

May 27, 2021

**Articulation Agreement**

Offered collaboratively by

MONTANA TECHNOLOGICAL UNIVERSITY

And

MILES COMMUNITY COLLEGE

Bachelor of Science in Mechanical Engineering

**I. Scope of Program**

Montana Technological University (Montana Tech) and Miles Community College (MCC) hereby establish an articulation agreement leading to a Bachelor of Science degree in Mechanical Engineering (ME.) The degree will be conferred by Montana Tech.

**II. Length of Agreement**

This agreement is made and entered into in the academic year of 2020-2021 and will be reviewed annually. The agreement may be amended with the approval of both parties. If either curricula changes, it is the responsibility of the respective institutions department head to reach out to the liaison between schools to update and re-evaluate revisions or additions made in the program.

**III. Course Articulation**

Students completing the Associate of Science degree in the Science, Technology, Engineering and Math (STEM) pathway at MCC, successfully completing the courses outlined in the curriculum worksheet in the appendix, will be granted 47 semester credits at Montana Tech from their MCC transcripts. Students from MCC not completing the full AS in STEM will be evaluated on a course by course basis, with known equivalences and substitutions noted in the appendix. Graduation from Montana Tech requires completion of general education courses, some or all of which may be part of the 47 credits transferred in from MCC. The student must earn a total of 136 credits, complete the ME program courses and all graduation requirements in order to graduate from Montana Tech and be awarded a Bachelor of Science in Mechanical Engineering. The outline of course requirements, transfer credit, and pre-approved substitutions are included as an appendix. The credits noted in parentheses for each term, typed in red, are the credits remaining to be completed that term after MCC course equivalences and substitutions are applied. Students participating in this program will be required to meet the Montana University System's transfer student policies in effect at the time of the student's most current enrollment at MCC. Course equivalences must be applied towards the appropriate catalog curriculum. For catalog details, refer to Montana Board of Regents of Higher Education Policy and Procedures Manual; Subject Academic Affairs; Policy 301.14.

Montana Tech's Bachelor of Science degree in Mechanical Engineering is accredited by the Engineering Accreditation Commission (EAC) of ABET and MT Tech is regionally accredited through the Northwest Commission on Colleges and Universities (NWCCU). MCC is regionally accredited through the Northwest Commission on Colleges and Universities (NWCCU).

**IV. Department Contacts and Marketing**

Both MCC and Montana Tech agree to the following:


- a. Both parties may inform potential students about the program. Examples include, but are not limited to, media announcements, brochures, information sessions, and advising sessions.
- b. Provide points of contact for each institution:

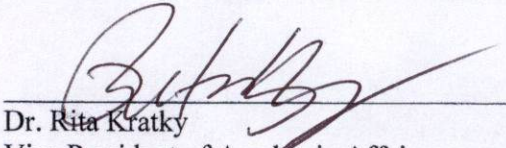
Miles Community College  
Erin Niedge  
Dean of Enrollment Management and  
Educational Support Services

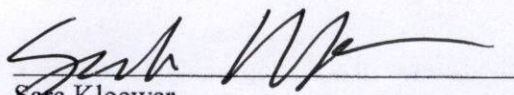
Montana Tech  
Debbie Luft  
Senior Admissions Representative

**V. Signatures**

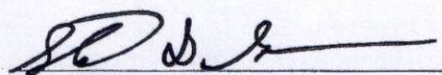
Miles Community College

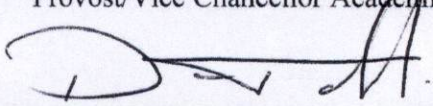
  
\_\_\_\_\_  
Ron Slinger  
President

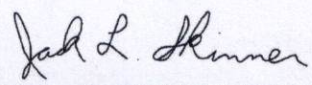
  
\_\_\_\_\_  
Dr. Rita Kratky  
Vice President of Academic Affairs

  
\_\_\_\_\_  
Sara Kloewer  
Division Chair

Montana Tech

  
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Dr. Steven Gammon  
Provost/Vice Chancellor Academic Affairs

  
\_\_\_\_\_  
Dr. Daniel Trudnowski  
Dean of the School of Mines & Engineering

  
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Dr. Jack Skinner  
Department Head, Mechanical Engineering

