MECHATRONICS (Dual Credit)

This program offers dual credit through Tri-County Technical College and begins in the 10th grade. This is a **three-year program;** and students are expected to successfully complete all three years.

Mechatronics technicians are trained to master the skills necessary to install, maintain and repair this sophisticated equipment. Industry depends on well-trained electromechanical technicians to keep production machinery operating. Students learn skills to diagnose, repair, install, and service electrical, hydraulic, pneumatic, and electromechanical systems.

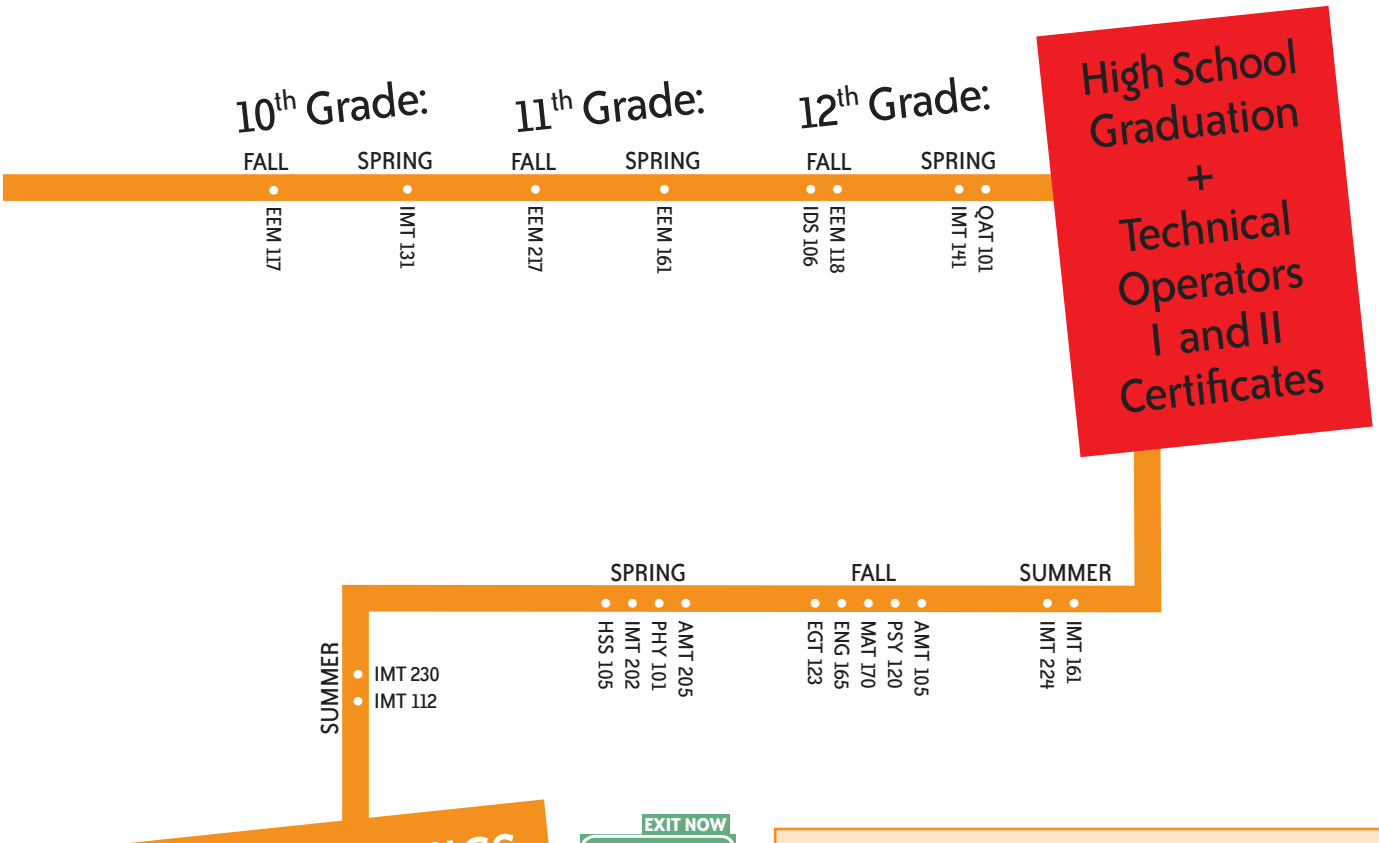
Students may continue their education at TCTC after their senior year and receive an associate (two-year) degree in Mechatronics.

