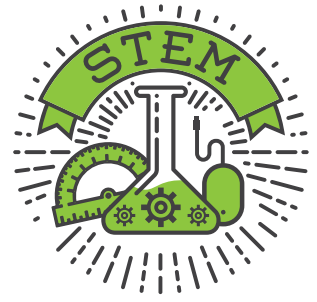


# STEM PATHWAY BRIEF

## PRE-ENGINEERING



### OVERVIEW

The Louisiana pre-engineering pathway provides a pre-engineering program for both TOPS University and TOPS Tech diploma-seeking high school students. Through hands on projects and interaction with industry professionals, the curriculum prepares students to compete in the 21st century by engaging them in understanding the fundamentals of engineering in the classroom as well as in the workplace. Students will understand the careers available to them in the field of engineering as well as learn key skills such as teamwork, oral and written technical communication, and work ethic that will serve them well whether they pursue an advanced degree or immediately join the workforce.

College Ready	Career Ready
<ul style="list-style-type: none"><li>• Aerospace Engineering</li><li>• Biological Engineering</li><li>• Chemical Engineering</li><li>• Civil Engineering</li><li>• Computer Engineering</li><li>• Computer Science</li><li>• Construction Management</li><li>• Electrical Engineering</li><li>• Environmental Engineering</li><li>• Industrial Engineering</li><li>• Mechanical Engineering</li><li>• Petroleum Engineering</li></ul>	<ul style="list-style-type: none"><li>• Mechanical Drafter</li><li>• Mechanical Engineering Technician</li><li>• Architectural and Civil Drafter</li><li>• Surveying and Mapping Technicians</li><li>• Computer Programmer</li><li>• Computer Integrated Manufacturing</li></ul>

### CREDENTIALS INCLUDED

Students who successfully complete the four required courses may be prepared to attain the Autodesk Inventor Certified User Advanced credential (Statewide Advanced IBC).

### STEM DIPLOMA SEALS

#### GOLD SEAL

Students who successfully complete the four required courses and four in either track courses from the Additional Course list will earn a Gold STEM Diploma Seal.

#### SILVER SEAL

Students who successfully complete the four required courses in either track will earn a Silver STEM Diploma Seal.

# STEM PATHWAY

CORE COURSES:



ART




MATH



SCIENCE

LSU Track		PLTW Track	
Required Courses (4)		Required Courses (4)	
Course Title	Course Code	Course Title	Course Code
Intro to Engineering Design (LSU Partnership)	110801	PLTW Intro to Engineering Design	110802
Intro to Computational Thinking for STEM (LSU Partnership)	061140	PLTW Principles of Engineering	080109
Robotics (LSU Partnership)	150780	PLTW Engineering Design and Development	110862
Engineering Design and Development (LSU Partnership) <b>OR</b>	110861	Computer Integrated Manufacturing <b>OR</b>	110850
Principles of Engineering (LSU Partnership)	110864	PLTW Civil Engineering and Architecture <b>OR</b> AP Computer Science Principles	110841 061177

Additional Courses (choose an additional 4)			
Course Title	Course Code	Carnegie Credits	5-Point Scale
Engineering Economy (LSU Partnership)	144200	1	
Principles of Engineering (LSU Partnership)	110864	1	
Engineering Design & Development (LSU Partnership)	110861	1	
Programming for Engineers (LSU Partnership)	144300	1	
Data Manipulation and Analysis (LSU Partnership)	080532	1	
Robotics: Advanced (LSU Partnership)	150731	1	
PLTW Engineering Essentials	110859	1	
PLTW Aerospace Engineering	110831	1	
PLTW Civil Engineering and Architecture	110841	1	
PLTW Digital Electronics	110821	1	
PLTW Environmental Sustainability	312098	1	
PLTW Computer Science Essentials	061100	1	
Computer Integrated Manufacturing (1 credit)	110850	1	
AP Computer Science Principles	061177	1	
AP Computer Science A	061175	1	✓
AP Calculus AB	160327	1	✓
AP Calculus BC	160328	1	✓
Statistical Reasoning <b>OR</b>	165031	1	
AP Statistics	160352	1	✓
Biology II <b>OR</b>	150302	1	
Biology II: AP Biology <b>OR</b>	150307	1	✓
Biology: DE - CBIO 1013 General Biology I <b>OR</b>	150321	1	✓
Biology I: DE CBIO 1033 General Biology I (Sci Majors) <b>OR</b>	150322	1	✓
Biology II: DE CBIO 1033 General Biology I (Sci Majors)	150324	1	✓
Biology II: DE CBIO 1043 General Biology II (Sci Majors)	150326	1	✓
Chemistry II <b>OR</b>	150402	1	
AP Chemistry <b>OR</b>	150410	1	✓
Chemistry I: DE - CCEM 1103 Chemistry I <b>OR</b>	150414	1	✓
Chemistry I: DE CCEM 1123 General Chemistry I (Sci Majors) <b>OR</b>	150415	1	✓
Chemistry II: DE CCEM 1123 General Chemistry I (Sci Majors)	150420	1	✓
Chemistry II: DE CCEM 1133 General Chemistry II (Sci Majors)	150422	1	✓
Physics I: AP Physics I- Algebra Based <b>OR</b>	150724	1	✓
Physics: AP Physics II - Algebra Based <b>OR</b>	150725	1	✓
AP Physics C: Electricity and Magnetism <b>OR</b>	150794	1	✓
AP Physics C: Mechanics <b>OR</b>	150795	1	✓
Physics I: DE CPHY 2113 Physics I (Algebra/Trig Based) <b>OR</b>	150726	1	✓
Physics I: DE CPHY 2133 Physics I (Caclulus Based)	150728	1	✓

Additional Courses (choose an additional 4)			
Course Title	Course Code	Carnegie Credits	5-Point Scale
 Environmental Science <b>OR</b>	150310	1	
AP Environmental Science	150311	1	✓

For Jump Start Tops Tech Diploma: Required Career Readiness Courses (1)			
Course Title	Course Code(s)	Carnegie Credits	5-Point Scale
Intro to STEM Pathways and Careers: LSU Partnership	061139	1	
Quest for Success	080411	1	
Agriscience I	010301	1	
Jobs for America's Graduates I	042010	1	
General Technology Education (Introduction to Skilled Crafts)	110010	1	
Introduction to Health Occupations	090029 <b>OR</b> 090930	1	

For full Pathway information, visit the [JumpStart graduation pathway page](#).

## UNIVERSAL DOCUMENTS

[CDF ELIGIBLE COURSES](#) • [JUMP START FUNDING](#) • [UNIVERSAL COURSE CODES](#)