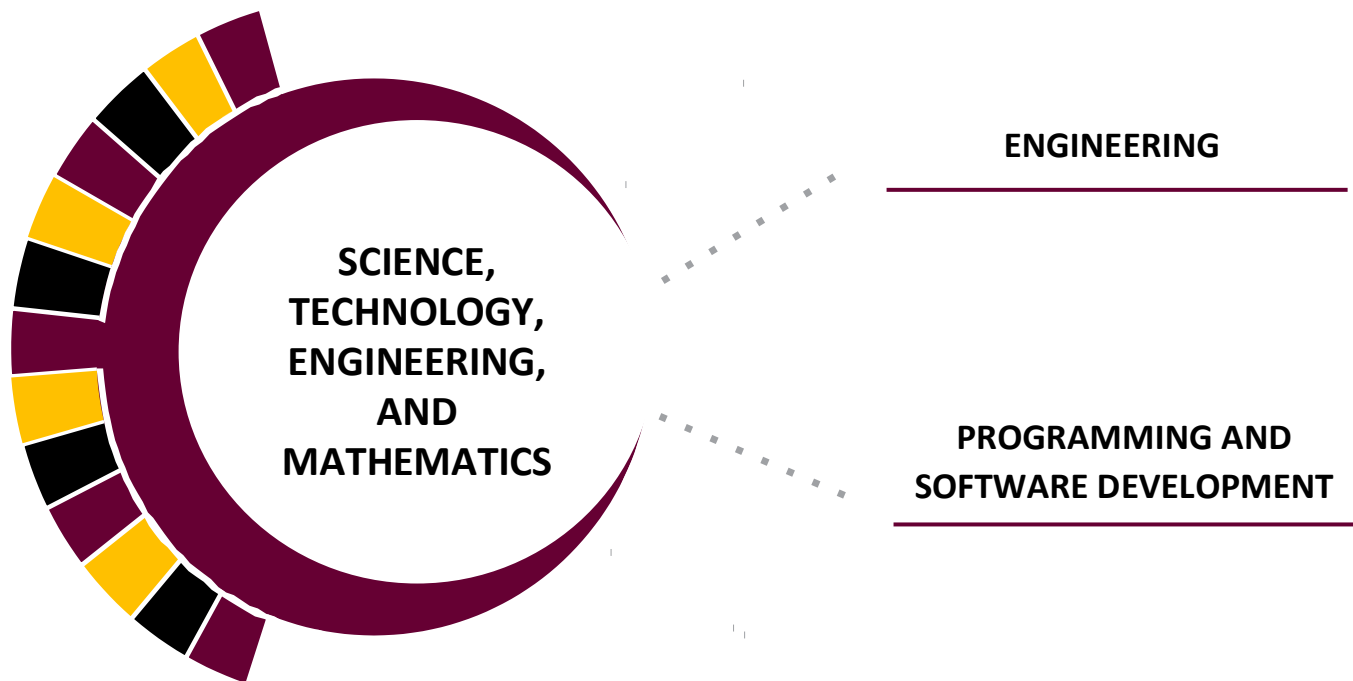


# Science, Technology, Engineering & Mathematics Endorsement

## CAREER CLUSTER

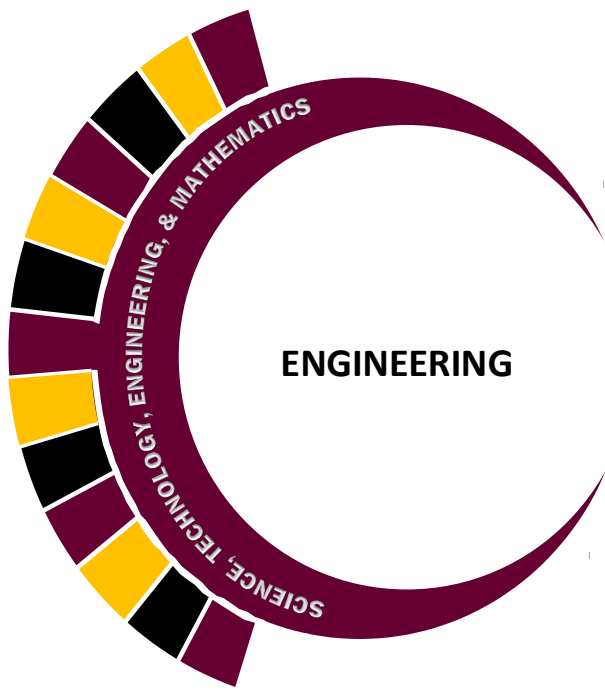
## PROGRAMS OF STUDY



Students completing two or more courses for two or more credits within a program of study earn concentrator status for Perkins V federal accountability reporting.

Students finishing three or more courses for four or more credits with one course from level 3 or 4 within a program of study earn completer status for Perkins V federal accountability reporting.





## COURSES



Principles of Applied Engineering



Digital Electronics



Engineering Design and Problem Solving

Practicum in STEM

## POSTSECONDARY OPTIONS

| 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 | OCCUPATIONS  | MEDIAN<br>WAGE   | ANNUAL<br>OPENINGS | %<br>GROWTH |
|--|----------------------------------|---|--|---|--|--|--------------------|-------------|
| *Certified SolidWorks Associate (CSWA)   | Fluid Power Systems Designer     | Drafting and Design Technician, General | CAD/CADD Drafting and/or Design Technician | Mechanical Engineering                          | Aerospace Engineers  | \$110,843  | 481                | 9%          |
| *NIMS Machining Level 1-Materials, Measurements, & Safety  | Certified Cost Estimator/Analyst |   | Construction Engineering Technician        |   | Industrial Engineers   | \$97,074   | 1,263              | 10%         |
| Autodesk Certified Professional or User (ACU) - Inventor   | Engineer, Professional           | Electrical and Electronics Engineering  | Electrical and Electronics Engineering     | Electrical and Electronics Engineering          | Mechanical Engineers   | \$91,707   | 1,535              | 11%         |
