

## About the Program

The Associate in Science (A.S.) Degree in Engineering Technology (Advanced Manufacturing) prepares students for distinctive success in the installation, repair, and maintenance of industrial/ manufacturing environments.

## Program Requirements

This program requires a **minimum of 60 credit hours**. Total program hours may vary based on the student's individual academic degree plan. This program is **eligible** for financial aid.

This program includes an **Algebra Through Calculus math pathway**. This pathway is intended for students whose academic program requires a foundation of algebra, followed by a sequence of courses that may lead to calculus.

## Placement Testing

**College placement testing** assesses incoming students' skill levels in English, mathematics, and reading. Students are exempt from placement testing if they meet any of the following conditions:

- Entered the ninth grade in a Florida public school in 2003 or after and graduated from a Florida Public High school with a standard high school diploma
- Are currently serving as an active-duty member of any branch of the U.S. Armed Services
- Have received an A.A., A.S., A.A.S. or higher from an accredited institution
- Have completed college-level courses in English and mathematics
- Have completed upper-level developmental courses in English/Reading and Mathematics
- Are a Transient student (Florida Shines or transient letter from home institution is required)

All other students in this program must take a placement test. Students who place into **developmental education courses** are required to complete designated developmental education courses with a grade of C or higher regardless of program of study and are also required to take one of two student success strategies courses. For additional information, visit [catalog.fscj.edu/academics/developmental-education-programs](https://catalog.fscj.edu/academics/developmental-education-programs) or speak with an advisor.

## Associate in Science Degree Graduation Requirements

- ☐ Fulfill all academic requirements for the chosen program of study as outlined in the Florida State College at Jacksonville catalog and curriculum.
- ☐ Earn a cumulative grade point average of 2.0 (C) at Florida State College at Jacksonville in courses eligible toward the Associate in Science degree programs, excluding developmental education courses (A.S. Florida State College at Jacksonville GPA).
- ☐ Earn an all-college cumulative grade point average of 2.0 (C) on a 4.0 scale on all courses attempted. This requirement includes Florida State College at Jacksonville college-credit semester hours and transferred credits (excluding developmental education) in lower division courses.
- ☐ Complete a minimum of 25 percent of the total hours required for the program in residence at Florida State College at Jacksonville. Credit by examination and credit for prior learning do not count toward this residency requirement.
- ☐ Complete the required semester hours, as specified by the degree, of which a minimum of 15 semester hours must be General Education requirements.
- ☐ Demonstrate competency in civic literacy. Competency is demonstrated by:
  - ☐ Completing of one of three civic literacy courses (AMH 2010, AMH 2020 or POS 2041) with a grade of C or higher, and
  - ☐ Achieving of the standard score on a state-approved assessment.
- ☐ Earn a grade of a C or higher in each course used to satisfy the general education requirements and any other area designated with a C or higher requirement.
- ☐ Fulfill all obligations, financial or otherwise, to the College before graduating.

## Educational Pathways

Technical certificates are available within this degree program. You may pursue the A.S. degree and earn technical certificates while completing the requirements for the degree or pursue one or more certificates to develop or upgrade your skills in a particular field. **Contact an advisor** to determine the career education path that is best for you.

- ⇒ The **Advanced Manufacturing (Automation)** Technical Certificate includes 12 credit hours from the Engineering Technology (Advanced Manufacturing) A.S. degree and **is not eligible** for financial aid. To learn more about this technical certificate, visit [fscj.edu/academics/programs/certs/6040](https://fscj.edu/academics/programs/certs/6040).
- ⇒ The **CNC Machinist/Fabricator** Technical Certificate includes 12 credit hours from the Engineering Technology (Advanced Manufacturing) A.S. degree and **is not eligible** for financial aid. To learn more about this technical certificate, visit [fscj.edu/academics/programs/certs/6041](https://fscj.edu/academics/programs/certs/6041).
- ⇒ The **Engineering Technology Support Specialist** Technical Certificate includes 18 credit hours from the Engineering Technology (Advanced Manufacturing) A.S. degree and **is not eligible** for financial aid. To learn more about this technical certificate, visit [fscj.edu/academics/programs/certs/6042](https://fscj.edu/academics/programs/certs/6042).
- ⇒ The **Pneumatics, Hydraulics and Motors for Manufacturing** Technical Certificate includes 12 credit hours from the Engineering Technology (Advanced Manufacturing) A.S. degree and **is not eligible** for financial aid. To learn more about this technical certificate, visit [fscj.edu/academics/programs/certs/6043](https://fscj.edu/academics/programs/certs/6043).
- ⇒ The **Mechatronics** Technical Certificate includes 30 credit hours from the Engineering Technology (Advanced Manufacturing) A.S. degree and **is eligible** for financial aid. To learn more about this technical certificate, visit [fscj.edu/academics/programs/certs/6044](https://fscj.edu/academics/programs/certs/6044).

