



Associate to Bachelors (A2B) Articulation Agreement

Prescribed Curriculum: Northern State University

Associate of Arts – General (Industrial Engineering Track)

General Education Courses			34 CREDIT HOURS
	Credit Hours	Course No.	Course Title or Category
Written Communication	3	ENGL 101	Composition I
	3	ENGL 201	Composition II
Oral Communication	3	CMST 215	Public Speaking (or CMST 101, or CMST 222)
Social Sciences	3	PSYC 101	General Psychology
Social Sciences	3	Select 1 Course From	SGR #3 list of approved courses
Arts/Humanities	6	Select 2 Course From	SGR #4 list of approved courses
Mathematics	4	MATH 123	Calculus I
Natural Sciences	4	CHEM 112/112L	General Chemistry I w/Lab
	5	PHYS 211/211L	University Physics I w/Lab

Required Courses			27 CREDIT HOURS
	Credit Hours	Course No.	Course Title
Math and Science	4	MATH 125	Calculus II
	4	MATH 225	Calculus III
	3	MATH 321	Differential Equations
	3	MATH 381	Introduction to Probability Theory and Statistics
	5	PHYS 213/213L	University Physics II w/Lab
Humanities/Soc Sci	3	Select 1 Course From	Upper Division Humanities or Social Sciences
Elective	3	BADM 350	Legal Environment of Business
Other	2	FYS190 (or IDL 190)	Seminar

Associate of Arts – General (Industrial) Total: 61 CREDIT HOURS

Post-Associate Degree Prescribed Curriculum: South Dakota Mines

Bachelor of Science – Industrial Engineering and Engineering Management

Major Required Courses		50 CREDIT HOURS	
	Credit Hours	Course No.	Course Title
Industrial Engineering	2	IENG 248/248L	Engineering Graphics and Computer Modeling w/Lab
	3	IENG 215	Cost Estimating for Engineers
	3	IENG 382	Probability Theory & Statistics II
	3	IENG 302	Engineering Economics
	3	IENG 311/311L	Work Methods and Measurements w/ Lab
	1	IENG 352	Creativity & Innovation
	1	IENG 354	Marketing Technology Innovations
	3	IENG 362	Stochastic Models
	3	IENG 486	Statistical Quality and Process Control
	3	IENG 321/321L	Ergonomics/Human Factors Engineering w/Lab
	1	IENG 355	Financing Technology Innovations
	3	IENG 441	Simulation
	3	IENG 425	Production and Operations Management
	3	IENG 464	Senior Design Project I
	3	IENG 471	Facilities Planning
	3	Select 1 Course From	IENG 331 or IENG 431
	3	IENG 366	Engineering Management
	3	IENG 465	Senior Design Project II
3	IENG 475	Computer-Controlled Manufacturing	

Other Required Courses		3 CREDIT HOURS	
	Credit Hours	Course No.	Course Title
Engineering Management	3	ENGM 435	Optimization Techniques

Elective Courses		16 CREDIT HOURS	
	Credit Hours	Course No.	Course Title
Electives	3	Select From	Department Electives approved list of courses
	4	Select From	Professional Electives approved list of courses
	9	Select From	Engineering Electives approved list of courses

Post-Associate Degree Total: 69 CREDIT HOURS

Bachelor of Science – Industrial Engineering and Engineering Management Total: 130 CREDIT HOURS

A2B Articulation Agreement Guarantees & Limitations

GUARANTEES

Students who:

1. complete the Associate of Arts - General degree prescribed curriculum at Northern State University exactly as it is identified in this articulation agreement, **and**
2. have the degree conferred on their education record at Northern State University (post high school graduation), **and**
3. earn a minimum cumulative grade point average (GPA) of 2.75 at the Northern State University, **and**
4. pass all 61 credits for the associate degree, earning a grade C- or higher in each course

are **guaranteed** the following at the South Dakota School of Mines and Technology (South Dakota Mines):

1. junior standing at South Dakota Mines with no more than 69 remaining credits to meet the graduation requirements for the Bachelor of Science degree in Industrial Engineering and Engineering Management.
2. admission to South Dakota Mines
3. admission to the Bachelor of Science degree in Industrial Engineering and Engineering Management.

