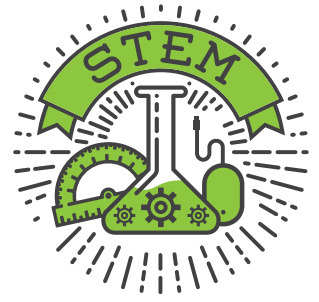# STEM PATHWAY BRIEF
COMPUTING

OVERVIEW

The Louisiana Computing Certification Pathway provides a computer science, computational thinking and computational science program for both TOPS University and TOPS Tech diploma-seeking students. Through hands-on projects, the coursework prepares students to compete in the 21st century job market by engaging them in understanding the fundamentals of computing. Students will be able to apply computational thinking techniques in many different STEM disciplines and demonstrate proficiency in computing in many settings, such as explain the implications of the use of technology in social interactions, advice on how to protect systems from possible cyberattacks, and create interactive websites and applications. Students will also understand the careers available to them in the field of computing 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 AND CAREER CONNECTIONS

College Ready		Career Ready
• Artificial Intelligence Specialist • Computer Engineer • Computer Network Architect • Computer Scientist • Computer Software Engineer • Computer Systems Analyst • Computer Vision Software Engineer • Consultant-Forensics Cybersecurity Researcher • Cyber Security Engineer • Database Administrator	• Data Scientist • Information Security Analyst • Information Systems & Decision Science • Machine Learning Specialist • Network and Computer Systems Administrator • Management Information Systems • Secure Software Engineer • Software Developer, Applications • Software Developer, Systems Software • Robotics Software Engineer	• Audio/visual Support Specialist • Info Security Analyst • IT Security Analyst • IT Tech Support Analyst • IT Tech Support Specialist • Computer and Information Systems Assistant • Computer Network Support Specialist • Computer Programmer • Computer Support Specialist • Computer User Support Specialist • Computer Vision Software Engineer • Cyber Security Specialist • Data Security Analyst • Junior Computer Programmer • Junior Web Designer • Web Designer

STATEWIDE CREDENTIALS INCLUDED

- The **Computing and Computer Science - LSU Partnership Regional Core Credential** will be issued to students who successfully complete the full LSU endorsed pathway
- *CIW Network Technology Associate* **Basic**
- *CIW JavaScript Specialist* **Basic**
- *CIW Database Design Specialist* **Basic**
- *CIW Web Security Specialist* **Basic**
- *CompTIA A+ Certification* **Basic**
- *CompTIA Fundamentals* **Basic**
- *Network+ Certification* **Basic**
- *Security+* **Basic**
- *Fundamentals of JavaScript, Functional Programming and Web Development (Level 1)* **Basic**
- *Fundamentals of JavaScript, Functional Programming and Web Development (Level 2)* **Advanced**
- *PYTHON* **Basic**

STEM DIPLOMA SEALS

GOLD SEAL

Students will earn a Gold STEM Diploma Seal by satisfying the requirements for a Silver STEM Diploma Seal and completing four additional courses from the Qualifying Course list.

SILVER SEAL

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

STEM PATHWAY

CORE COURSES: (M) MATH (Sci) SCIENCE

LSU Track		PLTW Track	
Required Courses (4)		**Required Courses (4)**	
Course Title	**Course Code**	**Course Title**	**Course Code**
Intro to Computational Thinking for STEM (LSU Partnership)	061140	AP Computer Science Principles	061177
Data Manipulation and Analysis (LSU Partnership) **OR**	080532	PLTW Computer Science Essentials	061100
Programming for Engineers (LSU Partnership)	144300	AP Computer Science A	061175
Cybersecurity (LSU Partnership) **OR**	040217	PLTW Cybersecurity	040209
AP Computer Science Principles	061177		
Survey of Computer Science (LSU Partnership) **OR**	061179		
Interactive Computing (LSU Partnership)	061180		