## Catalog Year

This document is prepared for students with a **2025-26 College Catalog year** who have not tested into developmental education courses. **Students who enter under the 2025-26 catalog** will be assigned to the degree or certificate requirements in effect during the 2025-26 academic year. The student's assigned catalog year will remain in effect as long as the student maintains continuous enrollment. Changes to requirements as mandated by law or by rule of the District Board of Trustees may supersede this provision.

**To maintain continuous enrollment**, a student must have registration for, and successful completion of, at least one course within a three-term period. After three consecutive terms of no enrollment, the student will be discontinued from the current program of study and will need to apply to FSCJ to reenter under the same program of study. Upon readmission, the student will be assigned to the current catalog of record in the chosen program.

## Curriculum

### Sample Roadmap

**Terms Offered** are subject to change. Please verify course availability at [fscj.edu/schedules](https://fscj.edu/schedules). Prior to enrolling in classes, please meet with an advisor for specific guidance about your individual academic degree plan.

All courses in this program must be completed with a grade of C or higher.

#### Term 1: Fall or Spring

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|--|---------------------|
| <input type="checkbox"/> General Education Communication State Core course, Credit Hours: 3-4. <b>Terms Offered:</b> Fall, Spring, Summer.   | Grade Earned: _____ |
| <input type="checkbox"/> General Education Mathematics State Core course, Credit Hours: 3-5.<br><b>Note:</b> Students who plan to transfer to the Supervision and Management (S100) (B.A.S.) <b>and</b> select the Engineering Technology Management Upper Division Concentration must take MAC 1105 and MAC 1147. <b>Terms Offered:</b> Fall, Spring, Summer. | Grade Earned: _____ |
| <input type="checkbox"/> ETS 1352C - Introduction to Manufacturing Processes, Credit Hours: 3. <b>Terms Offered:</b> Fall, Spring, Summer.   | Grade Earned: _____ |
| <input type="checkbox"/> EET 1084C - Survey of Electronics, Credit Hours: 3. <b>Terms Offered:</b> Fall, Spring.   | Grade Earned: _____ |

#### Term 2: Spring

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|---|---------------------|
| <input type="checkbox"/> General Education Natural Sciences State Core course, Credit Hours: 3-4. <b>Terms Offered:</b> Fall, Spring, Summer. | Grade Earned: _____ |
| <input type="checkbox"/> ETS 1520C - Basics of Instrumentation, Credit Hours: 3. <b>Terms Offered:</b> Spring.                                | Grade Earned: _____ |
| <input type="checkbox"/> ETS 1511C - Motors and Controls, Credit Hours: 3. <b>Terms Offered:</b> Spring.                                      | Grade Earned: _____ |
| <input type="checkbox"/> ETS 1700C - Hydraulics and Pneumatics, Credit Hours: 3. <b>Terms Offered:</b> Spring.                                | Grade Earned: _____ |

#### Term 3: Fall or Summer

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|---|---------------------|
| <input type="checkbox"/> General Education Humanities State Core course, Credit Hours: 3. <b>Terms Offered:</b> Fall, Spring, Summer. | Grade Earned: _____ |
| <input type="checkbox"/> ETS 1603C - Robotics - Mechanics and Controls, Credit Hours: 3. <b>Terms Offered:</b> Fall, Summer.          | Grade Earned: _____ |
| <input type="checkbox"/> ETI 2622C - Introduction to Lean Manufacturing, Credit Hours: 3. <b>Terms Offered:</b> Fall, Spring, Summer. | Grade Earned: _____ |

#### Term 4: Fall, Spring or Summer

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|--|---------------------|
| <input type="checkbox"/> General Education Social and Behavioral Sciences: Civic Literacy course, Credit Hours: 3. <b>Terms Offered:</b> Fall, Spring, Summer. | Grade Earned: _____ |
| <input type="checkbox"/> Professional Elective course, Credit Hours: 3.  | Grade Earned: _____ |
| <input type="checkbox"/> Professional Elective course, Credit Hours: 3.  | Grade Earned: _____ |
| <input type="checkbox"/> Professional Elective course, Credit Hours: 3.  | Grade Earned: _____ |
| <input type="checkbox"/> ETS 1632C - Computer Integrated Manufacturing, Credit Hours: 3. <b>Terms Offered:</b> Fall, Spring, Summer.                           | Grade Earned: _____ |

