Computing & Cybersecurity

The Louisiana computing and cybersecurity pathway allows students to engage in a program of study that combines computer science, cybersecurity, and mathematics through project-based learning. Students will be able to apply computational thinking techniques in many different STEM disciplines and demonstrate proficiency in computing in many settings. Students will explore the implications of technology usage in social interactions, learn how to protect systems from possible cyberattacks, and create interactive websites and applications. Students will discuss the ethics of advancements in robotics and artificial intelligence as they consider the value of truly autonomous devices. They will build complex systems capable of multiple sensory inputs and advanced logic structures. Pathway coursework prepares TOPS University and Jump Start TOPS Tech diploma-seeking students to compete in the 21st century by immersing them in the fundamentals of the field, and its impacts and applications in the workplace.

College and Career Connections

Finding high-wage career opportunities directly out of high school can be challenging. It typically requires advanced capstone credentials accompanied by work experience and/or apprenticeships in the field of study.

High School to Career	Community/Technical College to Career	University to Career
Audio/Visual Support **IT Support Specialist** **Junior Computer Programmer** **Web Designer**	**Computer Forensic Analyst** **Computer Programmer** **Data Security/ Data Analyst** **IT Auditor**	**AI Specialist** **Computer Engineer** **Cybersecurity Analyst** **Security Informatics**

****This Louisiana STEM Pathway must be used for students entering grade 9 in the 2024-2025 school year and future cohorts. The "Archived Pathway" briefs must be followed for students that entered grade 9 prior to the 2024-2025 school year. Email STEM@la.gov with any questions.**

Universal Documents

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Capstone Credentials

In order to graduate, Jump Start students must earn at least one credential from the options below.
*Please contact the individual providers to confirm if provider-specific courses are structured to offer the credential.

INDUSTRY-BASED CREDENTIALS: Depending on student course completion		
CIW Network Technology Associate	CIW Web Development Professional	HTML, CSS, JavaScript
CIW Javascript Specialist	Comp TIA A+ Certification	Fundamentals of JavaScript, Functional Programming, and Web Development (Level 1)
CIW Database Design Specialist	Comp TIA IT Fundamentals+ Certification	Fundamentals of JavaScript, Functional Programming, and Web Development (Level 2)
CIW Web Security Specialist	Comp TIA Network+ Certification	Fundamentals of JavaScript, Functional Programming, and Web Development (Level 3)
CIW Web Design Professional	Comp TIA Security+ Certification	PYTHON Certification

STEM Renaissance Computing & Cybersecurity Pathway Structure

To earn the ***Silver STEM Diploma Seal,*** students must pass one course from each of the four following concentration areas: Introductory Course, Computational Thinking Principles, Introductory Cybersecurity, and a Silver Computing Focal Course. (These course options are listed on the following chart.)

To earn the ***Gold STEM Diploma Seal,*** students must complete the requirements for the Silver STEM Diploma Seal, pass three Applied Computing and Technology courses from the approved STEM Pathway listing, and pass an additional Math or Science course. (These course options are listed on the following chart.)

To complete the ***TOPS Tech Diploma,*** students must complete the Gold STEM Diploma Seal requirements and one course from the approved Career Readiness Course list.

Universal Documents

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Computing & Cybersecurity STEM Pathway Course Options

Concentration Area	Course Code	Course Title	Carnegie Credits
To earn the ***Silver STEM Diploma Seal,*** students must pass one course from each of the four following concentration areas: Introductory Course, Computational Thinking Principles, Introductory Cybersecurity, and a Silver Computing Focal Course.			
Introductory Course (Select 1)	061100	PLTW Computer Science Essentials **OR**	1
	061179	Survey of Computer Science (LSU Partnership)	1
Focus 1: Computational Thinking Principles (Select 1)	061177	AP Computer Science Principles **OR**	1
	040221	Cyber Literacy (NICERC Partnership) **OR**	1
	061140	Introduction to Computational Thinking for STEM (LSU Partnership) **OR**	1
	061141	Introduction to Computational Thinking	1
Focus 2: Introductory Cybersecurity (select 1)	040217	Cybersecurity (LSU Partnership) **OR**	1
	040224	Cybersecurity (Cyber.org Partnership) **OR**	1
	040209	PLTW Cybersecurity	1
Focus 3: Computing Focal Course* (Select 1)	080520	Advanced JavaScript, Programming, and Web Development **OR**	1
	080505	CIW Database Design **OR**	1
	040519	CIW E-Commerce Site Design and Development **OR**	1
	040517	CIW Essentials of Web Design **OR**	1
	040405	CIW Internet Business **OR**	1
	061125	CIW Introduction to JavaScript **OR**	1
	061121	CIW Network Security **OR**	1
	061120	CIW Networking Technology **OR**	1
	061126	CIW Perl Fundamentals **OR**	1
	040415	CIW Website Development **OR**	1
	061130	COMP TIA+ Fundamentals of Computer Installation and Configuration **OR**	1
	061122	COMP TIA+ Networking Fundamentals **OR**	1
	061127	COMP TIA+ Programming with PL/SQL **OR**	1
	061138	COMP TIA+ Security **OR**	1
	080523	Fundamentals of HTML, CSS, and JavaScript	1

