

## SUGGESTED THREE-YEAR GRADUATION PLAN



### Applied Engineering – Manufacturing Systems – Bachelor of Science

[AT-BS-AENG-MSYS]

College of Applied Engineering, Sustainability and Technology

Catalog Year: 2012-2013

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>Post-Secondary Coursework or Credit By Examination Upon Entry as a Freshman: [30 Credit Hours]</b>					
ECON 22060 Principles of Microeconomics	3				Fulfills Kent Core Social Sciences
MATH 11010 Algebra for Calculus	3				Fulfills Kent Core Mathematics and Critical Reasoning
MATH 11022 Trigonometry	3				
PHY 13001 General College Physics I	4				Fulfills Kent Core Basic Sciences
PHY 13002 General College Physics II	4				Fulfills Kent Core Basic Sciences
TECH 10001 Information Technology	3			■	
TECH 13580 Engineering Graphics I	3			■	
TECH 21021 Survey of Electricity and Electronics	4			■	
TECH 23581 Computer-Aided Engineering Graphics	3			■	
<b>Semester One: [15 Credit Hours]</b>					
<b>TECH 20002 Materials and Processes</b>	<b>3</b>			■	
MATH 12002 Analytical Geometry and Calculus I	5				Fulfills Kent Core Mathematics and Critical Reasoning; credit for this course may be earned through AP or CLEP
MIS 24056 Fundamentals of Business Statistics	3			■	
TECH 33031 Programmable Logic Controllers	3	■		■	
US 10097 Destination Kent State: First Year Experience	1				Not required for transfer students with 25 credits
<b>Semester Two: [15 Credit Hours]</b>					
<b>TECH 31065 Cast Metals</b>	<b>3</b>	■		■	
CHEM 10050 Fundamentals of Chemistry	3				Fulfills Kent Core Basic Sciences
TECH 33033 Hydraulics/Pneumatics	3	■		■	
Kent Core Requirement	3				See Kent Core Summary on page 2
Kent Core Requirement	3				See Kent Core Summary on page 2
<b>Semester Three: [16 Credit Hours]</b>					
<b>TECH 33111 Strength of Materials</b>	<b>3</b>	■		■	
<b>TECH 46330 Visual Basic Programming in Engineering Technology</b>	<b>3</b>	■		■	
MIS 24163 Principles of Management	3			■	Credit for this course may be earned through CLEP
TECH 43550 Computer-Aided Manufacturing	3	■		■	
Kent Core Requirement	4				See Kent Core Summary on page 2
<b>Semester Four: [15 Credit Hours]</b>					
<b>TECH 43700 Computer Integrated Manufacturing</b>	<b>3</b>	■		■	
ACCT 23020 Introduction to Financial Accounting	3				Credit for this course may be earned through CLEP
ENG 20002 Introduction to Technical Writing	3			■	
TECH 33363 Metallurgy and Material Science	3	■		■	
TECH 34002 Advanced CAD II	3	■		■	

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**Critical requirements are boldface in shaded areas**

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<b>Semester Five: [17 Credit Hours]</b>					
<b>TECH 31000 Cultural Dynamics of Technology (3) and/or TECH 31016 Manufacturing Technology (3) and/or TECH 33056 Cooperative Education (1-6) and/or TECH 33220 Electronic Devices (4) and/or TECH 33222 Digital Designs and Applications (3) and/or TECH 33223 Electronic Communication (3)</b>	5	■		■	<b>TECH 31000 fulfills writing-intensive and domestic diversity requirement; a minimum C grade is required to meet the writing-intensive requirement</b>
COMM 15000 Introduction to Human Communication	3				Fulfills Kent Core Additional
CS 10061 Introduction to Computer Programming or DSCI 15310 Computational Thinking and Programming	3			■	
Kent Core Requirement	3				See Kent Core Summary on page 2
Kent Core Requirement	3				See Kent Core Summary on page 2
<b>Semester Six: [17 Credit Hours]</b>					
<b>TECH 43580 Computer-Aided Machine Design</b>	3	■		■	
<b>TECH 43800 Applied Engineering Technology Seminar</b>	2	■		■	
TECH 43080 Industrial and Environmental Safety	3	■		■	
MIS 34060 Operations Management	3	■		■	
MIS 34180 Human Resource Management	3	■		■	
Kent Core Requirement	3				See Kent Core Summary on page 2

### Graduation Requirements Summary

Minimum Total Hours	Minimum Upper-Division Hours	Minimum Kent Core Hours	Global / Domestic Diversity Course	Writing-Intensive	Experiential Learning	Minimum Major GPA	Minimum Overall GPA
125	39	36	Kent Core or general electives / TECH 31000	TECH 31000	Visit <a href="http://www.kent.edu/catalog/elr">www.kent.edu/catalog/elr</a>	2.250	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 credit hours fulfilled in this major with ECON 22060; second course cannot be from ECON	3
<b>Basic Sciences (6-7 credit hours)</b> <i>Must include one laboratory</i>	8 credit hours fulfilled in this major with PHY 13001 and 13002; one laboratory course needed	1
<b>Additional (6 credit hours)</b> <i>Must be selected from two Kent Core categories</i>	Fulfilled in this major with COMM 15000 and CHEM 10050 or MATH 11012	0

