***Twin Cities Campus***

# Manufacturing Operations Management B.A.Sc.

*CCAPS Applied Professional Studies*

**College of Continuing and Professional Studies**

- **Students will no longer be accepted into this program after Summer 2020. Program requirements below are for current students only.**
- **Beginning Fall Semester 2020, admission to the Manufacturing Operations Management major will be discontinued.**

- Program Type: Baccalaureate
- Requirements for this program are current for Spring 2021
- Required credits to graduate with this degree: 120
- Required credits within the major: 77 to 82
- Degree: Bachelor of Applied Science

Manufacturing operations management (MM) is the study and application of methods to improve manufacturing operations and productivity to enhance a company's competitiveness in the global arena. The curriculum combines a strong foundation in manufacturing systems and processes, supply chain/quality/project, and operations management. Graduates are prepared to work as production supervisors, materials managers, manufacturing managers, production planners, project leaders, lead technicians, order process analysts, and business analysts. The MM major is offered in close collaboration with Minnesota manufacturing professionals.

## Program Delivery

This program is available:

- partially online (between 50% to 80% of instruction is online)

## Admission Requirements

Students must complete 45 credits before admission to the program.

A GPA above 2.0 is preferred for the following:

- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

Students who have 30 transferable semester credits, preferred minimum 2.50 GPA, and a strong interest in the major may be admitted to pre-major status.

Each application for admission is individually reviewed in a holistic context.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

**Required prerequisites**

**Courses**

**Mathematics**

MATH 1042 - Mathematics of Design [MATH] (4.0 cr)
*or* MATH 1142 - Short Calculus [MATH] (4.0 cr)
*or* MATH 1271 - Calculus I [MATH] (4.0 cr)
*or* MATH 1571H - Honors Calculus I [MATH] (4.0 cr)

**Physics**

PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
*or* PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
*or* PHYS 1107 - Introductory Physics Online I [PHYS] (4.0 cr)
*or* PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)

**Chemistry**

CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
*or* CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)

## General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements.Required courses for the major or minor in

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which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

## Program Requirements

**Preparatory Courses**

WRIT 1301 or WRIT 1401 recommended for Freshman Composition

**Accounting**

ACCT 2051 - Introduction to Financial Reporting (4.0 cr)
*or* APEC 1251 - Principles of Accounting (3.0 cr)

**Oral Communication**

COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
*or* COMM 1101H - Honors: Introduction to Public Speaking [CIV] (3.0 cr)
*or* COMM 1313W - Analysis of Argument [WI] (3.0 cr)
*or* COMM 3402 - Introduction to Interpersonal Communication (3.0 cr)
*or* COMM 3411 - Introduction to Small Group Communication (3.0 cr)
*or* COMM 3605W - Persuasive Speaking and Speech Writing [WI] (3.0 cr)
*or* WRIT 3257 - Technical and Professional Presentations (3.0 cr)

**Economics**

APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
*or* APEC 1101H - Principles of Microeconomics [SOCS, GP] (4.0 cr)
*or* APEC 1102 - Principles of Macroeconomics (3.0 cr)
*or* ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
*or* ECON 1102 - Principles of Macroeconomics (4.0 cr)

**Statistics**

STAT 1001 - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
*or* STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
*or* BA 2551 - Business Statistics in R [MATH] (4.0 cr)

**Technical Writing**

One technical writing course or writing intensive science course.
PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
*or* PHYS 1102W - Introductory College Physics II [PHYS, WI] (4.0 cr)
*or* PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
*or* PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
*or* WRIT 1001 - The Art of Explaining Things: Introduction to Technical Writing and Communication (3.0 cr)
*or* WRIT 3152W - Writing on Issues of Science and Technology [WI] (3.0 cr)
*or* WRIT 3257 - Technical and Professional Presentations (3.0 cr)
*or* WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

**Major Courses**

Students must complete the MM 4596-Internship if MM 4193-Capstone-Directed Study is not taken. MM 4596 and MM 4193 are are considered equivalent in terms of time and effort.
MM 3001W - Manufacturing in the Global Economy [WI] (3.0 cr)
MM 3205 - Engineering for Manufacturing Operations (3.0 cr)
MM 4011 - Virtual Reality and Simulation in Manufacturing (3.0 cr)
MM 4012 - Advanced Manufacturing: Applied Process and Technology (3.0 cr)
MM 4035 - Global Supply Chain Management (3.0 cr)
MM 4039 - The Science of Sourcing:  Partnerships for Success (3.0 cr)
MM 4045 - The Product Life Cycle in a Regulated Industry (3.0 cr)
MM 4102 - Optimizing Operations Management (3.0 cr)
MM 4201 - Quality Engineering and Management (3.0 cr)
MM 4311 - Sustainable Lean Manufacturing: Eliminating the Waste (3.0 cr)
ABUS 4022W - Management in Organizations [WI] (3.0 cr)
ABUS 4023W - Communicating for Results [WI] (3.0 cr)
ABUS 4043 - Project Management in Practice (3.0 cr)
ABUS 4101 - Accounting and Finance for Managers (3.0 cr)
MM 4596 - Internship (1.0 cr)
*or* MM 4193 - Capstone Directed Study (3.0 cr)

**Elective Courses**

Other related 3xxx or 4xxx courses may be substituted with department approval.
Take 6 or more  credit(s)  from the following:
•ABUS 3029W - Writing Workshop for Applied & Professional Studies Majors [WI] (2.0 cr)
•ABUS 3051 - Career Search for the Professional Environment (2.0 cr)
•ABUS 3510 - Communicating Virtually Across Global Teams in Applied Business Settings (4.0 cr)
•ABUS 4012 *{Inactive}*(3.0 cr)
•ABUS 4013W - Legal, Ethical, and Risk Issues for Managers [WI] (3.0 cr)

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•ABUS 4041 - Dynamics of Leadership (3.0 cr)
•ABUS 4151 - Innovation for Leaders and Organizations (3.0 cr)
•ABUS 4501 - Building and Running a Small Business Enterprise (4.0 cr)
•ABUS 4509 - New Product Development (3.0 cr)
•ABUS 4515 - Strategy and Management for a Sustainable Future (3.0 cr)
•ABUS 4701 - Introduction to Marketing (3.0 cr)
•HSM 4541 - Health Care Finance (3.0 cr)
•HSM 4561W - Health Care Administration and Management [WI] (3.0 cr)
•MM 3305 - Advanced 3D Printing for Innovative Business Practices (3.0 cr)
•PHAR 3700 - Fundamentals of Pharmacotherapy (3.0 cr)

**Upper Division Writing Intensive within the Major**

Subgroup Description: Students are required to take one upper division writing intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other requirements.

Take 0 - 1 course(s) from the following:

•ABUS 4013W - Legal, Ethical, and Risk Issues for Managers [WI] (3.0 cr)
•ABUS 4022W - Management in Organizations [WI] (3.0 cr)
•ABUS 4023W - Communicating for Results [WI] (3.0 cr)
•COMM 3605W - Persuasive Speaking and Speech Writing [WI] (3.0 cr)
•HSM 4561W - Health Care Administration and Management [WI] (3.0 cr)
•MM 3001W - Manufacturing in the Global Economy [WI] (3.0 cr)
•WRIT 3152W - Writing on Issues of Science and Technology [WI] (3.0 cr)
•WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

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