Please see the attached document for the program pathway and course decriptions.

Students applying to this program must meet the Tri-County Technical College eligibility requirement of a 2.8 GPA. **NOTE The ACCUPLACER exam is not required but if a student attempts the ACCUPLACER exam they must score 37 or higher on the reading portion.**

Career Pathways for Success

A PARTNERSHIP BETWEEN ANDERSON DISTRICT 1, 2, CAREER & TECHNOLOGY CENTER , AND TRI-COUNTY TECHNICAL COLLEGE



Graduate from High School with up to Two Semesters Toward an Associate Degree in Mechatronics

- Graduate with Technical Operators I and II Certificates by high school graduation.
- Complete your degree at TCTC in as few as 4 semesters (Courses apply toward Associate in Applied Science degree in either Mechatronics or Industrial Electronics Technology).
- Take your dual enrollment classes at the Anderson 1 & 2 CTC.
- Continue studies at Tri-County and have the opportunity to qualify for a Technical Scholars Program with a local company where you'll receive valuable work experience, earn a paycheck, and receive tuition scholarships. (Most Technical Scholars are hired into full time positions upon completion of the Associate Degree.)
- Earn a WorkKeys certificate to illustrate competency level with prospective employers.

For local job information, go to **www.tctc.edu/careercoach**.

TRI-COUNTY TECHNICAL COLLEGE CONTACT:
Amanda Blanton • ablanton@tctc.edu

Tri County TECHNICAL COLLEGE

COURSE DESCRIPTIONS

The Mechatronics program assists students in acquiring the multifunction skills needed in today's advanced manufacturing environment.

AMT 105 - Robotics and Automated Control I
Class Hours: 2 Lab Hours: 3 Credit Hours: 3

This course includes assembling, testing, and repairing equipment used in automation. Concentration is on connecting, testing, and evaluating automated controls and systems.

Prerequisites: IMT 131 , IMT 140 and IMT 141 .

AMT 205 - Robotics and Automated Controls II
Class Hours: 2 Lab Hours: 3 Credit Hours: 3

This course covers installation, testing, troubleshooting, and repairing of automated systems.

Prerequisites: AMT 105 .

EEM 117 - AC/DC Circuits I
Class Hours: 3 Lab Hours: 3 Credit Hours: 4

This course is a study of direct and alternating theory, Ohm's Law, series, parallel, and combination circuits. Circuits are constructed and tested.

EEM 118 - AC/DC Circuits II
Class Hours: 3 Lab Hours: 3 Credit Hours: 4

This course is a continuation of the study of direct and alternating current theory to include circuit analysis using mathematics and verfied with electrical measurements.

Prerequisites: EEM 117 .

EEM 161 - Industrial Instruments
Class Hours: 3 Lab Hours: 3 Credit Hours: 4

This course is a study of basic industrial instruments with particular emphasis on the devices utilized to control modern manufacturing processes.

EEM 217 - AC/DC Machines with Electrical Codes
Class Hours: 3 Lab Hours: 3 Credit Hours: 4

This course is a study of AC and DC machines to include operational theory, applications, and construction. Relevant sections of the National Electrical Code will also be covered.

EGT 123 - Industrial Print Reading
Class Hours: 2 Lab Hours: 0 Credit Hours: 2

This course covers basic print reading and sketching for the industrial trades area. Sketching of geometric shapes and interpretation of working shop drawings are also included.

