ASSOCIATE OF SCIENCE IN ENGINEERING (A.S.E.) – DEGREE AND PRE-MAJOR

Department Chair: Sungwon Kim, 847.635.1268, *sukim@oakton.edu*

The Engineering curriculum is designed to prepare students to continue studies toward the baccalaureate degree in engineering in four-year colleges and universities. Since this curriculum places emphasis on mathematics and its applications in the sciences, students should possess skills in this area.

Completion of this curriculum and compliance with other graduation requirements will enable the student to earn an Oakton A.S.E. degree and to continue working toward a wide choice of specialized fields of engineering, including mechanical, civil, electrical, computer, industrial, and aerospace engineering.

Students should note that four-year colleges and universities vary in specific course and transfer requirements. Therefore, it is important that in selecting Oakton courses students consult the Engineering department chair or the Office of Advising, Transitions, and Student Success, as well as the catalog and/or admissions advisors at the senior institution to which transfer is intended. **General education courses should be selected from the list of IAI General Education Courses.**

Associate of Science in Engineering Degree

64 Semester Credit Hours; Curriculum: 0850

***Note**: Refer to* IAI General Education Courses *page for guidelines on General Education course selection.*

Code	Title	Hours
General Education Requirements:		
Area A — Communications		
EGL 101	Composition I	3
EGL 102	Composition II	3
Area B — Mathematics		
MAT 250	Calculus I	5
MAT 251	Calculus II	4
Area C — Science		
PHY 221	General Physics I	5
PHY 222	General Physics II	5
Area D — Social and Behavioral Sciences		
Two courses (two courses from the same discipline are recommended)		6
Area E — Humanities/Fine Arts		
One course from a humanities or fine arts discipline		3
Area F — Global Studies [1]		
One course that satisfies Global Studies requirement		0-3
Area G — U.S. Diversity Studies [2]		
One course that satisfies U.S. Diversity Studies requirement		0-3
Total Hours		**34**

Code	Title	Hours
Major Requirements		
CHM 121	General College Chemistry I	4
CSC 170	Introduction to Numerical Methods [3]	2
Select one of the following:		1
CSC 171	C++ Programming for Engineers	
CSC 173	Java Programming for Engineers	
CSC 174	Python Programming for Engineers	
ENG 120	Engineering Graphics	3
ENG 211	Analytical Mechanics (Statics)	3
ENG 212	Analytical Mechanics (Dynamics)	3
MAT 252	Calculus III	4
MAT 262	Ordinary Differential Equations	3
Additional courses dependent on transfer requirements and major concentration: [4]		7
CHM 122, ENG 217, ENG 220, ENG 250, PHY 223 or other approved course		
Total Hours		**30**

1 *Students may take a Global Studies course that satisfies both Area F and another Area requirement.*

2 *Students may take a U.S. Diversity Studies course that satisfies both Area G and another Area requirement.*

3 CSC 170 *must be taken concurrently with either* CSC 171*,* CSC 173 *or* CSC 174*. Consult the department chair as to which of these three courses is most appropriate.*

4 *Consult the department chair before selecting these courses. Universities differ about which courses a student should take. Some institutions may require more than two of these courses for transfer.*

Engineering Pre-major

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The following pre-major is recommended for students who are considering completing a Bachelor's degree in Engineering after transferring to a four-year institution. It is designed for students who have not decided upon a specific four-year college or university. Once a transfer school is selected, students are strongly encouraged to consult the Office of Advising, Transitions, and Student Success and the transfer institution's catalog to select courses that will meet both Oakton and transfer institution requirements.

For more information on course selection or program-specific advising, contact the department chair. Part time students should also consult the Office of Advising, Transition, and Student Success for part-time pre-major recommendations. **General Education courses should be selected from the list of IAI General Education Courses.**

First Year		
Semester One		**Hours**
EGL 101	Composition I	3
MAT 250	Calculus I	5
CHM 121	General College Chemistry I	4
ENG 120	Engineering Graphics	3
	Hours	**15**
Semester Two		
EGL 102	Composition II	3
MAT 251	Calculus II	4
PHY 221	General Physics I	5

CSC 170	Introduction to Numerical Methods	2
Select one of the following (concurrent with CSC 170):		1
CSC 171	C++ Programming for Engineers	
CSC 173	Java Programming for Engineers	
CSC 174	Python Programming for Engineers	
Select one Social and Behavioral Sciences course [1]		3
	Hours	**18**
Second Year		
Semester One		
MAT 252	Calculus III	4
PHY 222	General Physics II	5
ENG 211	Analytical Mechanics (Statics)	3
Select one Social and Behavioral Sciences course [1]		3
	Hours	**15**
Semester Two		
MAT 262	Ordinary Differential Equations	3
ENG 212	Analytical Mechanics (Dynamics)	3
Choose one Humanities/Fine Arts course [1]		3
Select a minimum of seven credit hours from the following: [2]		7
CHM 122	General College Chemistry II	
ENG 217	Strength of Materials	
ENG 220	Engineering Circuit Analysis [3]	
ENG 250	Introduction to Digital Systems [4]	
PHY 223	Modern Physics	
	Hours	**16**
	Total Hours	**64**

1 *When choosing Social and Behavioral Studies and Humanities/Fine Arts courses, please select at least one course that also satisfies Global Studies requirement and one course that also satisfies the U.S. Diversity Studies requirement.*

2 *Consult the department chair before selecting these courses. Four-year institutions differ about which courses a student should take. Some institutions may require more than two of these courses for transfer.*

3 *Course typically offered in Spring and Summer.*

4 *Course typically offered in Fall.*

Note: Pre-major is a recommended sequence and selection of courses. See Associate of Science in Engineering (A.S.E.) (p. 1) page for degree requirements.