algebra with Applications	4
	-or-	
10804189	Introductory Statistics	3
Term		15 credits
10102110	Employment Law	3
10102121	Finance and Budgeting	3
10103123	Excel-Beginning	1
10623112	Manufacturing Practices	2
10801196	Oral/Interpersonal Communication -or-	
10801198	Speech	3
10809166	Intro to Ethics: Theory & Application	3
Term		15 credits
10196190	Leadership Development	3
10196193	Human Resource Management	3
10605117	Automation 1 - Beginning PLC	3
10623169	Manufacturing Operations Management Internship	3
10809188	Developmental Psychology -or-	
10809198	Intro to Psychology	3
Term		15 credits
10102131	Entrepreneurial Management	3
10196192	Managing for Quality	3
10623132	Project Management for Manufacturing	3
10623171	Lean Six Sigma	3
10809172	Introduction to Diversity Studies	3
		Total credits 60-61

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		6 credits
10462107	Industrial Safety	2
10623114	Intro to Inventor	1
10801136	English Composition 1	3
Term		7-8 credits
10103123	Excel-Beginning	1
10804107	College Mathematics	3
	-or-	
10804118	Intermediate Algebra with Applications	4
	-or-	
10804189	Introductory Statistics	3
10809166	Intro to Ethics: Theory & Application	3
Term		8 credits
10102121	Finance and Budgeting	3
10196191	Supervision	3
10623112	Manufacturing Practices	2
Term		9 credits
10102110	Employment Law	3
10196189	Team Building & Problem Solving	3
10801196	Oral/Interpersonal Communication -or-	
10801198	Speech	3
Term		6 credits
10196190	Leadership Development	3
10809188	Developmental Psychology -or-	
10809198	Intro to Psychology	3
Term		9 credits
10196192	Managing for Quality	3
10196193	Human Resource Management	3
10809172	Introduction to Diversity Studies	3
Term		6 credits
10605117	Automation 1 - Beginning PLC	3
10623169	Manufacturing Operations Management Internship	3
Term		9 credits
10102131	Entrepreneurial Management	3
10623132	Project Management for Manufacturing	3
10623171	Lean Six Sigma	3
		Total credits 60-61

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.

College Mathematics

108041073 credits

Designed to review and develop fundamental concepts of mathematics pertinent to the areas of: 1) arithmetic and algebra; 2) geometry and trigonometry; and 3) probability and statistics. Special emphasis is placed on problem solving, critical thinking and logical reasoning, making connections, and using calculators. Topics include performing arithmetic operations and simplifying algebraic expressions, solving linear equations and inequalities in one variable, solving proportions and incorporating percent applications, manipulating formulas, solving and graphing systems of linear equations and inequalities in two variables, finding areas and volumes of geometric figures, applying similar and congruent triangles, converting measurements within and between US and metric systems, applying Pythagorean Theorem, solving right and oblique triangles, calculating probabilities, organizing data and interpreting charts, calculating central and spread measures, and summarizing and analyzing data.

Prerequisite: High School GPA of 3.0 or Accuplacer Arithmetic of 250 and QAS 234 or ACT of 17 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.

Developmental Psychology

10809188.....3 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.

Employment Law

10102110.....3 credits

Introduces a broad scope of employment laws and provides the opportunity to apply these laws to the employment arena. Includes laws relating to anti-discrimination, including the Civil Rights Act, ADEA, and ADA; wage and hour regulation, including FLSA; employer-provided pensions, including ERISA; health insurance, including COBRA and ACA; and unemployment and worker's compensation insurance.

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 10831103 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.

Entrepreneurial Management

101021313 credits

Introduces students to the concept of entrepreneurship. Learners study entrepreneurial practices primarily by developing a business plan for a venture of their choice. This includes comparing ways of going into business as well as developing marketing, legal, financial, products/ services, management, and operations plans for a small business of their choice. Entrepreneurial behavior within companies is examined.

Prerequisite: Twelve Business Management 10-102 credits or twelve Supervisory Management 10-196 credits or a combination of Business Management 10-102 and Supervisory Management 10-196 credits that total twelve.

Excel-Beginning

10103123.....1 credit

Students learn to create, modify, and format spreadsheets, charts, and graphics. Students also learn to perform calculations and analysis on data.

Finance and Budgeting

101021213 credits

For the nonfinancial manager, this course introduces the language of accounting, finance, and budgeting. Provides an overview of the use and analysis of financial statements. Business planning and the foundations and development of budgets are explored. Business financing basics and the securing of necessary financing for a business are covered. Practical application of financial statement creation and analysis, budgetary activities, and finance calculations are included.

Human Resource Management

10196193.....3 credits

Applies skills and tools necessary to perform human resource functions in an organization. Each learner demonstrates skill in following EEOC laws; writing job descriptions; recruiting, selecting, and orienting employees; developing policies and procedures; developing and conducting training; designing performance appraisal plans; developing employee development plans; and selecting compensation and benefit strategies.

