

MINNESOTA STATE COLLEGES AND
UNIVERSITIES*
ARTICULATION AGREEMENT
BETWEEN

NORMANDEALE COMMUNITY COLLEGE
AND
MINNESOTA STATE UNIVERSITY MOORHEAD

*The Board of Trustees of the Minnesota State Colleges and Universities is authorized by Minnesota Statutes, Chapter 136F to enter into Agreements and has delegated this authority to colleges and universities.

This Agreement is entered into between **NORMANDEALE COMMUNITY COLLEGE** (hereinafter sending institution), and **MINNESOTA STATE UNIVERSITY MOORHEAD** (hereinafter receiving institution). This Agreement and any amendments and supplements, shall be interpreted pursuant to the laws of the State of Minnesota.

The sending institution has established a **VACUUM & THIN FILM TECHNOLOGY AAS**, (hereinafter sending program), and the receiving institution has established an **OPERATIONS MANAGEMENT EMPHASIS IN TECHNICAL MANAGEMENT BS** (hereinafter receiving program), and will facilitate credit transfer and provide a smooth transition from one related program to another. It is mutually agreed:

Admission and Graduation Requirements

- A. The receiving institution's admission and program admission requirements apply to both direct entry students and to students who transfer under this agreement.
- B. Students must fulfill the graduation requirements at both institutions.
- C. Students must complete the entire sending program and meet the receiving institution's admission requirements for the agreement to apply.

Transfer of Credits

- A. The receiving institution will accept **60 credits** from the sending program. A total of **60 credits** remain to complete the receiving program.
- B. Courses will transfer as described in the attached Program Articulation Table. For system institutions, once the courses are encoded, they will transfer as described in the Transferology Audit.

Implementation and Review

- A. The Chief Academic Officers or designees of the parties to this agreement will implement the terms of this agreement, including identifying and incorporating any changes into subsequent agreements, assuring compliance with system policy, procedure and guidelines, and conducting a periodic review of this agreement.
- B. This Articulation Agreement is effective on **07/01/2021** and shall remain in effect until the end date of **07/01/2026** or for five years, whichever occurs first, unless terminated or amended by either party with 90 days prior written notice.
- C. The college and university shall work with students to resolve the transfer of courses should changes to either program occur while the agreement is in effect.
- D. This Articulation Agreement will be reviewed by both parties beginning **01/01/2026** (within six months of the end date).
- E. When a student notifies the receiving institution of their intent to follow this agreement, the receiving institution will encode course waivers and substitutions.

PROGRAM ARTICULATION TABLE

	College (sending)	University (receiving)
Institution	Normandale Community College	Minnesota State University Moorhead
Program name	VACUUM & THIN FILM TECHNOLOGY	OPERATIONS MANAGEMENT
Award Type (e.g., AS)	AAS	BS
Credit Length	60	120
CIP code (6-digit)	15.0613	52.020500
Describe program admission requirements (if any)		AAS with 30+ prescribed technical credits, as prescribed by program's accrediting board, The Association of Technology, Management, and Applied Engineering (ATMAE)

Instructions

- List all required courses in both academic programs.
- MnTC goal areas transfer to the receiving institution according to the goal areas designated by the sending institution.
- Do not indicate a goal area for general education courses that are not part of the MnTC.
- For restricted or unrestricted electives, list number of credits.
- Credits applied: the receiving institution course credit amount may be more or less than the sending institution credit amount. Enter the number of credits that the receiving institution will apply toward degree completion.
- Show equivalent university-college courses on the same row to ensure accurate DARS encoding.
- Equiv/Sub/Wav column: If a course is to be encoded as equivalent, enter Equiv. If a course is to be accepted by the university as a "substitution" only for the purposes of this agreement, enter Sub. If a course requirement is waived by the receiving institution, enter Wav. If a course is to be accepted by the university as a MnTC goal area, restricted elective or unrestricted elective, leave the cell blank.

(To add rows, place cursor outside of the end of a row and press enter.)

SECTION A - Minnesota Transfer Curriculum-General Education

College (sending)			University (receiving)			
course prefix, number and name	Goal(s) ¹	Credits	course prefix, number and name	Goal(s) ¹	Credits Applied	Equiv Sub Wav
Minnesota Transfer Curriculum-General Education						
MATH 1100 College Algebra & Probability OR MATH 1400 Survey of Calculus	4	4	MATH 127 College Algebra OR MATH 229 Topics in Calculus	4	4	Equiv
MATH 1080 Intro to Statistics OR MATH 1090 STATWAY Statistics 2 OR MATH 1095 STATWAY Statistics: Accelerated	4	4	MATH 234 Intro Probability & Statistics	4	4	Equiv
CHEM 1020 Introductory Chemistry OR CHEM 1061 Principles of Chemistry 1	3 3	4 OR 5	CHEM 102 Environmental Chemistry CHEM 150/ 150L Gen Chemistry I/ Lab	3 3	4 OR 5	Equiv Equiv
COMM 1100 Intro Human Communication OR COMM 1111 Interpersonal Communication OR * <i>Recommended:</i> COMM 1101 Fundamentals of Public Speaking OR COMM 1121 Small Group Communication	1	3	MnTC Goal Area 1 MnTC Goal Area 1 <i>COMM 100 Speech Communication</i>	1	3	Equiv
ENGC 1101 Freshman Composition	1	4	ENGL 101 English Composition	1	4	Equiv
PHYS 1110 College Physics I	3	4	PHYS 160 College Physics I & Lab	3	4	Equiv
ENGC 2102 Business & Technical Writing	9	3	Goal Area 9	9	3	
**Additional course to reach 30 cr (if course fulfills a MnTC goal area.)		0 - 4	Goal Area 3, 5, or 9	3, 5, or 9	3	

