



Level 1 09940 Principles of Applied Engineering

Level 2 09779 Robotics I

Level 3 19779 Robotics II

Level 4 09787 / H09768 (AC)/H09787 Engineering Design and Development (EDP1)
09775 Career Preparation I (with related WBL position)

HIGH SCHOOL/ INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE*	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
FANUC Robot Operator 1	Engineer, Professional	Electro-mechanical Engineering/ Technology	Electrical Engineering	Electrical Engineering
Mastercam Associate Level Certification	Certified Quality Technician	Certified Quality Technician	Industrial Engineering	Industrial Engineering
NCCER Industrial Maintenance Mechanic	Plant Maintenance Technologist	Industrial Mechanics and Maintenance Technology	Mechanical Engineering	Mechanical Engineering
NIMS Industrial Technology Maintenance - Maintenance Operations				

Occupations	Median Wage	Annual Openings	% Growth
Electro-Mechanical Assemblers	\$30,160	951	9%
Electro-Mechanical Technicians	\$56,555	127	9%
Industrial Machinery Mechanics	\$49,816	3,788	27%

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities:	Work Based Learning Activities:
Participate in SkillsUSA and local STEM events	Apprenticeship at a local business or industry American Welding Society

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.

The Advanced Manufacturing and Machinery Mechanics program of study focuses on the assembly, operation, maintenance, and repair of electromechanical equipment or devices. CTE learners may work in a variety of mechanical fields, gaining knowledge and experience in robotics, refinery and pipeline systems, deep ocean exploration, or hazardous waste removal. CTE concentrators may work in a variety of fields of engineering.



The Manufacturing Career Cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

Successful completion of the Advanced Manufacturing and Machinery program of study will fulfill requirements of the Business and Industry or 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

09940

PRINCIPLES OF APPLIED ENGINEERING

GPA Level: Regular

Grade Level: 9-12

Service ID: 13036200 (1 cr.)

Prerequisites: None

Principles of Applied Engineering provides an overview of the various fields of science, technology, engineering, and mathematics and their interrelationships. Students will develop engineering communication skills, which include computer graphics, modeling, and presentations, by using a variety of computer hardware and software applications to complete assignments and projects. Upon completing this course, students will understand the various fields of engineering and will be able to make informed career decisions. Further, students will have worked on a design team to develop a product or system. Students will use multiple software applications to prepare and present course assignments.

09779

ROBOTICS I

GPA Level: Regular

Grade Level: 10-12

Service ID: 1303700 (1 cr.)

Prerequisites: Principles of Applied Engineering

Would you like to build a robot? Learn about the robot and automation industry? Then sign up for this course! Through implementation of the design process, students will transfer academic skills to component designs in a project-based environment. Students will build prototypes or use simulation software to test their designs. Additionally, students will explore career opportunities, employer expectations, and educational needs in the robotic and automation industry. Students will be in a classroom and lab setting and have the opportunity to be a part of the robotics competition team!

19779

ROBOTICS II

GPA Level: Regular

Grade Level: 11-12

Service ID: 13037050 (1 cr.)

Prerequisites: Robotics I

Building on the knowledge and skills taught into Robotics I, students will transfer advanced academic skills to component designs in a project-based environment. Students will build prototypes or use simulation software to test their designs. Additionally, students will explore career opportunities, employer expectations, and educational needs in the robotic and automation industry. Students will be in a classroom and lab setting and have the opportunity to be a part of the robotics competition team!

09787

ENGINEERING DESIGN AND DEVELOPMENT (EDP1)

GPA Level: Pre-Ap

Grade Level: 11-12

Service ID: 13036500 (1 cr.)

Prerequisites: IED or PAE

Building on the knowledge and skills taught into Robotics I, students will transfer advanced academic skills to component designs in a project-based environment. Students will build prototypes or use simulation software to test their designs. Additionally, students will explore career opportunities, employer expectations, and educational needs in the robotic and automation industry. Students will be in a classroom and lab setting and have the opportunity to be a part of the robotics competition team!

09755

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 MANUFACTURING CAREER CLUSTER,
PLEASE CONTACT:

Carling Caldwell | Carling.Caldwell@gccisd.net