

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses and milestones designated as critical (in boldface and shaded areas) must be completed in the semester listed to ensure a timely graduation.

Course Subject and Title	Credit Hours	Upper Div.	Min. Grade	Major GPA	Important Notes
<b>Semester One: [18 Credit Hours]</b>					
<b>Note: Students who have earned an associate degree will have 34 credits of technical coursework articulate to the bachelor's degree program and will not have to take the electives for a minor or individualized specialization.</b>					
CS 10061 Introduction to Computer Programming <b>or</b> DSCI 15310 Computational Thinking and Programming <b>or</b> EERT 22003 Technical Computing	3			■	
MATH 11010 Algebra for Calculus	3				Fulfills Kent Core Mathematics and Critical Reasoning
US 10097 Destination Kent State: First Year Experience	1				Not required of transfer students with 25 credits
Kent Core Requirement	4				See Kent Core Summary on page 2
Minor or Individualized Specialization Electives	7				Not required for associate degree holders; see note 1 on page 2
<b>Semester Two: [18 Credit Hours]</b>					
MATH 11012 Intuitive Calculus	3				Fulfills Kent Core Additional
MATH 11022 Trigonometry	3				Fulfills Kent Core Mathematics and Critical Reasoning
Kent Core Requirement	3				See Kent Core Summary on page 2
Minor or Individualized Specialization Electives	9				Not required for associate degree holders; see note 1 on page 2
<b>Semester Three: [17 Credit Hours]</b>					
EERT 21010 Engineering and Professional Ethics <b>or</b> TECH 31010 Engineering and Professional Ethics	3			■	
PHY 13001 General College Physics I	4				Fulfills Kent Core Basic Sciences
PHY 13021 General College Physics Laboratory I	1				
Kent Core Requirement	3				See Kent Core Summary on page 2
Minor or Individualized Specialization Electives	6				Not required for associate degree holders; see note 1 on page 2
<b>Semester Four: [18 Credit Hours]</b>					
ENG 20002 Introduction to Technical Writing <b>or</b> ITAP 26638 Business Communications	3			■	
PHY 13012 College Physics II	2				Fulfills Kent Core Additional
PHY 13022 General College Physics Laboratory II	1				Fulfills Kent Core Basic Sciences
Minor or Individualized Specialization Electives	12				Not required for associate degree holders; see note 1 on page 2
<b>Semester Five: [12 Credit Hours]</b>					
<b>GAE 32000 Fuel Cell Technology</b>	<b>3</b>	■		■	
ECON 22060 Principles of Microeconomics	3				Fulfills Kent Core Social Sciences
Green and Alternative Energy Elective	3	■		■	See note 2 on page 2
Kent Core Requirement	3				See Kent Core Summary on page 2
<b>Semester Six: [15 Credit Hours]</b>					
<b>TAS 37900 Applied Studies Cornerstone</b>	<b>3</b>	■	C	■	
<b>TECH 33363 Metallurgy and Material Science</b>	<b>3</b>	■		■	
Green and Alternative Energy Elective	3	■		■	See note 2 on page 2
Kent Core Requirement	3				
General Electives (upper division)	3	■			

Critical requirements are boldface in shaded areas.

Course Subject and Title	Credit Hours	Upper Div.	Min. Grade	Major GPA	Important Notes
<b>Semester Seven: [12 Credit Hours]</b>					
<b>GAE 42004 Advanced Fuel Cell Technology</b>	<b>3</b>	■		■	
Green and Alternative Energy elective	3	■		■	See note 2 below
Kent Core Requirement	3				See Kent Core Summary below
General Electives (upper division)	3	■			
<b>Semester Eight: [11-12 Credit Hours]</b>					
<b>TAS 47900 Applied Studies Capstone Seminar</b>	<b>3</b>	■	C	■	
<b>TECH 31000 Cultural Dynamics of Technology (3) or TECH 33056 Cooperative Education-Professional Development (2)</b>	<b>2-3</b>	■	C	■	<b>Fulfills writing-intensive course requirement; TECH 31000 fulfills domestic diversity requirement; choose course based on the number of upper- division hours still needed</b>
<b>TECH 43080 Industrial And Environmental Safety</b>	<b>3</b>	■		■	
Green and Alternative Energy elective	3	■		■	See note 2 below

