

# PROGRAM OF STUDY: Mechatronics



This Program of Study may serve as a graduation guide for the next four plus years, along with other career planning and educational materials. Courses listed in this model may include recommended coursework and should be individualized to students' educational and career goals. Each graduation plan needs to meet minimum high school graduation requirements. Dual Enrollment courses can be high school academic and/or career technical education courses.

SECONDARY:					POSTSECONDARY:		
COURSE/ GRADE	NINTH	TENTH	ELEVENTH	TWELFTH	TCC	DIPLOMA OR AAS	BACHELOR OF SCIENCE
ENGLISH	9 <sup>th</sup> grade Lit/ Composition	10 <sup>th</sup> grade Lit/ Composition	American Lit/ Composition	World Lit/ Composition / British Lit	Entrance/Exit Point <b>MT21 Mechatronics Technician Certificate</b>  <a href="#">Find the campus for the TCC options</a>	Entrance/Exit Point <b>IST4 Industrial Systems Technology Diploma</b>  <b>IS13 Industrial Systems Technology Degree</b>  <a href="#">Find the campus for the Diploma, Degree options</a>	Entrance/Exit Point The University System of Georgia offers students' higher education options at 30 institutions throughout the state, providing a wide range of academic programming including certificates and associate, baccalaureate, masters, doctoral and professional degrees. <a href="https://apps.ds.usg.edu/ords/?p=118:1:0">https://apps.ds.usg.edu/ords/?p=118:1:0</a>
MATHEMATICS	Coordinate Algebra / Algebra I	Analytic Geometry / Geometry	Advanced Algebra / Algebra II	Pre-calculus			
SCIENCE	Physical Science	Biology	Chemistry	Physics			
SOCIAL STUDIES	World History	Psychology	US History	Government (½ unit) Economics (½ unit)			
PATHWAY COMPLETER	<b>Introduction to Mechatronics-DC Theory, Pneumatic Systems, &amp; PLC</b>	<b>AC Theory, Electrical Motors, &amp; Hydraulic Systems</b>	<b>Semiconductors Mechanical Sys, and Pump &amp; Piping Systems</b>	Another course in focus area, Work-Based Learning, or Youth Apprenticeship			
Industry Recognized Credential (Pathway Completer)		<a href="#">Visit the End of Pathway Assessment Page</a> (see note below)					
Required/ Selective Electives	Health & Personal Fitness (can be taken in grades 9-12)	Financial Literacy	Introduction to Digital Technology	Computer Science Principles			
	<b>Modern Language/Latin</b> 2 units required for admissions to Georgia University System Colleges/Universities For a listing of Modern Language/Latin courses offered at your high school, please contact your advisor, counselor, or curriculum handbook.		<b>Other Electives</b> For a listing of other elective courses offered at your high school, please check with your advisor, counselor, or curriculum handbook.				

**NOTE:** Students have many options to ENTER and EXIT from their academic studies into the workforce. When a student graduates from high school, they are eligible to choose one of many ENTRANCE POINT options: 1. Enroll in either a 2 or 4 year post-secondary program; 2. Enroll in an apprenticeship program or the military; or 3. Enter the workforce using technical skills learned in high school. When a student finishes a 2- or 4-year degree program, they may choose to EXIT and 1. Enroll in an apprenticeship program or the military; 2. Enroll in a professional university degree program; or 3. Enter the workforce using technical skills learned.

**Mechatronics Career Pathway Completers - Industry Credentialing for High School Students**  
 Upon completion of sequenced courses in the Mechatronics Pathway, students are eligible to complete the Industry-Recognized student credential for fulfillment of the End of Pathway Assessment. Secondary students completing the Mechatronics pathway will be able to sit for the National Industry Credentialed assessment offered on-line from NOCTI, and SkillsUSA. Once mastery is reached, students will receive recognition for completion and use this credential in conjunction with their job or continuing training. For specific assessment information, refer to: <http://bit.ly/GAManufacturing>.

## Sample In Demand Careers in Georgia

Occupation Specialties	Level of Education Needed	Georgia Average Salary	Annual Average Openings in Georgia	2014 – 2024 Employment Outlook
Industrial Engineers	Bachelor's Degree	\$76,880	250	In Demand, High Skill
Industrial Engineering Technicians	Associates Degree	\$48,330	45	In Demand, High Skill
Industrial Machinery Mechanics	Diploma, On-Job-Training	\$42,500	293	In Demand, High Skill
Industrial Safety and Health Engineers	Bachelor's Degree	\$75,145	113	In Demand, High Skill

[Data link here.](#)

Go to [GAfutures at www.gafutures.org](http://www.gafutures.org) for more information about your education and career planning, including valuable financial information (grants and scholarships including HOPE Program, grants and loans, FAFSA, and CSS forms).