Additional Course Options	Course Code	Course Title	Carnegie Credits
To earn the ***Gold STEM Diploma Seal,*** students **must complete the requirements for the Silver STEM Diploma** Seal, pass three Applied Computing and Technology courses from the approved STEM Pathway listing, and pass an additional Math or Science course.			
Applied Computing and Technology Options* (Select 3) ***continued on the next page**	061175	AP Computer Science A **OR**	1
	061177	AP Computer Science Principles **OR**	1
	080520	Advanced Javascript, Programming, and Web Development **OR**	1
	080202	CDF - Qualifying CTE Internship I **OR**	1
	080505	CIW Database Design **OR**	1
	040519	CIW E-Commerce Site Design and Development **OR**	1
	040517	CIW Essentials of Web Design **OR**	1
	040405	CIW Internet Business **OR**	1
	061125	CIW Introduction to Javascript **OR**	1
	061121	CIW Network Security **OR**	1
	061120	CIW Networking Technology **OR**	1
	061126	CIW Perl Fundamentals **OR**	1
	040415	CIW Website Development **OR**	1
	040244	Coding for the Web (LSU Partnership) **OR**	1
	061130	COMP TIA+ Fundamentals of Computer Installation and Configuration **OR**	1
	061122	COMP TIA+ Networking Fundamentals **OR**	1
	061127	COMP TIA+ Programming with PL/SQL **OR**	1
	061138	COMP TIA+ Security **OR**	1
	110850	Computer Integrated Manufacturing **OR**	1
	040221	Cyber Literacy I (NICERC Partnership) **OR**	1
	040222	Cyber Literacy II (NICERC Partnership) **OR**	1
	040218	Cyber Society (NICERC Partnership) **OR**	1
	080532	Data Manipulation and Analysis (LSU Partnership) **OR**	1
	040241	Digital Storytelling (LSU Partnership) **OR**	1

Applied Computing and Technology Options (Select 3)	150740	First Robotics I **OR**	1
	150750	First Robotics II **OR**	1
	080523	Fundamentals of HTML, CSS, and Javascript **OR**	1
	061180	Interactive Computing (LSU Partnership) **OR**	1
	0611140	Introduction to Computational Thinking of STEM (LSU Partnership) **OR**	1
	080500	Introduction to Programming **OR**	1
	144300	Programming for Engineers (LSU Partnership) **OR**	1
	150780	Robotics (LSU Partnership) **OR**	1
	150731	Robotics: Advanced (2 credits) **OR**	1
	061179	Survey of Computer Science (LSU Partnership) **OR**	1
	080022	Video Game Design (LSU Partnership)	1
Math OR Science course students should select ONE course option.			
Math OR Science course* (Select 1) ***continued on the next page**	160347	Advanced Math- Functions and Statistics **OR**	1
	160346	Advanced Math- Pre-Calculus **OR**	1
	160501	Advanced Math-Pre-Calculus: DE-CMAT 1223 Trigonometry **OR**	1
	150307	Biology II: AP Biology **OR**	1
	160327	AP Calculus AB **OR**	1
	160328	AP Calculus BC **OR**	1
	150410	AP Chemistry **OR**	1
	150311	AP Environmental Science **OR**	1
	150794	AP Physics C: Electricity and Magnetism **OR**	1
	150795	AP Physics C: Mechanics **OR**	1
	150724	Physics I: AP Physics I- Algebra Based **OR**	1
	150725	Physics: AP Physics II- Calculus Based **OR**	1
	222004	AP Psychology **OR**	1
	160352	AP Statistics **OR**	1
	150321	Biology: DE CBIO 1013 General Biology I **OR**	1
	150322	Biology I: DE CBIO 1033 General Biology I (Science Majors) **OR**	1
	150302	Biology II **OR**	1

Math OR Science course (Select 1)	150324	Biology II: DE CBIO 1033 General Biology I (Science Majors) **OR**	1
	150326	Biology II: DE CBIO 1043 General Biology II (Science Majors) **OR**	1
	149995	Biology II: DE CBIO 2103 Microbiology **OR**	1
	160506	Calculus DE CMAT 2113-5 Calculus I **OR**	1
	160507	Calculus DE CMAT 2123-5 Calculus II **OR**	1
	150414	Chemistry I: DE CCEM 1103 Chemistry I **OR**	1
	1500420	Chemistry I: DE CCEM 1123 General Chemistry I (Science Majors) **OR**	1
	150402	Chemistry II **OR**	1
	150420	Chemistry II: DE CCEM 1123 General Chemistry II (Science Majors) **OR**	1
	150422	Chemistry II: DE CCEM 1133 General Chemistry II (Science Majors) **OR**	1
	150914	Environmental Science DE- CEVS 1103 **OR**	1
	225011	Introduction to Psychology CPSY 2013 **OR**	1
	150726	Physics I: DE CPHY 2113 Physics I (Algebra/Trig Based) **OR**	1
	150728	Physics I: DE CPHY 2113 Physics I (Calculus Based) **OR**	1
	150701	Physics II **OR**	1
	160348	Pre-Calculus **OR**	1
	160349	Probability and Statistics **OR**	1
	160356	Probability and Statistics: DE CMAT 1303 **OR**	1
	222001	Psychology	1

Universal Documents

STEM Pathways **CDF Eligible Courses** **Jump Start Funding** **Universal Course Codes**