



**Pre-Engineering**  
**Associate of Science – Transfer to IUPUI**  
**Ivy Tech Community College – Central Indiana**  
**Academic Year: 2014-2015**

Students who desire a 4-year Bachelor of Science degree in Engineering or Computer Science can begin their first two years of academic work by completing an Associate of Science degree in Pre-Engineering at IVY Tech. Students will learn to work in a cooperative team environment and build a strong foundation in science, math, and technology. They will learn qualitative and quantitative analytical skills necessary in engineering design, problem solving, and applied aspects of science and engineering. Students entering the degree program must have a strong background in mathematics, including Algebra and Trigonometry. Upon graduation, students may transfer to Indiana University-Purdue University Indianapolis for the remaining two years of their degree program.

<b>General Education Core (41) Credits</b>		Credits	Grade	Prerequisites
IVYT 1XX	Life Skills Elective	1		None
COMM 101	Fundamentals of Public Speaking	3		ENGL 025/093, ENGL 032/083
ENGL 111	English Composition	3		ENGL 025/093, ENGL 032/083
MATH 211	Calculus I	4		MATH 136, MATH 137
MATH 212	Calculus II	4		MATH 211
MATH 213	Multidimensional Mathematics	3		MATH 136, MATH 137
MATH 261	Multivariate Calculus	4		MATH 212
MATH 264	Differential Equations	3		MATH 261
PHYS 220	Mechanics	5		MATH 211
PHYS 221	Heat, Electricity, and Optics	5		PHYS 220, MATH 212
PHIL 102	Introduction to Ethics	3		
ECON 202	Principles of Microeconomics	3		
Subtotal		41		

<b>Professional / Technical Core (20-23) Credits</b>		Credits	Grade	Prerequisites [Corequisites]
ENGR 195	Intro to the Engineering Profession	1		None
ENGR 196	Introduction to Engineering	3		MATH 136, MATH 137;
ENGR 279	Engineering Capstone	1		Last 15 hours; Advisor approval
ENGR 297	Computer Tools for Engineering (Matlab)	1		ENGR 197 or ENGR 263 or CSCI 102
Tech Electives	Technical Electives (see list below)	14-17		See appropriate course descriptions

### Technical Electives (14-17) Credits

Transferring to IUPUI Mechanical/Energy Engineering (ME: 15hrs; Energy: 14hrs)			Transferring to IUPUI Electrical/Computer Engineering (17 hrs)			Transferring to IUPUI Computer Science (16 hrs)		
ENGR 197	Intro to Programming Concepts	2	ENGR 251	Electrical Circuits I	4	CSCI 101	Computer Science I	3
ENGR 200	Thermodynamics	3	ENGR 263	Intro to Comp. in EE	4	CSCI 102	Computer Science II	3
ENGR 204	Intro to Electrical & Electronic Circuits	4	ENGR 272	Digital Systems Design	4	CSCI 105	Discrete Mathematics for CS	3
ENGR 260	Vector Mechanics - Statics (Mech. only)	3	CHEM 105	Prin. Of Chemistry I	5	ENGR 204	Introduction to Electrical & Electronic Circuits	4
ENGR 261	Dynamics (Mech. only)	3				ASTR 101	Solar System Astronomy	3
CHEM 105	Prin. Of Chemistry I (Energy only)	5						
<b>Total Required Credits 61-64</b>								

## Sample Full-time Curriculum Sequence Two Academic Years

Semester 1		Credits
IVYT 1XX	Life Skills Elective	1-3
ENGL 111	English Composition	3
MATH 211	Calculus I	4
MATH 213	Multidimensional Math.	3
ENGR 196	Intro. to Engineering	3
ENGR 195	Intro. to the Engineering Prof.	1
<b>Total Credits</b>		<b>15-17</b>

Semester 2		Credits
COMM 101	Fundamentals of Speech	3
PHYS 220	Mechanics	5
MATH 212	Calculus II	4
XXXX XXX	Humanities Elective	3
XXXX XXX	Technical Elective (see pg.1)	2-5
<b>Total Credits</b>		<b>15-18</b>

Semester 3		Credits
PHYS 221	Heat, Elect., Optics	5
MATH 261	Multivariate Calculus	4
XXXX XXX	Technical Elective (see pg.1)	3-4
XXXX XXX	Technical Elective (see pg.1)	3-4
<b>Total Credits</b>		<b>16-18</b>

Semester 4		Credits
ECON 202	Principles of Microeconomics	3
MATH 264	Differential Equations	3
XXXX XXX	Technical Elective (see pg.1)	3-4
XXXX XXX	Technical Elective (see pg.1)	3
ENGR 279	Capstone	1
ENGR 297	Comp. Tools for Eng (Matlab)	1
<b>Total Credits</b>		<b>14-15</b>

## My Curriculum Plan

Use this chart to plan the length of time to complete your program.

Semester 1		Credits
<b>Total Credits</b>		

Semester 2		Credits
<b>Total Credits</b>		

Semester 3		Credits
<b>Total Credits</b>		

Semester 4		Credits
<b>Total Credits</b>		

Semester 5		Credits
<b>Total Credits</b>		

Semester 6		Credits
<b>Total Credits</b>		