<b>Career Enhancement Opportunities</b>	<b>Career-Related Education Activities</b> <ul style="list-style-type: none"> <li>Career Awareness</li> <li>Career Exploration</li> <li>Instructional Related</li> <li>Connecting                             <ul style="list-style-type: none"> <li>Work-Based Learning</li> <li>Employability Skill Dev.</li> <li>Cooperative Education</li> <li>Internship</li> <li>Youth Apprenticeship</li> <li>Clinicals</li> </ul> </li> </ul>	<b>Postsecondary Options:</b> <ul style="list-style-type: none"> <li>4-Year Universities/Colleges</li> <li>2-Year Colleges</li> <li>Technical Colleges</li> <li>State Registered Apprenticeships</li> <li>Special Purpose Schools</li> <li>On-the-Job Training</li> <li>Military</li> </ul>	<b>Earning Postsecondary Credits While in High School</b> <ul style="list-style-type: none"> <li>Dual Enrollment Program</li> <li>Earn postsecondary credit while in high school</li> <li>You can complete                             <ul style="list-style-type: none"> <li>Industry Credential</li> <li>Technical Certificate of Credit (TCC)</li> <li>Associates of Applied Science Degree</li> <li>Bachelor's Degree</li> </ul> </li> <li>Who can help?                             <ul style="list-style-type: none"> <li>Parents</li> <li>School Counselor</li> <li>Advisor</li> </ul> </li> </ul>
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<b>Postsecondary Transition</b> <ul style="list-style-type: none"> <li>University System of Georgia Institutions: Admissions Testing                             <ul style="list-style-type: none"> <li>ACT or SAT</li> <li>For More Information:                                     <ul style="list-style-type: none"> <li>Contact the institution of your choice OR</li> </ul> </li> </ul> </li> <li>Technical College System of Georgia                             <ul style="list-style-type: none"> <li>Placement Exam</li> </ul> </li> <li>United States Military                             <ul style="list-style-type: none"> <li>ASVAB Assessment</li> </ul> </li> <li>Use BRIDGE Law platform to inform decisions on postsecondary opportunities</li> <li>Dual Enrollment                             <ul style="list-style-type: none"> <li>Earning high school course credits while taking college courses</li> </ul> </li> </ul>
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Related Pathway Occupations	Other Related Occupations
<ul style="list-style-type: none"> <li>Electrical and Electronics Repairers</li> <li>Commercial and Industrial Equipment Repairers</li> <li>Industrial Engineers</li> <li>Industrial Engineering Technicians</li> <li>Industrial Machinery Mechanics</li> </ul>	<ul style="list-style-type: none"> <li>Computer User Support Specialists</li> <li>Electronics Engineering Technicians</li> <li>Chemical Plant &amp; System Operators</li> </ul>

\*ONET Online

## Mechatronics Pathway Description

Mechatronics is a diverse field. It encompasses many inter-related disciplines including Electronics, Mechanics, Fluid Power, Electrical Control Systems, Programmable Logic Controllers (PLC), Computers, and Robotics. Mechatronics is a term which includes the above disciplines and takes an integrated approach to their study. People employed in the mechatronics field deal with automated systems in a wide variety of applications. They also deal with related professional and technical support activities such as production planning and control, maintenance, and engineering.

Mechatronics employers face recruitment difficulties because many potential employees do not possess the needed skills. With the advances in automation and robotics, some jobs have been eliminated, but there are more job opportunities for individuals that have advanced technical skills and higher levels of education. Employers need associates with good communication, technical and problem-solving skills.

Industry-wide competencies include safety, quality assurance, maintenance, installation and repair, operations and design and development. Since new processes are increasingly automated, it is necessary that students acquire a broad range of technical skills to be competitive in the job market.

There are a variety of job opportunities in mechatronics. Mechatronics can be utilized with companies that need or provide engineering, maintenance, technical support, and technical consulting. Mechatronic equipment and devices can be found in most modern industries, some of which are advanced manufacturing, processing, aviation, automotive, refining, logistics, and power generation.

Additional information regarding this pathway can be found at <http://www.careeronestop.org/CompetencyModel/pyramid.aspx?ME=Y>.