ENG 101 - English Composition I
Class Hours: 3 Lab Hours: 0 Credit Hours: 3

This is a (college transfer) course in which the following topics are presented: a study of composition in conjunction with appropriate literary selections, with frequent theme assignments to reinforce effective writing. A review of standard usage and the basic techniques of research are also presented.

Prerequisites: Satisfactory COMPASS placement scores in both Reading and Writing.

HSS 105 - Technology and Culture
Class Hours: 3 Lab Hours: 0 Credit Hours: 3

This course provides a study of the impact of technological change on cultural values, society, and the individual.

Prerequisites: ENG 101 , ENG 155 , or ENG 165 . Note: This course cannot be used for an AA or AS degree.

IDS 106 -Employment Development Skills
Class Hours: 0 Lab Hours: 0 Credit Hours: 4

This course offers the student a simulated work experience in a lab setting. Students will perform mock interviews and learn soft skills required for the job market.

IMT 112 - Hand Tool Operations
Class Hours: 2 Lab Hours: 3 Credit Hours: 3

This course covers the use of hand tools and their applications in industrial and service areas.

IMT 131 - Hydraulics and Pneumatics
Class Hours: 3 Lab Hours: 3 Credit Hours: 4

This course covers the basic technology and principles of hydraulics and pneumatics.

IMT 141 - Electrical Control Devices
Class Hours: 3 Lab Hours: 6 Credit Hours: 5

This course covers principals and applications of electrical motor, control circuits, and industrial equipment.

Prerequisites: IMT 140 .

IMT 161 - Mechanical Power Operations
Class Hours: 3 Lab Hours: 3 Credit Hours: 4

This course covers mechanical transmission devices, including the procedures for installation, removal, and maintenance.

IMT 202 - Electrical Troubleshooting
Class Hours: 3 Lab Hours: 3 Credit Hours: 4

This course covers diagnosing a mechanical problem using prints and electrical troubleshooting techniques.

Prerequisite/Corequisite: IMT 131 and IMT 161 .

IMT 224 - Basic Electronics Theory
Class Hours: 3 Lab Hours: 3 Credit Hours: 4

This course is the study of basic electronic theory. Students will learn to identify electronic system components and interpret electronic schematic diagrams.

IMT 230 - Reliability Centered Maintenance
Class Hours: 3 Lab Hours: 0 Credit Hours: 3

This course is the study of methods of predictive and preventive maintenance. Vibration analysis, infared photography and ultrasonics will be covered.

Prerequisites: IMT 131 and IMT 161

Elective Program Courses Credit Hours: 3

To be selected from any Engineering and Industrial Technology technical field.

MAT 170 - Algebra, Geometry and Trigonometry I
Class Hours: 3 Lab Hours: 0 Credit Hours: 3

This course includes the following topics: elementary algebra, geometry, trigonometry and applications.

Prerequisites: Satisfactory math placement scores, or MAT 032 with a grade of C or better.

PSY 120 - Organizational Psychology
Class Hours: 3 Lab Hours: 0 Credit Hours: 3

This course is a study of basic psychological principles of supervision and organizational dynamics. Emphasis is placed on people skills and general human relation techniques in the workplace. This course will not satisfy any Associate of Arts or Associate of Science requirements.

PHY 101 - Survey of Physics
Class Hours: 2 Lab Hours: 3 Credit Hours: 3

This course is a qualitative survey of the central concepts of physics with an emphasis on a conceptual rather than a mathematical viewpoint. This course includes concepts from classical mechanics, thermodynamics, electromagnetics and optics. Real life situations and hands-on laboratories will supplement lectures.

Prerequisites: Satisfactory reading and writing placement test scores for ENG 165 or completion of ENG 100 , ENG 101 , or ENG 155 with a grade of C or better. Completion of MAT 170 , MAT 109 , or MAT 110, with a grade of C or better.

QAT 101 - Introduction to Quality Assurance
Class Hours: 3 Lab Hours: 0 Credit Hours: 3

This course covers the fundamentals of quality control, the evolution of the total quality system and the modern philosophy of quality. Process variability, fundamentals of probability, and the basic concepts of control charts are included.

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