Suggested Transfer Pathway
Montgomery College A.S. in General Engineering to UMBC B.S. in Mechanical Engineering

Year One – Montgomery College

(Course sequence may vary)

	Fall Semester	Cr
	CHEM131 Principles of Chemistry I	4
	ENES100 Introduction to Engineering Design	3
	ENGL101 Techniques of Reading & Writing I*	3
	MATH181 Calculus	4
	Arts Distribution	3
	Total Credits	**14-17**

	Spring Semester	Cr
	CHEM132 Principles of Chemistry II	4
	ENGL102 Techniques of Reading and Writing II	3
	MATH182 Calculus II	4
	ENES102 Statics	3
	PHYS161 Mechanics and Heat	3
	Total Credits	**17**

Year Two – Montgomery College

	Fall Semester	Cr
	ENES220 Mechanics of Materials †	3
	MATH280 Multivariable Calculus	4
	PHYS262 Electricity and Magnetism	4
	Behavioral and Social Science Distribution ‡	3
	ENES240 Scientific Engineering & Computation	3
	Total Credits	**17**

	Spring Semester	Cr
	HLTH100 Principles of Healthy Living	1
	ENES221 Dynamics	3
	MATH282 Differential Equations	3
	ENES232 Thermodynamics	3
	Behavioral and Social Science Distribution ‡	3
	Humanities Distribution	3
	Total Credits	**16**

Apply to graduate from Montgomery College with an Associate of Science in General Engineering

* If needed for ENGL102, if not no substitution required.

† ENES220 is not required for the A.S. but is required for the Mechanical Engineering Major at UMBC

‡ Select from two different disciplines, one course must also meet MC's Global & Cultural requirement.

COMPETITIVE ADMISSION: *Students are admitted to the Mechanical Engineering program only when they pass all four of the following Gateway courses with required grades: MATH152 (MATH182), ENES101 (ENES100 and ENES240) and ENME110 (ENES102) with a grade of "B" or better and CHEM101 (CHEM131) with a grade of "C" or better. Students are permitted to retake two of the gateway courses one time to earn the required grade (a withdrawal DOES count as an attempt).*

Upon enrollment, UMBC will determine the transferability of any courses not taken at MC. Students should be prepared to provide syllabi, course descriptions, exams and homework as requested.

Year Three – UMBC

	Fall Semester	Cr
	PHIL251 Ethical Issues in Science and Engineer	3
	ENME204 Intro to Engineering Design w/CAD	3
	ENME301 Structure and Prop. Of Eng. Materials	3
	ENME303 Topics of Engineering Math	3
	ENME320 Fluid Mechanics	3
	PHED course (institutional credit) Ω	0
	Total Credits	**15**

	Spring Semester	Cr
	GEP Culture	3
	ENEE302 Principles of Electrical Engineering	4
	ENME321 Transfer Processes	3
	ENME360 Vibrations	3
	ENME332L Solid Mechanics and Materials Lab	3
	Total Credits	**16**

Year Four - UMBC

	Fall Semester	Cr
	GEP Language , 201 Level ††	4
	ENME403 Automatic Controls	3
	ENME4XX Elective	3
	ENME432L Fluids/Energy Lab	2
	PHED course (institutional credit) Ω	0
	ENME304 Machine Design	3
	Total Credits	**15**

	Spring Semester	Cr
	S/T Elective	3
	ENME482L Vibrations/Controls Lab	2
	ENME4XX Design Elective	3
	ENME444 Mech Engineering Systems Design	3
	STAT355 Intro to Prob & Stat for Sci and Engr	4
	Total Credits	**15**

Ω Two activity courses are required prior to graduation (unless 30 or older, exempted based on a qualified physical disability or a military veteran).

††Unless exempt, all UMBC students are required to complete language at 201 level, students should plan to complete language pre-requisites.

MC GENERAL ENGINEERING A.S. to UMBC B.S. in Mechanical Engineering

Total Credits: 60-67

Name:	Date:	ID#

GENERAL EDUCATION FOUNDATION & DISTRIBUTION COURSES

Foundation Courses	COURSE	HRS	GRADE
ENGL101*	ENGL101*	(3)	
English Foundation	ENGL102	3	
Math Foundation	MATH181	4	
Health Foundation	HLTH100	1	

Distribution Courses	COURSE	HRS	GRADE
Arts Distribution		3	
Humanities Distribution		3	
Behavioral / Social Science Distribution ‡		3	
Behavioral / Social Science Distribution ‡		3	
Natural Sciences Distribution with Lab	PHYS262	4	
Natural Sciences Distribution with Lab	CHEM131	4	