#### Term 5: Fall

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|---|---------------------|
| <input type="checkbox"/> Professional Elective course, Credit Hours: 3.   | Grade Earned: _____ |
| <input type="checkbox"/> Professional Elective course, Credit Hours: 3.   | Grade Earned: _____ |
| <input type="checkbox"/> ETS 1542C - Introduction to Programmable Logic Controllers, Credit Hours: 3. <b>Terms Offered:</b> Fall.   | Grade Earned: _____ |
| <input type="checkbox"/> BCN 2732 - Industrial Safety & Human Factors, Credit Hours: 3. <b>Terms Offered:</b> Fall, Spring, Summer. | Grade Earned: _____ |

## Course Requirements

Prerequisites, corequisites, and conditions for any course are subject to change. Students must meet the prerequisite and corequisite requirements of any course at the time the student attempts to register for that course. If you have questions about the prerequisites, corequisites, or conditions for a course, please contact any academic advisor.

### General Education Communication Courses

Complete one of the following courses.

**ENC 1101 - English Composition I**, Credit Hours: 3. *State Core course.*

**Prerequisite(s):** Satisfactory score on the placement test for non-exempt students only. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule writing requirement and must be completed with a grade of C or higher pursuant to State Board of Education Rule 6A-10.030. Effective Spring 2014, students who entered the ninth grade in a Florida public high school in the 2003-2004 school year, or any year thereafter, and earned a standard Florida high school diploma, or students who are serving as active duty members in any branch of the United States Armed Services, will not be required to take the common placement test (P.E.R.T.) or to enroll in developmental education at any Florida College System institution, including Florida State College at Jacksonville (per Senate Bill 1720, State Board Rule 6A-10.0315). These students shall be considered exempt from common placement testing and developmental education instruction, and may accordingly enroll directly in ENC 1101 or ENC 1101C. For placement in any communications course beyond ENC 1101 or ENC 1101C, exempt students will be required to take the common placement test. Effective Fall 2022, students who earn a grade of C or higher will be automatically awarded the digital badge in Fundamentals of Written Communication. **Terms Offered:** Fall, Spring, Summer.

**ENC 1101C - English Composition I Enhanced**, Credit Hours: 4. *State Core course.* **Prerequisite(s):** Satisfactory score on the placement test for non-exempt students only. **Corequisite(s):** None. **Conditions:** This course fulfills category A of students' General Education requirements in Communications. The additional one-credit hour of supplemental instruction and practice will appear as an Associate in Arts elective on students' college transcripts. This course fulfills the Gordon Rule writing requirement and must be completed with a grade of C or higher pursuant to State Board of Education Rule 6A-10.030. Effective Spring 2014, students who entered the ninth grade in a Florida public high school in the 2003-2004 school year, or any year thereafter, and earned a standard Florida high school diploma, or students who are serving as active duty members in any branch of the United States Armed Services, will not be required to take the common placement test (P.E.R.T.) or to enroll in developmental education at any Florida College System institution, including Florida State College at Jacksonville (per Senate Bill 1720, State Board Rule 6A-10.0315). These students shall be considered exempt from common placement testing and developmental education instruction and may accordingly enroll directly in ENC 1101 or ENC 1101C. For enrollment in any communications course beyond ENC 1101/ENC 1101C, exempt students will be required to take the common placement test. This course is recommended for Associate in Arts degree seeking students. Associate in Science degree seeking students are advised to take ENC 1101 to avoid concerns regarding financial aid and excess hour surcharges. Effective Fall 2022, students who earn a grade of C or higher will be automatically awarded the digital badge in Fundamentals of Written Communication. **Terms Offered:** Fall, Spring, Summer.

### General Education Humanities Courses

Complete one of the following courses.

**ARH 2000 - Art in the Humanities**, Credit Hours: 3. *State Core course.*

**Prerequisite(s):** Qualify for enrollment in ENC 1101. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule writing requirement and must be completed with a grade of C or higher pursuant to State Board of Education Rule 6A-10.030. **Terms Offered:** Fall, Spring, Summer.

