



The Institute of Architecture and Engineering Design at Harrison Bay Future Ready Center teaches students how to design, model, and build projects for different engineering disciplines. The students use current technology and apply industry standards to their designs. This institute is partnered with TERRACON, Barge Design, Chattanooga State TCAT Center, and other companies to give students opportunities to explore career opportunities and gain real-world application for their new skills. Whether it is drafting software, 3D printing, or other manufacturing techniques, this institute lays a strong foundation for students going to college, building their employability skills, or entering the workforce.

The Institute of Advanced Manufacturing and Construction at Harrison Bay Future Ready Center is for students interested in the diverse field of manufacturing. The institute prepares students with the 21st century skills needed to fill these positions. The institute has partnered with many manufacturers in the Chattanooga area to enhance students' learning experiences and to bring real-world issues and workplace situations to the classroom. These manufacturers include Gestamp, Miller Industries, TopFlight, RoadTec, Marketing Alliance Group and others. With the help of our manufacturing partners, students have the opportunity to receive Industry Certifications which include OSHA, Solar Photovoltaic Certification, EPB Refrigerant certification. This institute covers HVAC, Electronics, and Welding.



**Students that are a part of these Institutes will travel from Central High School or Ooltewah High School by county bus to spend their morning at Harrison Bay Center to complete their Future Ready Institute classes (see more information on classes). Prior to lunch, students will be bused back to Central HS or Ooltewah HS to complete the rest of their schedule.

Ooltewah High School

6123 Mountain View Rd.
Ooltewah, TN 37363
(423) 498-6920

Principal – Mrs. Angela Cass

Harrison Bay FR Center

9050 Career Lane
Ooltewah, TN 37363
(423) 344-1433

Principal – Mr. Gary Kuehn

Central High School

5728 Highway 58
Harrison, TN 37341
(423) 344-1447

Principal – Mr. Phil Iannarone

Career Technical Education Pathway:

Architectural and Engineering Design- The major focus of this Institute is to expose students to the different disciplines of architecture and engineering. Students will study the design process to create, document and build projects using CAD software, 3D printers, robotics components, model building, blueprints, structures, surveying techniques and other current technologies.

Student schedules will consist of both Future Ready Institute classes as well as the opportunity to take a variety of classes offered by the particular high school in order to fulfill all graduation requirements. This is the 4 year plan for the student's institute classes only. *IC= Industry Certification *LDC= Local Dual Credit *AP= Advance Placement

FRI Pathway(s)	Year 1	Year 2	Year 3	Year 4
CTE	Principles of Manufacturing <i>IC: Machining Level I - Measurement, Materials, and Safety Certification -and/or- OSHA 10 -and/or- Precision Measurement Instruments Certification</i> -and- Architectural and Engineering Design	Architectural and Engineering Design II with LDC Drafting Design AP Computer Science Principles	Architectural and Engineering Design III (Revit) Architectural and Engineering Design III (SolidWorks)	Senior Practicum and Work-Based Learning Also possible advanced Revit and SolidWorks
Core Classes	Physical World Concepts English 9	Biology English 10	Chemistry English 11 or Comp 1 DE	Forensic Science English 12 or Comp 2 DE

FRI Opportunities:

Industry Specialist
Industry Field Trips
SkillsUSA Competitions
Robotics/Drone Teams
CAD Certifications
Job shadowing/Work-based learning
National Technical Honor Society
Work Ethic Diploma
Scholarships
Hands-On Projects

FRI Opportunities:

- * Gestamp WBL/Job Opportunities
- * Osha 10 Certification
- * Precision Measurement Instruments
- * Fanuc Certification
- * AWS SENSE Entry Level Welding Certification
- * AWS SENSE Advanced Level Welding Certification
- * OSHA 30 General Industry Certification
- * Tennessee Rand Apprenticeship/Job Opportunities
- * Level 1 Siemens Certified Mechatronics Systems Assistant
- * SKILLS Club and Competitions
- * Robotics Club and Competitions
- * Machining Level 1- Measurement, Materials and Safety Certification.

Career Tech. Educational Pathway:

Manufacturing & Construction — This curriculum involves (MEPS) instruction. Students will study HVAC, Electronics, Plumbing, and Solar. They will work toward various OSHA certifications, EPB Refrigerant Certification, Photovoltaic solar certification, while using skills learned in both CTE pathways.

Welding- The Welding curriculum is designed to provide students with the skills to effectively perform cutting and welding applications. Students will develop fundamental safety practices, interpret drawings, create computer aided drawings, implement joint designs and efficiently lay out parts for fabrication. Students will learn several welding techniques to gain proficiency in the mechanical and thermal properties of metals, shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux cored arc welding (FCAW), gas tungsten arc welding (GTAW), and quality control methods.

Student schedules will consist of both Future Ready Institute classes as well as the opportunity to take a variety of classes offered by the particular high school in order to fulfill all graduation requirements. This is the 4 year plan for the student's institute classes only. *DE= Dual Enrollment *IC= Industry Certification

FRI Pathway(s)	Year 1	Year 2	Year 3	Year 4
CTE	Principles of Manufacturing <i>IC Machining Level 1- measurement, materials, OSHA 10 certification and/or Precision Measurement Instruments Certification</i> Fundamentals of Construction	MEPS I (HVAC) OSHA 30 Certification and Photovoltaic certification Welding 1 <i>IC: AWS SENSE Entry Level Welder -and/or- NCCER Core Curriculum</i>	MEPS II – (Electronics) MEPS III – (adv. HVAC and electronics EPB Refrigerant Cert. Welding II & DE Welding <i>IC: AWS SENSE Advanced Level Welder or American Welding Society Certified Welder -and/or- OSHA 30 General Industry</i>	Senior Practicum and Work-Based Learning Industry Cert. Welding <i>IC: Level 1 Siemens Certified Mechatronic Systems Assistant -and/or- OSHA 30 General Industry</i>
Core Classes	Physical World Concepts English 9	Biology English 10	Chemistry English 11 or Comp 1 DE	Forensic Science English 12 or Comp 1 DE



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