MONTANA
TECHNOLOGICAL UNIVERSITY

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 Mechancial 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	Montana Tech
Erin Niedge	Debbie Luft
Dean of Enrollment Management and Educational Support Services	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

Dr. Steven Gammon
Provost/Vice Chancellor Academic Affairs

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

Jack L. Skinner

Dr. Jack Skinner
Department Head, Mechanical Engineering

Appendix

Transfer Plan with Miles Community College

MT Tech Catalog: 2020-2021 Catalog Program: Mechanical Engineering, B.S.							
Student ID: _____ **Student Name:** _____							
Adviser Name: _____							
Mechanical Engineering, B.S.							
Freshman							
Fall Semester							
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*						
Total: 17 (0)							
Spring Semester							
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*					
Total: 17 (0)							
Sophomore							
Fall Semester							
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 - Fundmentals Of Computer Science I	*3 credits*						
Total: 18 (14)							
Spring Semester							
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			
Total: 17 (13)							
Junior							
Fall Semester							
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*						
Total: 17 (13)							
Spring Semester							
Course Name	**Credits**	**Term Taken**	**Gen Ed**	**MCC course**			
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*						
Total: 18 (18)							
Senior							
Fall Semester							
Course Name	**Credits**	**Term Taken**	**Gen Ed**	**MCC course**			
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				
Total: 17 (14)							
Spring Semester							
Course Name	**Credits**	**Term Taken**	**Gen Ed**	**MCC course**			
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*						
Total: 16 (16)							
Minimum credits for a B.S. degree in Mechanical Engineering if transferring from MCC with A.S. in STEM:							
89							
Minimum credits for a B.S. degree in Mechanical Engineering: 136							
*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.							
Professional Electives - The following courses are recommended:							
Professional Electives are specifically listed below and *should* 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							
Course Name	**Credits**	**Term Taken**	**Gen Ed**	**MCC course**			
CHMY 371 - Physical Chemistry-Quantum Chemistry & Spectoscopy	*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	*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*						
3 credits maximum allowed (not required) from the following Project Management courses:							
Course Name	**Credits**	**Term Taken**	**Gen Ed**	**MCC course**			
MIN 458 - Mine Management	*3 credits*						
MPEM 5020 - Project & Engineering Management (Core)	*3 credits*						
3 credits maximum allowed (not required) from the following Math/Statistics classes:							
Course Name	**Credits**	**Term Taken**	**Gen Ed**	**MCC course**			
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*						
Notes:							