

**MECHANICAL ENGINEERING ARTICULATION AGREEMENT GUIDE**

Washtenaw Community College –Associate in Science in Pre-Engineering  
Eastern Michigan University – BS in Mechanical Engineering

**Michigan Transfer Agreement (MTA) Requirements (32 credits)**

Students with the MTA endorsement on their community college transcript have satisfied EMU's General Education Core Requirements and will be required to complete only the EMU General Education Application Requirements of one Perspectives on a Diverse World course, one Learning Beyond the Classroom experience, and one writing intensive course in the major. Courses listed below for the MTA also satisfy program requirements at EMU and/or WCC. Students who started before fall semester 2014 may continue to follow the MACRAO Agreement until the end of summer semester 2019. Courses approved to satisfy the MTA can be found on [Washtenaw's website](#).

**Washtenaw Community College Courses:****Transfer to Eastern Michigan University as:**

<b>1. A course in English Composition</b>	
* ENG 111 Composition I.....4	WRTG 121 Comp II (pre-req for SET 350W) (3)+1 ..... 4
<b>2. A Second course in English Composition or Communication</b>	
COM 101 Fundamentals of Speaking..... 3	CTAC 124 (University Elective) ..... 3
<b>3. A course in Mathematics</b>	
<sup>1</sup> * MTH 191 Calculus I..... 5	MATH 120 Calculus I (4)+1..... 5
<b>4. Two courses in Natural Sciences from different disciplines (one lab required)</b>	
<sup>1</sup> * PHYS 211 Analytical Physics I..... 5	PHY 223 Mechanics and Sound ..... 5
*CEM 111 General Chemistry I ..... 4	CHEM 121 and 122 General Chemistry I ..... 4
<b>5. Two courses in Humanities and Fine Arts from different disciplines</b>	
Choose from the approved MTA list..... 6	University Elective ..... 6
<b>6. Two courses in Social Sciences from different disciplines</b>	
Choose a from the approved MTA list..... 6	University Electives ..... 6

If needed, complete an additional course in the above categories to meet the 30 credit minimum for the MTA.

**EMU "Perspectives on a Diverse World" Requirement:** Complete one course from the following list:

**These courses also satisfy an MTA area:** **Communication:** COM 225; **Natural Science:** ENV 101, 105; **Humanities:** ART 143, 150; COM 225; DAN 180; DRA 180; ENG 181, 213, 214, 224, 242; HUM 150, 175, 221; MUS 180; **Social Science:** ANT 201; ECO 280; GEO 101; HST 123, 150, 210, 230, 235, 240, 270; PLS 211; PSY 107, 251, 270; SOC 205, 216.

**These courses apply, but do not satisfy the MTA:** CCP 251

**WCC Pre-Engineering Program Requirements (29 credits)**

CPS 171 Introduction to Programming with C++ ..... 4	COSC 246 (University Elective) ..... 4
<sup>1</sup> *MTH 192 Calculus II ..... 4	MATH 121 Calculus II ..... 4
* MTH 293 Calculus III (Math Restricted Elective) ..... 4	MATH 223 Multivariable Calculus ..... 4
* MTH 295 Differential Equations (Math Restricted Elective) 4	MATH 325 Differential Equations (3)+1 ..... 4
* PHY 222 Analytical Physics II ..... 5	PHYS 224 Electricity and Light..... 5
CEM 122 General Chemistry II ..... 4	CHEM 123 and 124 Chemistry II (University Elective) ..... 4
ENG 226 Composition II ..... 3	WRTG 225 (University Elective) ..... 3

**EMU Requirements and Electives that may be taken at WCC or EMU (10 credits)**

* MTH 197 Linear Algebra..... 4	MATH 122 Elementary Linear Algebra (3)+1 ..... 4
Open Electives of Math/Science pre-requisites ..... 6	University Electives ..... 6

**Credits at WCC: ..... 71      Credits that apply to EMU's program ..... 71**

\* Required for the Mechanical Engineering program at EMU. Must be taken at EMU if not completed prior to transferring.

<sup>1</sup> Admission requirement for the Mechanical Engineering program at EMU. See page 3 of guide for all admission requirements.

[Sign up to use this articulation agreement.](#) If you let us know you are using this articulation agreement we can stay in touch with you and provide information and advising to you while you are still at your community college.

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**Completion of the Mechanical Engineering Program at EMU****Major Requirements (53 credits)****Additional Requirements (9 credits)**

CET 151	Intro to Computing in Engineering Tech .....	3
ELEC 212	Engineering Circuit Analysis .....	3
<sup>2</sup> SET 350W	Engineering Communication .....	3

**Technical Requirements (44 credits)**

ME 100	Intro to Engineering Design & Manufacturing..	3
ME 211	Statics.....	3
ME 312	Dynamics (or PHY 230).....	3
ME 313	Mechanics of Materials .....	3
ME 316	Thermodynamics (or PHY 360) .....	3
ME 317	Fluid Mechanics (or PHY 485).....	3
ME 325	Mechanics of Composite Materials .....	2
ME 326	Composite Design and Processes.....	1
ME 330	Machine Design.....	3
ME 418	Heat Transfer.....	3
ME 420	Thermo/Fluids Lab.....	2
ME 431	Mechanical Design and Analysis .....	3
ME 432	Machine Dynamics .....	3
ME 435	Computational Solid Mechanics .....	3
ME 492	Senior Capstone I.....	3
ME 493	Senior Capstone II.....	3

**LBC Requirement (0-3 credits)**

Students must complete one Learning Beyond the Classroom course or noncredit experience offered by EMU. Consult your advisor for options. <sup>1</sup>ME 387L4 or <sup>1</sup>ME 487 will apply toward this requirement.

