



**Level 1** 29700 Fundamentals of Computer Science

09757 Computer Science I

**Level 2** 01774 AP Computer Science Principles

D19757/COMP 1302/COMP 1302  
AC OnRamps Computer Science

**Level 3** 09758 Computer Science II  
01773 AP Computer Science A

**Level 4** 29759 Computer Science III  
09775 Career Preparation I (with related WBL position)

| HIGH SCHOOL/<br>INDUSTRY<br>CERTIFICATION   | CERTIFICATE/<br>LICENSE*                 | ASSOCIATE'S<br>DEGREE                   | BACHELOR'S<br>DEGREE                    | MASTER'S/<br>DOCTORAL<br>PROFESSIONAL<br>DEGREE |
|---|--|---|---|---|
| Oracle Certified Association JAVA SE 8 Programmer                                     | Certified Computing Professional         | Computer Programming/ Programmer Genera | Management Information Systems, General | Computer Software Engineer                      |
| Oracle Certified Database Associate   | Cloud Technology Associate Certification | Computer Software Engineer              | Computer Software Engineer              | Computer Science                                |
| Microsoft Technology Associate, Introduction to Programming Using Python, HTML or CSS | AEM 6 Developer                          | Computer Science                        | Computer Science                        | Information Science/ Studies                    |
| Microsoft Technology Associate, Introduction to Programming Using Java or Java Script | Certified Software Analyst               | Certified Software Analyst              | Information Science/ Studies            |   |

| Occupations                          | Median Wage | Annual Openings | % Growth |
|--------------------------------------|-------------|-----------------|----------|
| Software Developer, Systems Software | \$103,334   | 2,985           | 25%      |
| Software Developers, Applications    | \$104,499   | 6,311           | 30%      |
| Computer Programmers                 | \$79,893    | 1,454           | 9%       |

Additional industry-based certification information is available on 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 |   |
|---|---|
| Exploration Activities:                                 | Work Based Learning Activities:         |
| Join TSA<br>Participate in coding club at school        | Obtain an industry-based certification. |

The Programming and Software Development program of study explores the occupations and education opportunities associated with researching, designing, developing, and testing operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computer applications. This program of study may also include exploration into creating, modifying, and testing the codes, forms, and script that allow computer applications to run.



**The Science, Technology, Engineering, and Mathematics (STEM) Career Cluster focuses on planning, managing, and providing, scientific research and professional and technical services, including laboratory and testing services, and research and development services.**

Successful completion of the Programming and Software Development program of study will fulfill requirements of the Business and Industry and STEM endorsement if the math and science requirements are met. Revised - July 2020



GCCISD offers career and technical education (CTE) programs in Agriculture, Food & Natural Resources; Architecture & Construction; Arts, Audio Visual Technology & Communications; Business, Marketing & Finance; Education & Training; Energy; Health Science; Hospitality & Tourism; Human Services; Information Technology; Law & Public Service; Manufacturing; Science, Technology, Engineering & Math; and Transportation, Distribution & Logistics. Admission to these programs is based on student interest and space availability in GCCISD CTE programs. It is the policy of GCCISD CTE Programs not to discriminate on the basis of race, color, national origin, sex or handicap in its CTE programs, services or activities.

# COURSE INFORMATION

| 29700   | FUNDAMENTALS OF COMPUTER SCIENCE | GPA Level: Regular   |
|---|----------------------------------|--|
| Grade Level: 9-12   | Service ID: 03580140 (1 cr.)     | Prerequisites: None<br><b>Satisfies Technology Requirement</b> |
| <p>Fundamentals of Computer Science is intended as a first course for those students just beginning the study of computer science. Students will learn about the computing tools that are used every day. Students will foster their creativity and innovation through opportunities to design, implement, and present solutions to real-world problems. Students will collaborate and use computer science concepts to access, analyze, and evaluate information needed to solve problems. Students will learn the problem-solving and reasoning skills that are the foundation of computer science.</p> |                                  |  |

| 09757  | COMPUTER SCIENCE I           | GPA Level: Regular   |
|--|------------------------------|--|
| Grade Level: 10-12   | Service ID: 03580200 (1 cr.) | Prerequisites: Fundamentals of Computer Science & Algebra I<br><b>Satisfies Technology Requirement</b> |
| <p>Computer Science involves the understanding of programming language concepts and how they are applied in problem solving. This course also covers problem solving, computer architecture, and programming concepts. This knowledge helps students understand how software is written and increases the student's ability to learn application software through the understanding of the basic concepts.</p> |                              |  |

| 01774  | AP COMPUTER SCIENCE PRINCIPLES | GPA Level: Advanced Placement                                       |
|--|--------------------------------|---|
| Grade Level: 10-12   | Service ID: A3580100 (1 cr.)   | Prerequisites: Algebra I<br><b>Satisfies Technology Requirement</b> |
| <p>AP Computer Science Principles is an introductory college-level computing course that introduces students to the breadth of the field of computer science. Students learn to design and evaluate solutions and to apply computer science to solve problems through the development of algorithms and programs. They incorporate abstraction into programs and use data to discover new knowledge. Students also explain how computing innovations and computing systems work, explore their potential impacts, and contribute to a computing culture that is collaborative and ethical.</p> |                                |   |

