

**PRODUCT DESIGN ENGINEERING TECHNOLOGY AGREEMENT GUIDE -**

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Macomb Community College – AAS in Product Development

Eastern Michigan University – BS in Product Design Engineering Technology

**Macomb Community College Courses:**

**Eastern Michigan University Courses:**

**Michigan Transfer Agreement (MTA) Requirements (30 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 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. Courses listed below for the MTA also satisfy program requirements at EMU and/or MCC. For MCC approved MTA courses go to Macomb's website.

**1. A course in English Composition**

ENGL 1180 or 1210 .....3-4      WRTG 120 University Elective ..... 3-4

**2. A course in English Composition or Communication**

\* ENGL 1190 or 1220 .....3-4      WRTG 121 (pre-req for SET 350W) ..... 3-4

**3. A course in Mathematics**

\* MATH 1760 Analytic Geometry & Calculus I .....4      MATH 120 Calculus I ..... 4

**4. Two courses in Natural Sciences from different disciplines (one lab required)**

\* CHEM 1050 Introduction to General Chemistry .....4      CHEM 117/118 Fundamentals of Chemistry ..... 4

\* PHYS 1180 College Physics I .....4      PHY 221 Mechanics, Sound and Heat ..... 4

**5. Two courses in Humanities and Fine Arts from different disciplines**

Choose two from the approved MTA list .....6      University Elective ..... 6

**6. Two courses in Social Sciences from different disciplines**

Choose two from the approved MTA list .....6      University Elective ..... 6

**If needed, complete additional credits in any of the above categories to meet the 30 credit minimum for the MTA.**

**EMU "Perspectives on a Diverse World" Requirement: These courses may be used to satisfy an MTA category above. These courses also satisfy an MTA area: Natural Science: BIO 138 (non-lab); Humanities: ART 224, 225, 226, 227; ENG 243, 248; PHIL 201; WR 233, 236; Social Science: ANTH 131, 151, 152, 154; GEOG 132; HIST 113, 243, 261; PHIL 201; POLS 152; PSY 296; SOC 152, 251; This course applies, but does not satisfy the MTA: BBA 250**

**MCC Program Requirements (47 credits)**

* ATMT 1150 Machine Theory-Machine Tool Laboratory I .....3	PDET 123 Manufacturing Process (4)-1 ..... 3
ATAP 1050 CNC Essentials .....3	PDET 000 University Elective ..... 3
* PRDE 1010 Design Principles .....4	PDET 122 Engineering Graphics I (3)+1 ..... 4
* PRDE 1200 Theory of Sheet Metal Fabrication .....3	PDET 310 Formed Product Design ..... 3
* PRDE 1300 Industrial and Materials Processes .....4	PDET 111 Materials (3)+1 ..... 4
* PRDE 1400 Intro to SolidWorks & 3D Parametric Solid Model...3	PDET 224 Solid Modeling ..... 3
* PRDE 1520 NX Fundamentals .....4	PDET 432 3D Surface Modeling Techniques (3)+1 ..... 4
* PRDE 1620 CATIA Essentials .....4	PDET 433 3D Assembly Modeling (3)+1 ..... 4
* PRDE 2000 Product Development Process .....3	PDET 157 Introduction to Product Design ..... 3
* PRDE 2100 Design Intent and Analysis .....3	PDET 350 Prototyping ..... 3
PRDE 2200 Jig and Fixture Detailing and Design .....3	PDET 000 University Elective ..... 3
* PRDE 2400 Plastics Design and Manufacturing .....3	PDET 309 Molded Product Design ..... 3
* PRDE 2430 Student Capstone Project .....4	PDET 216 Content Development (3)+1 ..... 4
Choose course not taken from PRDE, ATAP, ELEC, MECT, ATWD, RNEW, or ROBO .....3	University Elective ..... 3

**EMU Requirements and Electives that May be Taken at MCC or EMU (16 credits)**

* PHYS 1190 College Physics 2 ..... 4	PHY 222 Electricity and Light ..... 4
Open Electives (not to exceed 93 credits) ..... 12	University Electives ..... 12

**Credits at MCC: .....93**

**Credits that transfer to EMU ..... 93**

\*Required for EMU's BS in Product Design Engineering Technology program. If not transferred, must be completed at EMU.

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**Completion of the BS in Product Design Engineering Technology Program at EMU**

<b>Major Requirements</b>	<b>(31 credits)</b>
PDET 156 Teamwork in Product Design & Development	3
PDET 212 Molding Materials and Processes	3
PDET 220 Geometric Dimensioning & Tolerancing	3
PDET 325 Applied Statics and Strength of Materials	4
PDET 331 Product Data Management	3
PDET 491 CAD Capstone	3
PDET 492 Product Realization Studio	3
QUAL 320 Industrial Quality Control	3
<sup>1</sup> SET 350W Engineering Communication	3
Choose one course from the following	3
MET 430 Computer Aided Engineering (3)	
PDET 380 Engineering Cost Estimating (3)	
<sup>2</sup> PDET 387L4 Co-op in Product Design (3)	

**Learning Beyond the Classroom Requirement**

EMU requires one Learning Beyond the Classroom experience to be completed at EMU. PDET 387L4 meets this requirement.

<b>Credits at EMU:</b>	<b>31</b>
<b>Transfer Credits</b>	<b>93</b>
<b>Minimum Credits to Graduate:</b>	<b>124</b>

**Sample Sequence for Completing the Program**

<b>Fall Semester</b>	<b>(13 credits)</b>
PDET 156 F	3
PDET 325 F, pre-req: PHY 221 and MATH 120	4
PDT 331 F, pre-req: PDET 224	3
QUAL 320 F,W,pre-req: MATH 120	3

<b>Winter Semester</b>	<b>(12 credits)</b>
PDET 212 W, pre-req: PDET 111 and 123	3
PDET 220 W, pre-req: PDET 122, 123	3
PDET 491 W, pre-req: PDET 220,325,331,350,432,433	3
SET 350W F,W,S, pre-req: WRTG 121	3

<b>Fall Semester</b>	<b>(6 credits)</b>
PDET 492 F, pre-req: PDET 220, 309, 310; QUAL 320	3
Choose one course from the following	3
MET 430 Computer Aided Engineering (3) F,W	
PDET 380 Engineering Cost Estimating (3) W	
PDET 387L4 Co-op in Product Design (3)	

<sup>1</sup> Satisfies EMU's Writing Intensive Requirement.

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

Note: If sufficient credits aren't transferred, additional credits must be completed to meet the 124 credits required for graduation.

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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. MCC courses indicated with an \* are required for EMU's BS in Product Design Engineering Technology. 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. 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. MCC students will receive equal consideration with other students for course registration and financial aid.
6. Students are encouraged to contact EMU's BS in Product Design Engineering Technology program coordinator before applying to EMU. To facilitate advising and the evaluation of transcripts, bring a copy of this articulation guide to all advising sessions.

### Effective Date: September 1, 2019 until August 31, 2022.

This is a renewal of an agreement made in September 2011 and renewed in September 2014. This agreement is consistent with the 2019-2020 catalog. Students have until Summer 2027 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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