**Credits at EMU: ..... 53-56****Transfer Credits: ..... 71****Total Credits: ..... 124****Sample course sequence****Winter Semester (12 credits)**

CET 151	F,W .....	3
ELEC 212	W, pre-req PHY 224.....	3
ME 211	W, pre-req MATH 120.....	3
SET 350W	pre-req WRTG 121.....	3

**Fall Semester (12 credits)**

ME 312	F, pre-req ME 211 .....	3
ME 313	F, pre-req ME 211 .....	3
ME 316	F, pre-req PHY 223, MATH 120, 121 .....	3
ME 100	F.....	3

**Winter Semester (8 credits)**

ME 317	W, pre-req (ME 316 or PHY 260), ME 211.....	3
ME 325	W, pre-req ME312 or PHY 230), ME 211, 3132	
ME 330	W, pre-req ME 313.....	3

**Fall Semester (14 credits)**

ME 431	F, pre-reqs ME 100 and ME 313 .....	3
ME 432	F, pre-reqs (ME 312 or PHY 230) and ME 431.....	3
ME 492	F, pre-req SET 350W (concur ME 431, 432) ..	3
ME 418	F, pre-reqs ME 316, ME 317; MATH 223, 3253	
ME 420	F, pre-reqs ME 316, 317 and MATH 325 .....	2

**Winter Semester (7-10 credits)**

ME 326	W, pre-req ME 325.....	1
ME 435	W, pre-reqs ME 431, MATH 122, 325 .....	3
ME 493	W, pre-req ME 492.....	3
Learning Beyond the Classroom.....		0-3

\* EMU requires 124 credits to graduate. If sufficient credits are not transferred to EMU, the course credit must be taken at EMU.

<sup>1</sup> Satisfies EMU's Writing Intensive in the major requirement.

<sup>2</sup> Satisfies EMU's Learning Beyond the Classroom requirement.

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### Additional Information:

1. Each institution will determine the satisfaction of their individual program and degree requirements. Both institutions agree to accept transferrable courses from each other and from other regionally accredited institutions. WCC courses indicated with an \* are required for EMU's Mechanical Engineering program. Substitutions for these courses must be approved by the EMU program coordinator.
2. Students with the MTA endorsement on their community college transcript have satisfied EMU's General Education Core Requirements and will be required to complete only the General Education Application Requirements of one "Perspectives on a Diverse World" course, one "Learning Beyond the Classroom" experience, and a "Writing Intensive" course in the major. The Perspectives on a Diverse World requirement may be transferred to EMU.  
*To use the Michigan Transfer Agreement (MTA), students must have an official community college transcript, with the "MTA Satisfied" endorsement sent to EMU's Admissions Office. Students who do not have "MTA Satisfied" on their community college transcript, will be required to satisfy EMU's general education requirements as applied to transfer students. The MTA may be completed after admission to EMU, however, students should inform their advisors or they may be advised to complete additional courses for the general education program. Students who enrolled in college prior to fall semester 2014 will have until the end of summer semester 2019 to complete the MACRAO agreement. If already on the transcript, the MACRAO designation will be accepted at EMU after August 2019.*
3. Only courses with a grade of "C" or better (2.0 on a 4.0 scale) will be accepted for transfer to either institution.
4. Under this agreement, EMU will waive the 60-hour rule and require that a minimum of 30 credit hours must be completed in EMU courses, with at least 15 hours in the program or (9 hours in the major and 6 hours in the minor), at the 300-level or above. Of the last 30 hours completed before graduating, a minimum of 10 credit hours must be in courses offered by EMU. A minimum of 124 credit hours, completed in-residence or accepted in transfer, is required for graduation.
5. Students must satisfy all admission requirements at the time of application for admission to EMU, including submitting transcripts from all previously attended colleges. WCC students will receive equal consideration with other students for course registration and financial aid.
6. Admission requirements for the BS in Mechanical Engineering:
  - A minimum EMU cumulative GPA of 2.7. (If a student has not yet established an EMU GPA, a combined GPA of 2.7 from all transfer institutions will be accepted).
  - Completion of PHY 223 with a grade of C or higher (or equivalent transfer credit)
  - Completion of MATH 120 and MATH 121, with a grade of C or higher (or equivalent transfer credit)
7. Students are encouraged to contact the College of Technology Student Services before applying to EMU. To facilitate advising and the evaluation of transcripts, [sign up for this articulation agreement](#) and bring a copy of this articulation guide to all advising sessions.

### Effective Date: September 1, 2018 through August 31, 2021.

This agreement is consistent with the 2018-2019 catalog. Students have until summer 2026 to graduate from Eastern Michigan University following this agreement. In the event that a student does not complete the program within seven years, they may be required to have their credits reevaluated using the requirements of the current articulation guide.

### Contacts:

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