

Articulation Agreement
 Oakland Community College and Oakland University
 Associate in Applied Science Pre-Engineering – Industrial Focus
 Bachelor of Science in Engineering in Industrial and Systems Engineering at Oakland
 University

Effective: November 1, 2023 – October 31, 2028

Oakland Community College Courses:	Transfer to Oakland University as:
Michigan Transfer Agreement (MTA) Requirements	
English Composition	
ENG 1510 Composition I or ENG 1510E Composition 1	WRT 1050 Composition I
Communications or a second English Composition course	
ENG 1520 Composition II	WRT 1060 Composition II
Mathematics	
MAT 1730 Calculus I	MTH 1554 Calculus I
Social Sciences (must be from different disciplines)	
ECO 2610 Principles of Macroeconomics ¹	ECN 2000 Principles of Macroeconomics
Select one additional course from social science section in OCC Catalog ²	Satisfies OU General Education requirement
Fine Arts/Humanities (must be from different disciplines)	
PHI 1610 Ethics ¹	PHL 1300 Introduction to Ethics
Select one additional course from fine arts/humanities section in OCC Catalog ²	Satisfies OU General Education requirement
Natural Sciences (must be from different disciplines - one course must include a laboratory component)	
CHE 1510 General Chemistry I	CHM 1440 General Chemistry I CHM 1470 General Chemistry Lab I
PHY 2400 Engineering Physics I	PHY 1510 Introductory Physics I PHY 1100 General Physics Lab I
Total Credits: 31-34	

¹ Preferred course selection for the Oakland University, BSE –Industrial and Systems Engineering program. Deviation will result in additional coursework at Oakland University after transfer.

² Michigan Transfer Agreement (MTA) applicable courses are listed in the OCC Catalog. The Fine Arts/Humanities and Social Sciences requirements must be from two different disciplines.

Oakland Community College Courses:	Transfer to Oakland University as:
OCC Associate in Applied Science in Pre-Engineering Industrial Focus Program Requirements	
EGR 1100 Introduction to Engineering ⁵ (must complete EGR 2700 to receive full transfer credit)	EGR 2400 Introduction to Electrical and Computer Engineering ⁵

EGR 2010 Engineering Programming	EGR 1400 Computer Problem Solving in Engineering and Computer Science
MAT 1740 Calculus II	MTH 1555 Calculus II
MAT 2740 Calculus III	MTH 2554 Multivariable Calculus
MAT 2810 Differential Equations ³ (must complete MAT 2880 to receive full transfer credit)	APM 2559 Intro Differential Equations ³
PHY 2500 Engineering Physics II	PHY 1520 Introductory Physics II PHY 1110 General Physics Lab II
CAD 1201 Introduction to Engineering Graphics	EGR 1200 Engineering Graphics and CAD
ROB 2040 Programmable Controller Applications	Does Not Transfer
Total Credits: 34	

Additional OU Requirements for B.S. in Industrial and Systems Engineering that may be taken at OCC	
MAT 2880 Linear Algebra ³	MTH 2775 Linear Algebra ³
BIO 1530 Molecular and Cellular Biology OR CHE 1520 General Chemistry II	Math/Science Elective in the major
EGR 2700 Engineering Circuits I ⁵	EGR 2400 Introduction to Electrical and Computer Engineering ⁵
EGR 2080 Engineering Microcontrollers +EGR 2100 Statics ⁴	EGR 2800 Design and Analysis of Electromechanical Systems ⁴
Total Credits: 20	
Total OCC Credits: 83-86	

³ MAT 2810 is not a direct equivalent to APM 2555 required in the Engineering major. Students who take MAT 2810 will also need to take MAT 2880 to satisfy APM 2555 at Oakland University. MAT 2880 is not required in OCC's pre-engineering associate's degree. If a student only completes MAT 2810 at OCC it will transfer as APM 2559 and the student must also complete MTH 2775 at OU to receive credit for APM 2555.

⁴ Students must complete EGR 2100 Statics AND EGR 2080 Engineering Microcontrollers to receive OU credit for EGR 2800 Design and Analysis of Electromechanical Systems. If only 1 course is completed, the OU degree requirement will not be fulfilled and may result in additional courses at OU.

⁵ Students must complete EGR 1100 Introduction to Engineering AND EGR 2700 Engineering Circuits I to receive OU credit for EGR 2400 Introduction to Electrical and Computer Engineering. If only 1 course is completed, the OU degree requirement will not be fulfilled and may result in additional courses at OU.

Additional Information:

- Students should meet with an OCC counselor prior to following this Articulation Agreement Program Guide.

- This Articulation Agreement Program Guide includes the requirements of the A.A.S. Pre-Engineering degree, including the Michigan Transfer Agreement (MTA) and additional applicable credit hours.

- Students who do not complete the OCC courses and requirements as outlined will have additional requirements upon transferring to OU.

- This guide does not include any remedial courses and may not include prerequisite requirements.

- Oakland University requires that a minimum of a “2.0” (numerical grading system) or “C-” (alpha grading system) grade be earned in each course in order to be considered for transfer credit, non-germane and remedial courses may not qualify for transfer credit.

- SECS major standing, graduation, and prerequisite policies limit the number of allowable courses with a grade below “C” (alpha grading system). Students who earn a “C-” (alpha grading system) in any course should talk with an OU SECS adviser to determine if the courses should be repeated.

- To enroll in 3000 or higher-level professional subject courses, students must satisfy major standing requirements.

- Transfer students are admitted directly to the major if they have a cumulative GPA of 2.8 or higher. Transfer students who have below a 2.8 GPA will be admitted as an EGR/CS Candidate and must complete the internal transfer policy requirements outlined in the undergraduate catalog, to change their major to pre-industrial and systems engineering in the School of Engineering and Computer Science (SECS), and will need to meet established criteria to change their major.

- It is highly recommended that students work with both an OU academic adviser and their OCC counselor to maximize the applicability of coursework to specific requirements.

Completion of Industrial and Systems Engineering Major at OU – 59-71 credits

Math, Science and General Education

APM 2555 Intro to Differential Equations with Matrix Algebra (if MAT 2810+MAT 2880 not taken at OCC)

PHL 1310 Introduction to Ethics in Science and Engineering

Engineering Core

EGR 2400 Introduction to Electrical and Computer Engineering (if EGR 1100+EGR 2700 are not taken at OCC)

EGR 2500 Introduction to Thermal Engineering

EGR 2600 Introduction to Industrial and Systems Engineering

EGR 2800 Design and Analysis of Electromechanical Systems Engineering (if EGR 2080+EGR 2100 are not taken at OCC)

Required Professional Subjects

ISE 3318 Engineering Statistics and Economic Analysis

ISE 3330 Engineering Operations Research

ISE 3341 Ergonomics and Work Design

ISE 4469 Computer Simulation of Discrete Event Systems

ISE 4483 Production Systems and Workflow Analysis

ISE 4484 Flexible and Lean Manufacturing Systems

ISE 4485 Statistical Quality Analysis

ISE 4487 Foundations of Systems Engineering

ISE 4491 Senior Design (satisfies the General Education requirements for Writing Intensive in the major and Capstone)

Professional Electives – 12 additional credits

For questions regarding the BS – Industrial and Systems Engineering program or to schedule an appointment please contact: Engineering Center, School of Engineering and Computer Science, Room 255, Oakland University, (248)370-2201, secsadvising@oakland.edu .

This guide is valid November 1, 2023 – October 31, 2028