| 19757 / D19757   | OnRamps Computer Science A     | GPA Level:  |
|--|--------------------------------|---|
| Grade Level: 9-12  | Service ID: 03580200 (0.5 cr.) | Prerequisites: Algebra I<br><b>Satisfies Technology Requirement</b> |
| <p>OnRamps Computer Science teaches a set of core ideas that shapes the landscape of computer science and its impact on our society. In addition to learning about the magic and beauty of computing, students will acquire essential Texas College and Career Readiness skills, applying critical thinking, problem solving, and communication within a project-based learning framework.</p> |                                |   |

| COMP 1302 / AC   | OnRamps Computer Science B     | GPA Level:   |
|--|--------------------------------|--|
| Grade Level: 9-12  | Service ID: 03580200 (0.5 cr.) | Prerequisites: Algebra I and OnRamps Computer Science A<br><b>Satisfies Technology Requirement</b> |
| <p>OnRamps Computer Science teaches a set of core ideas that shapes the landscape of computer science and its impact on our society. In addition to learning about the magic and beauty of computing, students will acquire essential Texas College and Career Readiness skills, applying critical thinking, problem solving, and communication within a project-based learning framework.</p> |                                |  |

| 09758 | COMPUTER SCIENCE II | GPA Level: Regular |
|-------|---------------------|--------------------|
|-------|---------------------|--------------------|

|                    |                              |  |
|--------------------|------------------------------|--|
| Grade Level: 11-12 | Service ID: 03580300 (1 cr.) | Prerequisites: Computer Science I<br><b>Satisfies Technology Requirement</b> |
|--------------------|------------------------------|--|

Computer Science II is a programming course designed to teach students the concepts needed to be successful in the computer science / software design industry. They will create and maintain large scale projects by applying the following skills/concepts: debugging, analysis and expansion of existing programs, abstract datatypes, mouse and keyboard input, file processing, audio processing and advanced graphics (2D and 3D). Students will learn to use more than just one language. They will be able to determine which language is best for solving various problems.

| 01773 | AP COMPUTER SCIENCE A | GPA Level: Regular |
|-------|-----------------------|--------------------|
|-------|-----------------------|--------------------|

|                    |                              |   |
|--------------------|------------------------------|---|
| Grade Level: 11-12 | Service ID: A3580110 (1 cr.) | Prerequisites: None<br><b>Satisfies 4<sup>th</sup> Math Credit</b><br><b>Satisfies Technology Requirement</b> |
|--------------------|------------------------------|---|

AP Computer Science A introduces students to computer science through programming. Fundamental topics in this course include the design of solutions to problems, the use of data structures to organize large sets of data, the development and implementation of algorithms to process data and discover new information, the analysis of potential solutions, and the ethical and social implications of computing systems. The course emphasizes object-oriented programming and design using the Java programming language.

| 29759 | COMPUTER SCIENCE III | GPA Level: Regular |
|-------|----------------------|--------------------|
|-------|----------------------|--------------------|

|                    |                              |   |
|--------------------|------------------------------|---|
| Grade Level: 11-12 | Service ID: 03580350 (1 cr.) | Prerequisites: Computer Science II<br><b>Satisfies Technology Requirement</b> |
|--------------------|------------------------------|---|

Computer Science II is a programming course designed to teach students the concepts needed to be successful in the computer science / software design industry. They will create and maintain large scale projects by applying the following skills/concepts: debugging, analysis and expansion of existing programs, abstract datatypes, mouse and keyboard input, file processing, audio processing and advanced graphics (2D and 3D). Students will learn to use more than just one language. They will be able to determine which language is best for solving various problems.

| 09775 | CAREER PREPARATION I | GPA Level: Regular |
|-------|----------------------|--------------------|
|-------|----------------------|--------------------|

|                    |                              |   |
|--------------------|------------------------------|---|
| Grade Level: 11-12 | Service ID: 12701305 (3 cr.) | Prerequisites: Social Security Card or Work Permit; Paid Employment of 15+ hours/week; Transportation; 16 years old |
|--------------------|------------------------------|---|

In this class students will have an opportunity to earn high school credit for the job they already have! Students will work at a local business and apply job-specific skills while learning job interview techniques, communication skills, human relation skills, financial and budget planning, and portfolio development during one class period. Students may have up to 2 classes of release time to go to work each afternoon but must have their own transportation to leave campus.

FOR ADDITIONAL INFORMATION ON THE PROGRAMMING AND SOFTWARE DEVELOPMENT PATHWAY,  
PLEASE CONTACT:

Leia Miller | [Leia.Miller@gccisd.net](mailto:Leia.Miller@gccisd.net)

GCCISD offers career and technical education (CTE) programs in Agriculture, Food & Natural Resources; Architecture & Construction; Arts, Audio Visual Technology & Communications; Business, Marketing & Finance; Education & Training; Energy; Health Science; Hospitality & Tourism; Human Services; Information Technology; Law & Public Service; Manufacturing; Science, Technology, Engineering & Math; and Transportation, Distribution & Logistics. Admission to these programs is based on student interest and space availability in GCCISD CTE programs. It is the policy of GCCISD CTE Programs not to discriminate on the basis of race, color, national origin, sex or handicap in its CTE programs, services or activities.