# Appendix

Transfer Plan with Miles Community College

MT Tech Catalog: 2020-2021 Catalog Program: <b>Mechanical Engineering, B.S.</b>				
Student ID: _____		Student Name: _____		
Adviser Name: _____				
<b>Mechanical Engineering, B.S.</b>				
<b>Freshman</b>				
<b>Fall Semester</b>				
Course Name	MT Tech Credits	Term Taken	Gen Ed	MCC course
CHMY 141 - College Chemistry I	3 credits	MCC		
CHMY 142 - College Chemistry Laboratory I	1 credit	MCC		
EGEN 101 - Introduction Engineering Calculations & Problem Solving	3 credits	MCC		
M 171 - Calculus I	3 credits	MCC		
Humanities Elective 3 credits	3 credits	MCC	HUM	
EGEN 194 - Freshman Engineering Seminar	1 credit	MCC		COLS 101
WRIT 121 - Introduction To Technical Writing (Preferred)	3 credits	MCC		
-OR-				
WRIT 101 - College Writing I	3 credits			
<b>Total: 17 (0)</b>				
<b>Spring Semester</b>				
Course Name	Credits	Term Taken	Gen Ed	MCC course
CHMY 143 - College Chemistry II	3 credits	MCC		
CHMY 144 - College Chemistry Laboratory II	1 credit	MCC		
PHSX 234 - General Physics-Mechanics	3 credits	MCC		PHSX 220 - Physics I (w/calculus)
Humanities Elective 3 credits	3 credits	MCC	HUM	
Free Elective 3 credits *	3 credits	MCC		COMX 111
M 172 - Calculus II	3 credits	MCC		
<b>Total: 17 (0)</b>				
<b>Sophomore</b>				
<b>Fall Semester</b>				
Course Name	Credits	Term Taken	Gen Ed	MCC course
EMEC 215 - Introduction to Modeling for Mechanical Engineers	1 credit			
EGEN 201 - Engineering Mechanics-Statics	3 credits			
M 273 - Multivariable Calculus	4 credits			
EGEN 213 - Survey of MET & MAT Engin	3 credits			
PHSX 235 - General Physics-Heat, Sound & Optics	3 credits			
PHSX 236 - General Phy-Heat, Sound & Optics Lab	1 credit	MCC		PHSX 221 - Physics I Lab
CSCI 112 - Programming with C I	3 credits	MCC		CSCI 116 - Introduction to Python Programming
-OR-				
CSCI 117 - Programming with Matlab (Preferred)	3 credits			
-OR-				
CSCI 135 - Fundamentals Of Computer Science I	3 credits			
<b>Total: 18 (14)</b>				
<b>Spring Semester</b>				
Course Name	Credits	Term Taken	Gen Ed	MCC course
EELE 201 - Circuits I for Engineering	3 credits			
EELE 202 - Circuits I for Engineering Lab	1 credit			
EGEN 202 - Engineering Mech-Dynamics	3 credits			
EGEN 324 - Applied Thermodynamics	3 credits			
M 274 - Introduction to Differential Equation	3 credits			
PHSX 237 - General Physics-Electricity, Magnetism & Motion	3 credits	MCC		PHSX 222 - Physics II (w/calculus)
PHSX 238 - General Physics-Electricity, Magnetism & Motion Lab	1 credit	MCC		PHSX 223 - Physics II Lab
<b>Total: 17 (13)</b>				
<b>Junior</b>				
<b>Fall Semester</b>				
Course Name	Credits	Term Taken	Gen Ed	MCC course
EELE 320 - Process Instrumentation & Control	4 credits			
EGEN 305 - Mechanics of Materials (equiv 205)	3 credits			
EGEN 434 - Applied Thermodynamics II (core)***	3 credits			
WRIT 321W - Advanced Technical Writing	3 credits			
Free Elective 1 credit*	1 credit	MCC		M 151 - Precalculus
ECNS 201 - Principles of Microeconomics	3 credits	MCC	SS	
-OR-				