| Certified Engineering Technician - Audio Systems   | Certified Biomedical Auditor     | Engineering Technology                  | Bioengineering and Biomedical Engineering  | Bioengineering and Biomedical Engineering       | Chemical Engineers   | \$112,819  | 474                | 9%          |
| *Certification offered at DISD. Additional industry based certification information is available from the TEA CTE website.               |                                  |   |  |   | Electrical Engineers   | \$98,405   | 1,137              | 10%         |
| For more information on postsecondary options for this program of study, visit TXCTE.org, your counselor, or the CTE department at DISD. |                                  |   |  |   | <b>WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES</b> |  |                    |             |
|  |                                  |   |  |   | <b>Exploration Activities:</b>                                 | <b>Work Based Learning Activities:</b>                                       |                    |             |
|  |                                  |   |  |   | SkillsUSA  | Engineering internship<br>Job shadow a machinist<br>Tour of engineering firm |                    |             |

The Engineering program of study focuses on the design, development, and use of engines, machines, and structures. Students will learn how to apply science, mathematical methods, and empirical evidence to the innovation, design, construction, operation, and maintenance of different manufacturing systems.



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 Engineering program of study will fulfill requirements of the Science, Technology, Engineering, and Mathematics Endorsement – Approved Statewide Programs of Study – September 2019.