¹ MnTC goal areas transfer to the receiving MnSCU college/university according to the goal areas designated by the sending college/university

<i>Recommended: ECON 2201 Principles of Microeconomics (3)</i>	(5, 9)	(3)	<i>ECON 202 Principles of Econ Microeconomics</i>	(5, 9)	(3)	<i>Equiv</i>
MnTC/General Education Total		27 - 30				

Special Notes, if any: If the MnTC goal areas are completed at Normandale, the MnTC/ LASC requirements at MSUM are satisfied. If MATH 1400 Survey of Calculus is completed, the MATH 127 College Algebra requirement at MSUM is waived. ** ECON 2201 is also a requirement of the Oper Mgmt major at MSUM.

SECTION B - Major, Emphasis, Restricted and Unrestricted Electives or Other

(pre-requisite courses, required core courses, required courses in an emphasis, or electives (restricted or general) within the major). Restricted electives (in Major) fulfill a specific requirement within a major. Example A: "Chose two of the following three courses;" Example B: A Biology degree may require 40 science credits (20 credits of required courses + 20 credits of listed related courses, such as botany, genetics, sociobiology, etc. which students can select).

Major, Emphasis, Restricted, Unrestricted Electives or Other Courses			
ENGT 1153 AC/DC Circuits	4	Technical Credits	30
ENGT 1184 Fluid Mechanics	3		
ENGT 1290 Measurement & Process Control	2		
ENGT 2188 Electronics & Automation	4		
VACT 1292 Intro to Vacuum Technology	2		
VACT 2293 Vacuum Analysis & Trouble Shooting	4		
VACT 2297 Thin Films Deposition	3		
Restricted Electives	8		
Additional course (If course is COMT 1107, CSCI 1101, ENGT 1511, ENGT 1512, ENGT 1513, or ENGT 1514)	0 - 3	Additional technical credit	0 - 3
Major, Emphasis, Unrestricted Electives Total	30 - 33	Total College Credits Applied (sum of sections A and B)	60

Special Notes: * This course is also a requirement for the Operations Management degree.

SECTION C - Remaining University (receiving) Requirements

	course prefix, number and name	Credits
	MnTC/ Gen Ed/ LASC Goal Areas*	12 - 15
	ACCT 230 Principles of Accounting I	3
	MGMT 260 Principles of Management	3
	OM 380 Methods Improvement	3
	OM 393 Occupational Safety & Health OR CM 365 Construction Safety	3
	OM 395 Computer Applications for Technologists	3
	OM 482 Quality Management	3
	OM 483 Cost Analysis	3
	OM 470 Purchasing & Sourcing Management	3
	OM 485 Production Inventory Management	3
	PMGT 300 Project Management & Scheduling	3
	PMGT 385 Process Leadership	3
	OM 469 Internship**	3
	General Electives***	9 - 12
	ECON 202 Principles of Economics I: Microeconomics (Goal Area 5)	(3)
	Total Remaining University Credits²	60

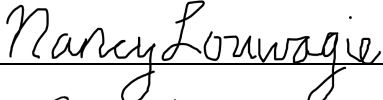


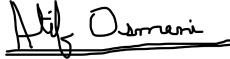



Special Notes: * Goal areas must be met and 42 MnTC/ LASC credits earned. ** This course equivalent may have been taken as an elective at Normandale. (See Section A.) ***Number of elective credits required to bring the total of credits earned to 120 varies. These should be upper division to meet the 40 upper division credit requirement for graduation.

SECTION D - Summary of Total Program Credits

College (sending) Credits		University (receiving) Requirements
MnTC/General Education	27 - 30	
Major, Emphasis, Unrestricted Electives or Other	30 - 33	

Total College Credits	60	Total College Credits Applied	60
		Remaining credit to be taken at the university (receiving institution)	60
		Total Program Credits	120

² At least 40 of the required credits for the baccalaureate degree shall be at the upper-division level. If a lower division course is shown as equivalent to an upper division course, check with the university to determine if it will count toward the 40 required credits of upper division.

College	Name	Signature	Date
Department Chairperson	Nancy Louwagie		7/7/2021
Dean of STEM	Cary Komoto		7/8/2021
Chief Academic Officer	Kristina Keller		7/8/2021
University	Name	Signature	Date
Department Chairperson	Atif Osmani		07/08/2021
Academic Dean	Josh Behl		7/12/2021
Chief Academic Officer	Arrick Jackson		07/22/2021
DARS Encoder	Jolene Richardson		7/22/2021
Date when equivalencies were verified/encoded in DARS by the receiving MnSCU institution.			