ECNS 202 - Principles of Macroeconomics	3 credits				
-OR-					
ECNS 203 - Principles of Micro and Macro (Preferred)	3 credits				
<b>Total: 17 (13)</b>					
<b>Spring Semester</b>					
<b>Course Name</b>	<b>Credits</b>	<b>Term Taken</b>	<b>Gen Ed</b>	<b>MCC course</b>	
EGEN 306 - Mechanics of Materials Laboratory	1 credit				
EGEN 318 - Computer Applications for Engineers	2 credits				
EGEN 325 - Engineering Economic Analysis	3 credits				
EGEN 335 - Fluid Mechanics	3 credits				
EMEC 326 - Fundamentals of Heat Transfer (core)***	3 credits				
Professional Electives 3 credits **					
M 333 - Matrices & Linear Algebra (Preferred)	3 credits				
-OR-					
STAT 332 - Statistics for Scientists and Engineers	3 credits				
<b>Total: 18 (18)</b>					
<b>Senior</b>					
<b>Fall Semester</b>					
<b>Course Name</b>	<b>Credits</b>	<b>Term Taken</b>	<b>Gen Ed</b>	<b>MCC course</b>	
EGEN 488 - Fund of Engineering Exam	1 credit				
EGEN 489W - Engineering Design I (core)***	2 credit				
EMEC 445 - Mechanical Vibrations	3 credits				
EMEC 455 - Mechanical Component Design (core)***	3 credits				
Professional Elective 2 credits **	2 credit				
Professional Elective 3 credits**	3 credits				
Social Science Elective 3 credits	3 credits	MCC	SS		
<b>Total: 17 (14)</b>					
<b>Spring Semester</b>					
<b>Course Name</b>	<b>Credits</b>	<b>Term Taken</b>	<b>Gen Ed</b>	<b>MCC course</b>	
EELE 355 - Electric Machine Fundamentals	3 credits				
EGEN 336 - Fluid Mechanics Lab	1 credit				
EGEN 499W - Engineering Design II (core)***	2 credits				
EMEC 402 - Mechanical Engineering Laboratory	1 credit				
Professional Elective 3 credits **	3 credits				
Professional Elective 3 credits **	3 credits				
Professional Elective 3 credits **	3 credits				
<b>Total: 16 (16)</b>					
<b>Minimum credits for a B.S. degree in Mechanical Engineering if transferring from MCC with A.S. in STEM:</b>					
<b>89</b>					
<b>Minimum credits for a B.S. degree in Mechanical Engineering: 136</b>					
*Free electives are 1XX and higher. COMX 111, Intro to Public Speaking, recommended. HPER/Activity credits are limited to 1 credit.					
**See below for approved professional electives.					
***These are CORE courses that must be completed at Montana Tech (no transfer classes allowed).					
Internship education is limited to 4 credits at 3 credits per semester.					
<b>Professional Electives - The following courses are recommended:</b>					
Professional Electives are specifically listed below and <i>should</i> include one of the following Focus Areas.					
Control Systems: EELE 203, EELE 321, EELE 421, M 426					
Nanotechnology: EELE 203, CHMY 371, EELE 321, EGEN 474, EMAT 351					
Mechanical Design: EMEC 448, EMEC 457, EMEC 4XX, EMEC 4XY, EMEC 4XZ					
Welding: EWLD 314, EWLD 340, EWLD 341, EWLD 443, EWLD 444, EWLD 475, EWLD 476					
<b>Course Name</b>	<b>Credits</b>	<b>Term Taken</b>	<b>Gen Ed</b>	<b>MCC course</b>	
CHMY 371 - Physical Chemistry-Quantum Chemistry & Spectroscopy	3 credits				
EELE 203 - Circuits II for Engineering	4 credits				
EELE 308 - Signals and Systems Analysis	4 credits				
EELE 321 - Intro to Feedback Controls	3 credits				
EELE 421 - Feedback Control II	3 credits				
EGEN 474 - Intro to Micro/nanoelectromechanical Systems	2 credits				
EMAT 351 - Fundamentals of Materials	3 credits				
EMEC 435 - Rocket Propulsion	3 credits				

EMEC 448 - Heating, Ventilating & Air Conditioning (HVAC)	3 credits						
EMEC 491 Aerospace Propulsion	3 credits						
EMEC 322 - Product Development	3 credits						
EMEC 415 - Impact Dynamics	3 credits						
EMEC 457 - Kinematics	3 credits						
EMEC 498 - Internship (3 credit maximum)	1-6 credits						
ENGR 5710 - Advanced Fluid Mechanics	3 credits						
ENGR 5850 - Advanced Mechanics of Materials	3 credits						
EWLD 314 - Introduction to Welding Engineering	2 credits						
EWLD 340 - Welding Process Applications	2 credits						
EWLD 341 - Welding Process Applications Lab	1 credit						
EWLD 440 - Design of Welded Connections	2 credits						
EWLD 443 - Physics of Welding	2 credits						
EWLD 444 - Physics of Welding Lab	1 credit						
EWLD 475 - Robotics and Automated Welding	1 credit						
EWLD 476 - Nondestructive Examination	3 credits						
<b>3 credits maximum allowed (not required) from the following Project Management courses:</b>							
<b>Course Name</b>	<b>Credits</b>	<b>Term Taken</b>	<b>Gen Ed</b>	<b>MCC course</b>			
MIN 458 - Mine Management	3 credits						
MPEM 5020 - Project & Engineering Management (Core)	3 credits						
<b>3 credits maximum allowed (not required) from the following Math/Statistics classes:</b>							
<b>Course Name</b>	<b>Credits</b>	<b>Term Taken</b>	<b>Gen Ed</b>	<b>MCC course</b>			
M 405 - Advanced Engineering Mathematics I	3 credits						
M 410 - Numerical Computing for Engineering & Science	3 credits						
M 426 - Mathematical Modeling	3 credits						
M 435W - Advanced Calculus I	3 credits						
STAT 421 - Probability Theory	3 credits						
STAT 432 - Regression and Model Building	3 credits						
<b>Notes:</b>							