



**FUTURE READY  
INSTITUTES**  
of Hamilton County

# Institute of Advanced Manufacturing & Mechatronics

The Institute of Advanced Manufacturing and Mechatronics at Harrison Bay Center is for students interested in the diverse field of manufacturing. Beginning in their freshman year, 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 into the classroom. These manufacturers include Gestamp, Volkswagen, Tennessee Rand, Automation IG, Southern Champion Tray and others. With the help of our manufacturing partners, students have the opportunity to receive Industry Certifications which include one in Fanuc Robot Programming.

\*\*Students that are a part of this Institute 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 back for more information on classes). Prior to lunch, students will be bused back to either Central HS or Ooltewah HS to complete the rest of their schedule.

# Central HS & Ooltewah HS at Harrison Bay

## Career Technical Education Pathways:

**Mechatronics-** Mechatronics is an exciting course for students interested in learning more about careers in the field of Mechatronics. This course covers electrical and mechanical components of mechatronics systems, instrument controls, embedded software designs, as well as pneumatic, electro pneumatic, and hydraulic control circuits. Students will demonstrate, describe and explain functions of physical properties and electrical components within a complex mechatronic system.

**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
<b>CTE</b>	Principles of Manufacturing  -and- Architectural and Engineering Design  <i>IC: Machining Level I - Measurement, Materials, and Safety Certification -and/or- OSHA 10 -and/or- Precision Measurement Instruments Certification</i>	Digital Electronics  <i>IC: FANUC only with Robotics &amp; Automated Systems</i>  -and- Welding I  <i>IC: AWS SENSE Entry Level Welder -and/or- NCCER Core Curriculum</i>	<b>DE: Mechatronics</b>  <i>IC: OSHA 30 General Industry</i>  -and- <b>DE: Welding</b>  <i>IC: AWS SENSE Advanced Level Welder or American Welding Society Certified Welder -and/or- OSHA 30 General Industry</i>	Manufacturing Practicum  <i>IC: Level 1 Siemens Certified Mechatronic Systems Assistant -and/or- OSHA 30 General Industry</i>
<b>Core Classes</b>	Physical World Concepts  English 9	Biology  English 10	TBD	TBD

### Ooltewah High School

6123 Mountain View  
Ooltewah, TN 37363  
(423) 498-6920  
Principal- Mrs. Angela Cass

### Central High School

5728 Hwy 58  
Harrison, TN 37341  
(423)344-1447  
Principal- Mr. Finley King

### Harrison Bay Center

9050 Career Lane  
Ooltewah, TN 37363  
FRI Lead Teacher- Jon King  
king\_jonathan@hcde.org



### 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.

## Partners