# COURSE INFORMATION

| COURSE NAME                            | SERVICE ID              | PREREQUISITES (PREQ)                | GRADE |
|--|-------------------------|-------------------------------------|-------|
| Principles of Applied Engineering      | 13036200<br>(1 credit)  | None                                | 9-10  |
| Digital Electronics                    | 13037600<br>(1 credit)  | <b>PREQ:</b> Algebra I and Geometry | 10-12 |
| Engineering Design and Problem Solving | 13037300<br>(1 credit)  | <b>PREQ:</b> Algebra I and Geometry | 11-12 |
| Practicum in STEM                      | 13037400<br>(2 credits) | <b>PREQ:</b> Algebra I and Geometry | 12    |

FOR ADDITIONAL INFORMATION ON THE SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS CAREER CLUSTER, PLEASE CONTACT:

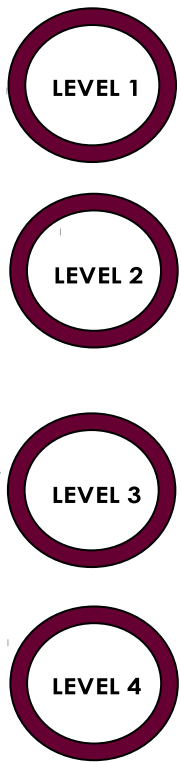
<https://tea.texas.gov/cte>

<http://www.donnaisd.net/Community/Graduation-Plans>



**PROGRAMMING AND SOFTWARE DEVELOPMENT**

**COURSES**



**Fundamentals of Computer Science**

**Computer Science I CC**

**Computer Science II CC**

**Computer Science III CC**

**POSTSECONDARY OPTIONS**

| 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 | OCCUPATIONS  | MEDIAN<br>WAGE                         | ANNUAL<br>OPENINGS | %<br>GROWTH |
|--|----------------------------------|--|---|---|--|--|--------------------|-------------|
| Oracle Certified Association JAVA SE 8 Programmer  | Certified Computing Professional | Computer Programming/ Programmer General | Management Information Systems, General |   | Software Developers, Systems Software                          | \$103,334                              | 2,985              | 25%         |
| *Microsoft Technology Associate-Intro. to Programming Using Python, HTML, or CSS   | AEM 6 Developer                  | Computer Science                         |   |   | Software Developers, Applications                              | \$104,499                              | 6,311              | 30%         |
| *Microsoft Technology Associate-Intro. to Programming Using JAVA or JAVA Script  | Certified Software Analyst       | Information Science/Studies              |   |   | Computer Programmers   | \$79,893                               | 1,454              | 9%          |
| Oracle Certified Database Associate  | Cloud Technology Associate       | Computer Software Engineer               |   |   | <b>WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES</b> |  |                    |             |
| *Certification offered at DISD. Additional industry based certification information is available from the TEA CTE website.               |                                  |  |   |   | <b>Exploration Activities:</b>                                 | <b>Work Based Learning Activities:</b> |                    |             |
| For more information on postsecondary options for this program of study, visit TXCTE.org, your counselor, or the CTE department at DISD. |                                  |  |   |   | SkillsUSA  | Programming internship                 |                    |             |
|  |                                  |  |   |   | Coding Club  | Job shadow                             |                    |             |
|  |                                  |  |   |   |  | Tour of engineering firm               |                    |             |

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 Science, Technology, Engineering, and Mathematics Endorsement – Approved Statewide Programs of Study – September 2019.



# COURSE INFORMATION

| COURSE NAME                      | SERVICE ID              | PREREQUISITES (PREQ)  | GRADE |
|----------------------------------|-------------------------|---|-------|
| Fundamentals of Computer Science | 03580140<br>(1 credit)  | None  | 9-12  |
| Computer Science I CC            | 03580200<br>(1 credit)  | <b>PREQ:</b> Algebra I  | 9-12  |
| Computer Science II CC           | 03580300<br>(1 credit)  | <b>PREQ:</b> Algebra I,<br>Computer Science I CC                    | 11-12 |
| Computer Science III CC          | 03580350<br>(2 credits) | <b>PREQ:</b> Computer<br>Science I CC and<br>Computer Science II CC | 12    |

FOR ADDITIONAL INFORMATION ON THE SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS CAREER CLUSTER, PLEASE CONTACT:

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<http://www.donnaisd.net/Community/Graduation-Plans>