The Institute of Robotics and Welding prepares students for the mechanical industry of advanced manufacturing. This rigorous curriculum and real-world field experiences will create students proficient in the areas of mechanics, computer and control systems, components of manufacturing systems, metal fabrication, and safety. Upon completion of this institute, students will be eligible to pursue several industry certifications including OSHA 10, Precision Measurement Instruments Certification, and AWS SENSE entry-level welder. Students will also be prepared for advance coursework at postsecondary institutions, which leads to careers as mechatronic technicians, electrical technicians, robotic technicians, and mechatronic engineers.

"The welding program can change a student’s life. Personally, I enjoy working with the materials and using different machines." - Elisan, Welding Student

"This institute provides us with unimaginable opportunities." - Macon, Welding Student

Howard High School

www.hcde.org/fri  @HCSFutureReady
@Howard_Ready
Career Technical Education Pathways:

**Mechatronics** - The Mechatronics program of study is designed for students interested in becoming a mechatronics technician, electrical technician, mechanical engineering technician, robotics technician, or mechatronics engineer. Students will explore the components of electronics, mechanics, fluid power systems, and computer/control systems. Upon completion of this program, students will be prepared to pursue industry certifications and continue advanced coursework at a two-year or four-year postsecondary institution.

**Welding** - The welding pathway prepares and certifies students as entry-level welders. Students will explore careers, learn safe practices, develop leadership and thermal cutting skills over a series of courses, which will prepare the Entry Level Welder Certification, as defined by American Welding Society QC10.

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

<table>
<thead>
<tr>
<th>FRI Pathway(s)</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CTE</strong></td>
<td>Principles of Manufacturing</td>
<td>Welding I</td>
<td>DE: Welding</td>
<td>Manufacturing Practicum</td>
</tr>
<tr>
<td></td>
<td><strong>IC: Machining Level I - Measurement, Materials, and Safety Certification</strong> -and/or- <strong>OSHA 10</strong> -and/or- <strong>Precision Measurement Instruments Certification</strong></td>
<td><strong>IC: AWS SENSE Entry Level Welder -and/or- NCCER Core Curriculum</strong></td>
<td><strong>IC: AWS SENSE Advance Level Welder or American Welding Society Certified Welder -and/or- OSHA 30 General Industry</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Core Classes</strong></td>
<td>English 9</td>
<td>English 10</td>
<td>English 11</td>
<td>English 12</td>
</tr>
<tr>
<td></td>
<td>Algebra 1</td>
<td>Geometry</td>
<td>Algebra 2</td>
<td>Bridge Math</td>
</tr>
</tbody>
</table>

**The Howard High School**
2500 Market Street
Chattanooga, TN 37408
(423) 498-6850

Principal - Dr. Leandrea Ware
Institute Lead Administrator - Dr. Charles Mitchell
FRI Coordinator - Zena Buckley
buckley_z@hcde.org

**FRI Opportunities:**
- Revitalized Welding Lab
- Access to Industry Specific Machines
- Specialized Welding and Fabrication Instruction
- Opportunity to Participate in Custom Design Projects
- Access to Multiple Career Opportunities

The Howard High School Partners

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CHATANOOGA AREA CHAMBER

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TENNESSEE COLLEGE OF APPLIED TECHNOLOGY CHATTANOOGA