## Kent Core Courses That Can Be Earned Through Exams

**LEGEND:** G – Global Diversity; D – Domestic Diversity; LAB – Laboratory

				Minimum AP score <sup>1</sup>	Minimum CLEP score <sup>2</sup>	Minimum CBE score <sup>3</sup>
<b>COMPOSITION</b>						
ENG	11011	College Writing I (3)		3	50	C
ENG	21011	College Writing II (3)				C
<b>MATHEMATICS AND CRITICAL REASONING</b>						
CS	10051	Introduction to Computer Science (4)		3		
MATH	11010	Algebra for Calculus (3)			50	
MATH	11012	Intuitive Calculus (3)				C
MATH	12002	Analytic Geometry and Calculus I (5)		3	50	C
MATH	14001	Basic Mathematical Concepts I (4)				C
MATH	14002	Basic Mathematical Concepts II (4)				C
PHIL	21002	Introduction to Formal Logic (3)				C
<b>HUMANITIES AND FINE ARTS</b>						
<b>Humanities in Arts and Sciences</b>						
ENG	22073	Major Modern Writers: British and United States (3)		3	50	
G HIST	11050	History of Civilization I (3)		3		C
G HIST	11051	History of Civilization II (3)		3		C
D HIST	12070	History of the United States: The Formative Period (3)		3	50	C
D HIST	12071	History of the United States: The Modern Period (3)		3	50	C
HIST	1xxxx	European History (3)		3		
<b>Fine Arts</b>						
ARCH	10012	Survey of Architectural History II (3)				C
ARTH	22006	Art History I: Ancient and Medieval Art (3)		3		
MUS	22111	The Understanding of Music (3)				C
G MUS	22121	Music as a World Phenomenon (3)				C
<b>SOCIAL SCIENCES</b>						
ECON	22060	Principles of Microeconomics (3)		3	50	
ECON	22061	Principles of Macroeconomics (3)		3	50	
GEOG	10160	Introduction to Geography (3)				C
G GEOG	17063	World Geography (3)				C
D GEOG	17064	Geography of the United States and Canada (3)				C
G GEOG	22061	Human Geography (3)		3		
G POL	10004	Comparative Politics (3)		3		
D POL	10100	American Politics (3)		3	50	
D PSYC	11762	General Psychology (3)		3	50	
D PSYC	20651	Child Psychology (3)			50	
D SOC	12050	Introduction to Sociology (3)			50	
<b>BASIC SCIENCES</b>						
BSCI	10110	Biological Diversity (4)		3	50	
BSCI	10120	Biological Foundations (4)		4	50	
LAB BSCI	11010	Anatomy and Physiology I for Allied Health (3)				C
LAB BSCI	11020	Anatomy and Physiology II for Allied Health (3)				C
CHEM	10030	Chemistry in Our World (3)				C
CHEM	10050	Fundamentals of Chemistry (3)				C
CHEM	10052	Introduction to Organic Chemistry (2)				C
CHEM	10054	General and Elementary Organic Chemistry (5)				C
CHEM	10060	General Chemistry I (4)		3	50	C
CHEM	10061	General Chemistry II (4)		5	50	C
LAB CHEM	10062	General Chemistry I Laboratory (1)		4		
GEOL	11040	Earth Dynamics (3)				C
GEOL	11042	Earth History (3)				C
GEOL	21062	Environmental Geology (3)		3		C
GEOL	21080	Oceanography (3)				C
PHY	11030	Seven Ideas that Shook the Universe (3)				C
PHY	13001	General College Physics I (4)		3		C
PHY	13002	General College Physics II (4)		3		C
PHY	13011	College Physics I (2)				C
PHY	13012	College Physics II (2)				C
LAB PHY	13021	General College Physics Laboratory I (1)		3		
LAB PHY	13022	General College Physics Laboratory II (1)		3		
PHY	21040	Physics in Entertainment and the Arts (3)				C
PHY	21430	Frontiers in Astronomy (3)				C
PHY	23101	General University Physics I (5)		3		C
PHY	23102	General University Physics II (5)		3		C

- For more information on AP at Kent state, visit [www.kent.edu/honors/academicsandresearch/advanced-placement.cfm](http://www.kent.edu/honors/academicsandresearch/advanced-placement.cfm).
- For more information on CLEP at Kent State, visit [www.kent.edu/career/testing/clep](http://www.kent.edu/career/testing/clep).
- For more information on CBE at Kent State, visit [www.kent.edu/registrar/info/cbe.cfm](http://www.kent.edu/registrar/info/cbe.cfm).

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