Additional Courses (choose an additional 4)			
Course Title	**Course Code(s)**	**Carnegie Credits**	**5-Point Scale**
Programming for Engineering (LSU Partnership)	144300	1	
Interactive Computing (LSU Partnership)	061180	1	
Data Manipulation and Analysis (LSU Partnership)	080532	1	
Cybersecurity (LSU Partnership)	040217	1	
Robotics (LSU Partnership)	150780	1	
Robotics: Advanced (LSU Partnership)	150731	1	
Coding for the Web (LSU Partnership)	040244	1	
Programming Digital Media (LSU Partnership)	040243	1	
Video Game Design (LSU Partnership)	080022	1	
Bioinformatics (LSU Partnership)	090813	1	
(Sci) PLTW Principles of Engineering	080109	1	
PLTW Engineering Essentials	110859	1	
Computer Integrated Manufacturing	110850	1	
PLTW Digital Electronics	110821	1	
PLTW Engineering Design and Development	110862	1	
Computer Science I	061102	1	
AP Computer Science Principles	061177	1	
(M) AP Computer Science A	061175	1	✓
(M) Advanced Math-Pre-Calculus: DE-CMAT 1223 Trigonometry	160501	1	✓
(M) AP Calculus (AB) **OR**	160327	1	✓
AP Calculus (Calculus: DE CMAT 211305 Calculus I)	160506	1	✓
(M) AP Calculus BC **OR**	160328	1	✓
Calculus: DE CMAT 2123-5 Calculus II	160507	1	✓
Statistical Reasoning **OR**	165031	1	
(M) AP Statistics **OR**	160352	1	✓
Probability and Statistics: DE CMAT 1303	160356	1	✓
Biology II **OR**	150302	1	
(Sci) Biology: DE - CBIO 1013 General Biology I **OR**	150321	1	✓
Biology I: DE CBIO 1033 General Biology I (Sci Majors) **OR**	150322	1	✓
Biology II: DE CBIO 1033 General Biology I (Sci Majors)	150324	1	✓
(Sci) Biology II: DE CBIO 1043 General Biology II (Sci Majors)	150326	1	✓
Chemistry II **OR**	150402	1	
(Sci) Chemistry I: DE - CCEM 1103 Chemistry I **OR**	150414	1	✓
Chemistry I: DE CCEM 1123 General Chemistry I (Sci Majors) **OR**	150415	1	✓
Chemistry II: DE CCEM 1123 General Chemistry I (Sci Majors)	150420	1	✓

Additional Courses (choose an additional 4)			
Course Title	**Course Code(s)**	**Carnegie Credits**	**5-Point Scale**
Sci Chemistry II: DE CCEM 1133 General Chemistry II (Sci Majors)	150422	1	✓
Physics II **OR**	150701	1	
Physics I: AP Physics I-Algebra Based **OR**	150724	1	✓
Physics: AP Physics II-Algebra Based **OR**	150725	1	✓
Sci AP Physics C: Electricity and Magnetism **OR**	150794	1	✓
AP Physics C: Mechanics **OR**	150795	1	✓
Physics: DE Physics I CPHY 2113 (Algebra/Trig Based) **OR**	150726		✓
Physics: DE Physics 1 CPHY 2133 (Calculus Based)	150728		✓
Introduction to Programming	080500	1	
CIW Network Security	061121	1	
Java Programming	080521	1	
COMP TIA+ Networking Fundamentals	061122	1	
COMP TIA+ Fundamentals of Computer Installation and Configuration	061130	1	
COMP TIA+ Programming with PL/SQL	061127	1	
Robotics Beginner	150723	1	
Fundamentals of HTML, CSS, & Javascript	080523	1	
Computer Systems/Networking I	061112	1	
Computer Service Technology I	310818	1	
Computer Service Technology II	310819	1	
Adv Javascript, Programming, and Web Development (1 Credit)	080520	1	

DE: Dual Enrollment, AP: Advanced Placement

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 **OR** 090930	1	

UNIVERSAL DOCUMENTS
CDF ELIGIBLE COURSES • JUMP START FUNDING • UNIVERSAL COURSE CODES