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 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

Learners will create 3D models in Inventor using a variety of feature and modify tools, analyze the volume of the models, and apply a material to determine weight of the finished product. Learners will generate 2D representations of the 3D model in appropriate views, and add dimensions and annotations before formatting drawings to print out. Prior experience with computers is recommended.

Intro to Psychology

108091983 credits

This science of psychology course is a survey of multiple aspects of behavior and mental processes. It provides an overview of topics such as research methods, theoretical perspectives, learning, cognition, memory, motivation, emotions, personality, abnormal psychology, physiological factors, social influences, and development.

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.

Introduction to Diversity Studies

10809172.....3 credits

Introduces learners to the study of diversity from a local to a global environment using a holistic, interdisciplinary approach. Encourages self-exploration and prepares the learner to work in a diverse environment. In addition to an analysis of majority/minority relations in a multicultural context, the primary topics of race, ethnicity, age, gender, class, sexual orientation, disability, and religion are explored. *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.*

Introductory Statistics

108041893 credits

Students taking Introductory Statistics display data with graphs, describe distributions with numbers, perform correlation and regression analyses, and design experiments. They use probability and distributions to make predictions, estimate parameters, and test hypotheses. They draw inferences about relationships including ANOVA. Algebra knowledge and foundational skills in mathematics are important for success in this course.

Prerequisite: High School GPA of 3.0 or Accuplacer QAS 241 or ACT of 19 or Pre-Algebra 10834109 with a grade of "C" or better or College Math 10804107 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.

Leadership Development

101961903 credits

Applies skills and tools necessary to fulfill his/her role as a modern leader. Each learner evaluates personal leadership effectiveness, use individual and group motivation strategies, implement mission and goals, demonstrate ethical behavior, adapt personal leadership style to worker readiness, use power, facilitate employee development, coach, manage change, and resolve conflict.

Lean Six Sigma

10623171.....3 credits

Learners will examine multiple problem solving and continuous improvement models. Learners will utilize reporting methods to identify the current process condition, identify improvement goals, establish root causes, specify improvement activities, and confirm results. Learners will utilize SPC (Statistical Process Control) tools and selected quality management tools in the improvement process.

Prerequisite: Admission to Manufacturing Operations Management program 101965 or Leadership Development program 101961

Managing for Quality

10196192.....3 credits

Apply skills and tools necessary to implement and maintain a continuous improvement environment. Each learner will demonstrate the application of a personal philosophy of quality, identify stakeholder relationships, identify ways to meet/exceed customer expectations, apply a systems-focused approach, use quality models and tools, manage a quality improvement project, and measure effectiveness of continuous improvement activities.

Manufacturing Operations Management Internship

10623169.....3 credits

This internship provides students with practical knowledge and experience in the manufacturing industry through the lens of supervisors and managers. Integrating the theories and techniques learned in previous courses with specific off-campus occupational experiences at selected training sites allows students to gain a real-world perspective of this segment of the manufacturing industry.

Manufacturing Practices

10623112.....2 credits

As competition for market share continues to increase, manufacturers rely on innovations in technology, methods, and practices to give them the edge they need. To remain competitive globally, the watchwords are productivity, efficiency, and quality. In this course, students examine some of the practices that many manufacturing operations have come to rely on to make their operations competitive, efficient, and cost-effective. Topics covered in this class include the principles of lean manufacturing, value versus non-value added waste, 5S methodology, value stream mapping, setup reduction and quick changeover, cellular flow, building a lean culture, total productive maintenance, and statistical process control (SPC).

Oral/Interpersonal Communication

10801196.....3 credits

Focuses on developing effective listening techniques and verbal and nonverbal communication skills through oral presentation, group activity, and other projects. The study of self, conflict, and cultural contexts will be explored, as well as their impact on communication.

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.

Project Management for Manufacturing

10623132.....3 credits

Offers a systematic approach to coordinating, scheduling, and controlling activities, people, and resources during short-term and long-term projects. Some of the tools presented include Work Breakdown Structures, Activity Diagrams, and Gantt Charts.

Speech

10801198.....3 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.

Pre-requisite: 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.

Supervision

10196191.....3 credits

Applies skills and tools necessary to perform the functions of a contemporary frontline leader. Students engage in operational planning, analyze organizational structures, review the staffing process, employ techniques to enhance employee personal and group effectiveness, and develop control techniques to measure effectiveness in the above areas.

Team Building & Problem Solving

10196189.....3 credits

Applies skills and tools necessary to facilitate problem solving in a team environment. Each learner assumes the roles and responsibilities of team leadership in the stages of team development, uses a systematic problem-solving process, and employs consensus-building and conflict-management strategies.