### Graduation Requirements Summary

Minimum Total Hours	Minimum Upper-Division Hours	Minimum Kent Core Hours	Diversity Course Global / Domestic	Writing-Intensive	Minimum Major GPA	Minimum Overall GPA
121	39	36	Kent Core / TECH 31000 or Kent Core or Elective	TECH 31000 or TECH 33056	2.000	2.000

### Kent Core Summary

Kent Core Categories	Important Notes	Remaining Credit Hours
<b>Composition (6-8 credit hours)</b> <i>ENG 11002, 11011, 21011; HONR 10197, 10297</i>	Enrollment based on placement test	6-8
<b>Mathematics and Critical Reasoning (3-5 credit hours)</b>	Fulfilled in this major with MATH 11010	0
<b>Humanities and Fine Arts (9 credit hours)</b> <i>Minimum one course from humanities in Arts and Sciences and minimum one course from fine arts</i>	May fulfill diversity requirement	9
<b>Social Sciences (6 credit hours)</b> <i>Must be selected from two curricular areas</i>	3 credits are fulfilled in this major with ECON 22060	3
<b>Basic Sciences (6-7 credit hours)</b> <i>Must include one laboratory</i>	Fulfilled in this major with PHY 13001, 13021 and 13022	0
<b>Additional (6 credit hours)</b> <i>Must be selected from two Kent Core categories</i>	5 credits are fulfilled in this major with MATH 11012 and PHY 13012	1

**Note 1:** Applied courses should be chosen from an approved associate degree or a declared minor or individualized specialization selected in consultation with an advisor.

**Note 2:** **Green and Alternative Energy electives (12 credit hours), choose from the following:**

EERT 32005 Instrumentation	3	MERT 42000 Thermodynamics for Engineering Technology	3
GAE 42002 Energy Management Systems (3) or TECH 42100 Training Topics in Technology (1-4)	1-4	TECH 31020 Automated Manufacturing	3
GAE 42003 Lean Manufacturing, Six Sigma and Operations Technology	3	TECH 31032 Power Technology	3

#### Kent Core

Students must complete a minimum 36 credit hours of the Kent Core. Certain courses required in programs and in student's major field may also fulfill the Kent Core. Honors equivalents shall satisfy the Kent Core. None of the courses on the Kent Core list may be taken with a pass/fail grade. Visit [www.kent.edu/catalog/kent-core](http://www.kent.edu/catalog/kent-core) for course list.

#### Diversity Course Requirement

Students must complete a two-course diversity requirement, consisting of one with a domestic (U.S.) focus and one with a global focus. One course must come from the Kent Core. The second course may be taken as a second Kent Core, within a major or minor, or as a general elective; or, with dean's approval, by completing one semester of study in another country. Visit [www.kent.edu/catalog/diversity](http://www.kent.edu/catalog/diversity) for course list.

#### Writing-Intensive Course Requirement

Students must complete a one-course writing-intensive requirement in their major and earn minimum C (2.000) grade. Visit [www.kent.edu/catalog/wic](http://www.kent.edu/catalog/wic) for course list.

#### Experiential Learning Requirement (ELR)

To provide students with direct engagement in learning experiences that promote academic relevance, meaning and an understanding of real-world issues, students must complete this requirement at Kent State, either as a for-credit course or as a non-credit, non-course experience approved by the appropriate faculty member. Visit [www.kent.edu/catalog/elr](http://www.kent.edu/catalog/elr) for course list.

#### Upper-Division Requirement

Students must complete a minimum 39 upper-division (numbered 30000 to 49999) credit hours of coursework.