

**PRACTICUM OF STEM**

Course # 07228920

**Prerequisite: Algebra I and Geometry**

**Recommended Prerequisite: Two credits in STEM Pathway**

**Recommended Grade Placement 11-12**

**2 CREDITS**

This course is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. A student may repeat this course once for credit provided that the student is experiencing different aspects of the industry and demonstrating proficiency in additional and more advanced knowledge and skills.

**Recommended Sequence of Courses (Prerequisites noted in course descriptions)**

**To complete the Program of Study, students must earn four credits in the Program of Study and one of the credits must be an Advanced Level course.**

<b>Entry Level Courses</b>	<b>Advanced Courses</b>
<b>Principles of Biomedical Science</b>	<b>Medical Microbiology</b>
<b>Human Body Systems</b>	<b>Pathophysiology</b>
	<b>Medical Interventions</b>
	<b>Biomedical Innovations</b>
	<b>Practicum of STEM</b>

**Cybersecurity**

***Business & Industry or STEM Endorsement***



The Cybersecurity program of study includes the occupations and educational opportunities related to planning, implementing, upgrading, or monitoring security measures for the protection of computer networks and information. This program of study may also include exploration into responding to computer security breaches and virus and administering network security measures.

**To complete the Program of Study, students must earn four credits in the Program of Study and one of the credits must be an Advanced Level course.**

HIGH SCHOOL/INDUSTRY CERTIFICATION	CERTIFICATE/LICENSE*	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/DOCTORAL PROFESSIONAL DEGREE	OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Oracle Certified Associate Java SE 8	GIAC Reverse Engineering Malware	System Networking, and LAN/WAN Management	Computer Systems Networking and Telecommunications	Computer Systems Analysis/Analyst	Information Security Analysts	\$91,915	814	29%
Oracle Certified Database Associate	Certified Advanced Windows Forensic Examiner	Information Technology	Computer Systems Networking and Telecommunications	Information Technology	Network and Computer System Administrators	\$82,597	2,814	19%
Cisco Certified Entry Networking Technician (CCENT)	SAP Certified Technology Professional System Security Architect	Computer and Information Sciences, General			Computer Systems Analyst	\$87,568	5,937	29%
Associate of (ISC)2	Cisco Certified Network Professional Security Certification	Computer Science						
Additional industry based certification information is available from the TEA CTE Website								
For more information on postsecondary options for this program of study, visit TXCTE.org.								

  

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES	
<b>Exploration Activities:</b>	<b>Work Based Learning Activities:</b>
Join TSA Job shadow a computer system analyst or information security analyst.	Obtain an industry based certification.

## Courses in this Program of Study

### AP COMPUTER SCIENCE PRINCIPLES

Course # 0722209

**Recommended Grade Placement 9-10**

**1 CREDIT**

In this course, students will learn the principles that underlie the science of computing and develop the thinking skills that computer scientist use. Students will work on their own and as part of a team to creatively address real-world issues using the tools and processes of computation.

### COMPUTER SCIENCE I

Course # 0722205

**Prerequisite: Algebra I**

**Recommended Grade Placement 9-10**

**1 CREDIT**

Students will access, analyze, and evaluate all types of information in ways that are computable in order to solve problems that range in scope from computing a speeding ticket to instructing a robot to dance, from designing interactive, intelligent fashion garments to creating a mobile app game. Students are exposed to the vast and diverse world of computer science, working collaboratively and individually on projects and learning a variety of programming languages, both graphical and text-based, to use in implementing their solutions. This is the first in the sequence of computer science courses offered for students in the computer science program of study, STEM endorsement. This is an advanced academic course and is weighted in the GPA. *This course receives weighted GPA credit. Check Appendix A for the weight.*

### NETWORKING

Course # 07224620

**Recommended Grade Placement 11-12**

**1 CREDIT**

In Networking, students will develop knowledge of the concepts and skills related to data networking technologies and practices in order to apply them to personal or career development. To prepare for success, students will have opportunities to reinforce, apply, and transfer knowledge and skills to a variety of settings and problems.

**FOUNDATIONS OF CYBERSECURITY**

Course #07224830

**Recommended Grade Placement 9-10**

**1 CREDIT**

In this course, students will develop the knowledge and skills needed to explore fundamental concepts related to the ethics, laws, and operations of cybersecurity. Students will examine trends and operations of cyber attacks, threats, and vulnerabilities. Students will review and explore security policies designed to mitigate risks.

**CYBERSECURITY CAPSTONE**

Course #07224840

**Prerequisite: Foundations of Cybersecurity**

**Recommended Grade Placement 11-12**

**1 CREDIT**

Students will develop the knowledge and skills needed to explore advanced concepts related to the ethics, laws, and operations of cybersecurity. Students will examine trends and operations of cyber attacks, threats, and vulnerabilities, and students will develop security policies to mitigate risk. The skills obtained in this course will prepare students for additional study toward industry certification.

**PRACTICUM INFORMATION TECHNOLOGY**

Course # 07222240

**Prerequisite: At least two credits of Cybersecurity courses**

**Recommended Grade Placement 12**

**2 CREDITS**

Research in IT is a project-based research course for students who have the ability to research a real-world technological problem. Students develop a project on a topic related to information technology career interests, use scientific methods of investigation to conduct in-depth research, are matched with a mentor from the business or professional community, apply information technology concepts, compile findings, and present their findings to an audience that includes experts in the field. To attain academic success, students must have opportunities to learn, reinforce, apply, and transfer their knowledge, skills, and technologies in a variety of settings.

**Recommended Sequence of Courses (Prerequisites noted in course descriptions)**

**To complete the Program of Study, students must earn four credits in the Program of Study and one of the credits must be an Advanced Level course.**

<b>Entry Level Courses</b>	<b>Advanced Courses</b>
<b>AP Computer Science Principles</b>	<b>Networking</b>
<b>Computer Science I</b>	<b>Cybersecurity Capstone</b>
<b>Fundamentals of Cybersecurity</b>	<b>Practicum of Information Technology</b>