LIMITATIONS

1. This agreement is between the Associate of Arts - General degree at Northern State University and the Bachelor of Science degree in Industrial Engineering and Engineering Management from the above list at South Dakota Mines only.
2. Students must meet all admission and application requirements at South Dakota Mines, including the submission of all required documentation by stated deadlines. Students are advised to contact the Office of Admissions at the South Dakota Mines early in their transfer planning.
3. Student must have a cumulative grade point average (GPA) at the Northern State University of 2.75 or higher **and** only courses with grades of C- or higher are guaranteed to be accepted in transfer by South Dakota Mines.
4. The credit and course transfer guarantees described in this agreement apply to the Associate of Arts degree at Northern State University and the Bachelor of Science degree in Industrial Engineering and Engineering Management at South Dakota Mines. If the student changes majors at Northern State University or at South Dakota Mines, the student is no longer covered by this Articulation Agreement and none of the Guarantees of the Agreement apply.
5. Students utilizing any form of transfer credit, including but not limited to credit awarded from other higher education institutions, standardized exam (CLEP, AP, DSST, etc.), prior learning assessment (military, certifications, ACE recommended credit, portfolio, challenge exam, work experience equivalent credit, etc.) to satisfy any Associate degree requirements will have those credits evaluated by South Dakota Mines. Should South Dakota Mines not accept the transfer credits accepted by Northern State University, the student will be required to make up the credit deficiency at South Dakota Mines.
6. No course substitutions are allowed for the courses listed in the Prescribed Curriculum for the associate degree at Northern State University.

A2B CONTACT INFORMATION

South Dakota Mines
Office of the Provost

Northern State University
College of Arts and Sciences


605.394.2256
Provost@sdsmt.edu

605.626.2602
Alyssa.Kiesow@northern.edu


RENEWAL, REVISION, and TERMINATION

1. This Associate to Bachelor Articulation Agreement (A2B) shall be in effect July 1 – June 30 each year and will automatically renew annually unless action is taken by South Dakota Mines or Northern State University to terminate or modify it.
2. The South Dakota Mines Office of the Provost and the Northern State University College of Arts and Sciences will collaborate to coordinate a review the content of the associate and bachelor degrees on a three-year cycle to ensure this A2B is still appropriate.
3. South Dakota Mines and the Northern State University each reserve the right to seek revision of this agreement at any time.
4. Revision of any content of the agreement (except Appendices content) will be approved by each institution and result in a new agreement being signed, with copies retained by each institution.
 - a. Revision to any Appendices will be communicated to each institution, but do not need to be approved by each institution and will not result in a new agreement being signed by each institution.
5. South Dakota Mines and the Northern State University each reserve the right to seek termination of this agreement at any time.
6. Should the agreement be terminated, each institution agrees to collaborate and engage in appropriate plans to notify and work with impacted students, providing a minimum one-year advance notice of termination.

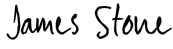
APPROVALS

DocuSigned by:

F8ACCB3DD0E4AF...
 Lance Roberts, Ph.D.
 Interim President
 South Dakota Mines

12/19/2024
Date


DocuSigned by:

EF05523E46BC452...
 Neal Schnoor, Ph.D.
 President
 Northern State University

12/18/2024
Date

DocuSigned by:

B77A8F3414264DA...
 James Stone, Ph.D.
 Interim Provost and Vice President for Academic Affairs
 South Dakota Mines

12/19/2024
Date

Provost

DocuSigned by:

E83CF78B3D56425...
 Michael Wanous, Ph.D.
 Northern State University

12/18/2024
Date

Signed by:

38931A170C614A0...
 Jeff Woldstad, Ph.D.
 Department Head

12/19/2024
Date

DocuSigned by:

C0A79D631554445...
 Alyssa Kiesow, Ph.D.
 Dean

12/18/2024
Date

South Dakota Mines

Northern State University

Appendix A: Course Sequence

Course Sequence: Northern State University

General (A.A.) Industrial Engineering Track – Option 1: Calculus I Ready

Semester	Course No.	Course Title	Credit Hours	Completed
Freshman Year FALL	IDL/FYS 190	Seminar	2	
	ENGL 101	Composition I	3	
	CHEM 112/L	General Chemistry w/ Lab	4	
	MATH 123	Calculus I	4	
	SGR #4	Humanities – Civics Course General Education (see SGR #4)	3	
Total Credits			16	

Semester	Course No.	Course Title	Credit Hours	Completed
Freshman Year SPRING	ENGL 201	Composition II	3	
	MATH 125	Calculus II	4	
	PSCY 101	General Psychology (SGR #3)	3	
	CMST 215	Public Speaking	3	
	SGR #4	Humanities General Education (see SGR #4)	3	
Total Credits			16	

Semester	Course No.	Course Title	Credit Hours	Completed
Sophomore Year FALL	SGR #3	Social Science General Education (see SGR #3)	3	
	MATH 225	Calculus III	4	
	MATH 321	Differential Equations	3	
	PHYS 211/L	University Physics I w/ Lab	5	
Total Credits			15	