Curriculum Requirements	COURSE	HRS	GRADE
Mechanics and Heat	PHYS161	3	
Introduction to Engineering Design	ENES100	3	
Calculus II	MATH182	4	
Multivariable Calculus	MATH280	4	
Differential Equations	MATH282	3	
ENEE or ENES ELECTIVE	ENES240	3	
ENEE, ENES or Science ELECTIVE	ENES221	3	
ENEE, ENES or Science ELECTIVE	ENES232	3	
ENEE, ENES or Science ELECTIVE	ENES102	3	
PHYS263 or ELECTIVE	CHEM132	3-4	
Additional UMBC Course requirement †	ENES220†	3	

Global & Cultural Perspectives Requirement:	Total Credits: 60-67

* ENGL101 only if needed for ENGL102, no substitution required

‡ Select from two different disciplines, one course must also meet MC's Global & Cultural requirement

† ENES220 is not required for the A.S. but is required for the Mechanical Engineering Major at UMBC

COMPETITIVE ADMISSION: *Students are admitted to the Mechanical Engineering program only when they pass all four of the following Gateway courses with required grades: MATH152 (MATH182), ENES101 (ENES100 and ENES240) and ENME110 (ENES102) with a grade of "B" or better and CHEM101 (CHEM131) with a grade of "C" or better. Students are permitted to retake two of the gateway courses one time to earn the required grade (a withdrawal DOES count as an attempt).*

Upon enrollment, UMBC will determine the transferability of any courses not taken at MC. Students should be prepared to provide syllabi, course descriptions, exams and homework as requested.

Montgomery College Course Number	Montgomery Course Title	Montgomery Credits	UMBC Equivalency	UMBC General Education Requirement	Notes
General Requirements					
EN101 (ENGL101)	Techniques of Reading and Writing I	3	LLE		If needed for EN102, otherwise not required
EN102 (ENGL102)	Techniques of Reading and Writing II	3	ENGL 100	EN	EN102 recommended
CH101 (CHEM131)	Principles of Chemistry I	4	CHEM 101	SL	Students must complete both CH101 and 102 at MC to receive CHEM101 and CHEM102+102L credit
PH262 (PHYS262)	Electricity and Magnetism	4	PHYS 122	SL	
MA181 (MATH181)	Calculus	4	MATH 151	M	
Behavioral/Social Science		3	SS	SS[1]	
Behavioral/Social Science		3	SS	SS[1]	
Humanities		3	AH	AH [1]	
Health Foundation (HE100 (HLTH100) recommended)		1	SS	SS[1]	HE100, Principles of Healthy Living, is suggested
Art		3	AH	AH[1]	
Total General Requirements		28			
Program Requirements					

CH102 (CHEM132)	Principles of Chemistry II	4	CHEM 102 +102L		Students must complete both CH101 and 102 at MC to receive CHEM101 and CHEM102+102L credit
ES100[2] (ENES100)	Intro to Engineering Design	3	ENES101[2]		Must complete both ES 100 and ES 240 at MC to receive credit for ENES101
ES240[2] (ENES240)	Scientific and Engineering Computation	3	LLE		Must complete both ES 100 and ES 240 at MC to receive credit for ENES101
MA182[2] (MATH182)	Calculus II	4	MATH 152[2]	M	
MA280 (MATH280)	Multivariable Calculus	4	MATH 251		
MA282 (MATH282)	Differential Equations	3	MATH 225		
ES102[2] (ENES102)	Statics	3	ENME 110[2]		
PH161 (PHYS161)	Mechanics and Heat	3	PHYS 121	S	
ES221 (ENES221)	Dynamics	3	ENME 221		
ES232 (ENES232)	Thermodynamics	3	ENME 217		
Total Program Requirements		33			
Additional Required for Transfer to UMBC					
ES220 (ENES220)	Mechanics of Materials	3	ENME 220		Not required for MC A.S.

Total for additional		3			
		61-64			
Total Number of Credits Required for *Mechanical Engineering* degree		127			
Maximum Number of Transfer Credits Applied Towards *Mechanical Engineering* degree		64			
Minimum Number of Credits Remaining for Completion of 127 Credits Required for *Mechanical Engineering* degree		63			

[1] These courses satisfy the general categories as indicated. To view specific course equivalency, consult ARTSYS (artweb.usmd.edu).

[2] Students are admitted to the Mechanical Engineering program only when they pass all four of the following Gateway courses with required grades: MATH152 (MATH182), ENES101 (ENES100 and ENES240) and ENME110 (ENES102) with a grade of "B" or better and CHEM101 (CHEM131), with a grade of "C" or better. Students are permitted to retake two of the gateway courses one time to earn the required grade (a withdrawal DOES account as an attempt).

Legend

AH	Arts/Humanities
C	Culture
EN	English Composition
L	Language
LLE	Lower Level Elective

M	Mathematics
PE	Physical Education
S	Science
SL	Science (plus lab)
SS	Social Sciences