Semester	Course No.	Course Title	Credit Hours	Completed
Sophomore Year SPRING	BADM 350	Legal Environment of Business	3	
	MATH 381	Introduction to Probability and Statistics	3	
	PHYS 213/L	University Physics II w/ Lab	5	
	Humanities/Social Sci	Upper Division Humanities or Social Science	3	
Total Credits			14	

General Education Coursework Total:	27 credit hours
Major and Elective Coursework Total:	34 credit hours
Northern State University Coursework Total:	61 CREDIT HOURS

Course Sequence: Northern State University

General (A.A.) Industrial Engineering Track – Option 2: College Algebra Ready

Semester	Course No.	Course Title	Credit Hours	Completed
Freshman Year FALL	MATH 114	College Algebra	3	
	IDL/FYS 190	Seminar	2	
	ENGL 101	Composition I	3	
	SGR #4	Humanities – Civics Course General Education (see SGR #4)	3	
	SGR #3	Social Science General Education (see SGR #3)	3	
Total Credits			14	

Semester	Course No.	Course Title	Credit Hours	Completed
Freshman Year SPRING	MATH 120	Trigonometry	3	
	ENGL 201	Composition II	3	
	PSCY 101	General Psychology (SGR #3)	3	
	CMST 215	Public Speaking	3	
Total Credits			12	

Semester	Course No.	Course Title	Credit Hours	Completed
Sophomore Year FALL	MATH 123	Calculus I	4	
	PHYS 211/L	University Physics I w/ Lab	5	
	CHEM 112/L	General Chemistry w/ Lab	4	
Total Credits			13	

Semester	Course No.	Course Title	Credit Hours	Completed
Sophomore Year SPRING	MATH 125	Calculus II	4	
	PHYS 213/L	University Physics II w/ Lab	5	
	MATH 381	Introduction to Probability and Statistics	3	
	SGR #4	Humanities General Education (see SGR #4)	3	
Total Credits			15	

Semester	Course No.	Course Title	Credit Hours	Completed
Sophomore Year FALL	MATH 225	Calculus III	4	
	MATH 321	Differential Equations	3	
	Humanities/Social Sci	Upper Division Humanities or Social Science	3	
	BADM 350	Legal Environment of Business	3	
Total Credits			13	

General Education Coursework Total: 27 credit hours

Major and Elective Coursework Total: 34 credit hours

Northern State University Coursework Total: 61 CREDIT HOURS

Course Sequence: South Dakota Mines – Fall Semester Start

Industrial Engineering and Engineering Management (B.S.)

Semester	Course No.	Course Title	Credit Hours	Completed
Junior Year First Semester - FALL	IENG 248/248L	Engineering Graphics and Computer Modeling w/ Lab	2	
	IENG 362	Stochastic Models	3	
	IENG 486	Statistical Quality & Process Control	3	
	IENG 311/311L	Work Methods & Measurements w/Lab	3	
	IENG 352	Creativity and Innovation	1	
Total Credits			12	

Semester	Course No.	Course Title	Credit Hours	Completed
Junior Year Second Semester - SPRING	IENG 215	Cost Estimating for Engineers	3	
	IENG 355	Financing Technology Innovations	1	
	IENG 441	Simulation	3	
	IENG 321/321L	Ergonomics/Human Factors Engineering w/ lab	3	
		Engineering Elective	3	
Total Credits			13	

Semester	Course No.	Course Title	Credit Hours	Completed
Senior Year First Semester - FALL	IENG 382	Introduction to Probability Theory & Statistics II	3	
	IENG 425	Production and Operations Management	3	
	IENG 464	Senior Design I	3	
	IENG 331	Safety Engineering	3	
	ENGM 435	Optimization Techniques	3	
Total Credits			15	

Semester	Course No.	Course Title	Credit Hours	Completed
Senior Year Second Semester - SPRING	IENG 366	Engineering Management	3	
	IENG 465	Senior Design II	3	
	IENG 475/475L	Computer-Controlled Manufacturing Systems & Robotics	3	
		Engineering Elective	3	
		Professional Elective	4	
Total Credits			16	

Semester	Course No.	Course Title	Credit Hours	Completed
Senior Year Third Semester - FALL	IENG 302	Engineering Economics	3	
	IENG 471	Facilities Planning	3	
	IENG 354	Marketing Technology Innovations	1	
		Department Approved Elective	3	
		Engineering Electives	3	
Total Credits			13	

Major and Elective Coursework Total:			69 credit hours
South Dakota Mines Coursework Total:			69 CREDIT HOURS