**HUM 2020 - Topics in the Humanities**, Credit Hours: 3. *State Core course.*

**Prerequisite(s):** Qualify for enrollment in ENC 1101. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule writing requirement and must be completed with a grade of C or higher pursuant to State Board of Education Rule 6A-10.030. This course cannot be repeated for General Education or Elective Credit, regardless of the course topic, except for grade forgiveness purposes. **Terms Offered:** Fall, Spring, Summer.

**LIT 2000 - Literature in the Humanities**, Credit Hours: 3. *State Core course.*

**Prerequisite(s):** ENC 1101 or ENC 1101C each with a grade of C or higher. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule writing requirement and must be completed with a grade of C or higher pursuant to State Board of Education Rule 6A-10.030. **Terms Offered:** Fall, Spring, Summer.

**MUL 2010 - Music in the Humanities**, Credit Hours: 3. *State Core course.*

**Prerequisite(s):** Qualify for enrollment in ENC 1101. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule writing requirement and must be completed with a grade of C or higher pursuant to State Board of Education Rule 6A-10.030. **Terms Offered:** Fall, Spring, Summer.

**PHI 2010 - Philosophy in the Humanities**, Credit Hours: 3. *State Core course.*

**Prerequisite(s):** Qualify for enrollment in ENC 1101. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule writing requirement and must be completed with a grade of C or higher pursuant to State Board of Education Rule 6A-10.030. **Terms Offered:** Fall, Spring, Summer.

**THE 2000 - Theatre in the Humanities**, Credit Hours: 3. *State Core course.*

**Prerequisite(s):** Qualify for enrollment in ENC 1101. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule writing requirement and must be completed with a grade of C or higher pursuant to State Board of Education Rule 6A-10.030. **Terms Offered:** Fall, Spring, Summer.

### General Education Mathematics Courses

Complete one of the following courses.

*Students who plan to transfer to the Supervision and Management (S100) (B.A.S.) and select the Engineering Technology Management Upper Division Concentration must take MAC 1105 and MAC 1147.*

**MAC 1105 - College Algebra**, Credit Hours: 3. *State Core course.*

**Prerequisite(s):** MAT 1033 with a grade of C or higher or a satisfactory score on the placement test. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule computation requirement and must be completed with a grade of C or higher (pursuant to State Board of Education Rule 6A-10.030). Effective Spring 2014, students who entered the ninth grade in a Florida public high school in the 2003-2004 school year, or any year thereafter, and earned a standard Florida high school diploma, or students who are serving as active duty members in any branch of the United States Armed Services, will not be required to take the common placement test (P.E.R.T.) or to enroll in developmental education at any Florida College System institution, including Florida State College at Jacksonville (per Senate Bill 1720, State Board Rule 6A-10.0315). These students shall be considered exempt from common placement testing and developmental education instruction, and may accordingly enroll directly in MAT 1033 or MGF 1130 or MGF1131. For placement in any college-credit math course beyond MAT 1033 or MGF 1130 or MGF1131, exempt students will be required to take the common placement test. This course may require proctored testing at an approved location. Students may be charged testing fees at off-campus and virtual testing locations. For additional information and resources, please see the College's Online Learning website. **Terms Offered:** Fall, Spring, Summer.

**MAC 1105C - College Algebra Enhanced**, Credit Hours: 5. *State Core course.*  
**Prerequisite(s):** MAT 1033 with a grade of D or higher or MAC 1105 with a grade of D or lower or a satisfactory score on the placement test. **Corequisite(s):** None.  
**Conditions:** This course fulfills the Gordon Rule computation requirement and must be completed with a grade of C or higher (pursuant to State Board of Education Rule 6A-10.030). Effective Spring 2014, students who entered the ninth grade in a Florida public high school in the 2003-2004 school year, or any year thereafter, and earned a standard Florida high school diploma, or students who are serving as active duty members in any branch of the United States Armed Services, will not be required to take the common placement test (P.E.R.T.) or to enroll in developmental education at any Florida College System institution, including Florida State College at Jacksonville (per Senate Bill 1720, State Board Rule 6A-10.0315). These students shall be considered exempt from common placement testing and developmental education instruction, and may accordingly enroll directly in MAT 1033 or MGF 1130 or MGF 1131. For placement in any college-credit math course beyond MAT 1033 or MGF 1130 or MGF 1131, exempt students will be required to take the common placement test. This course may require proctored testing at an approved location. Students may be charged testing fees at off-campus and virtual testing locations. For additional information and resources, please see the College's Online Learning website. **Terms Offered:** Fall, Spring, Summer.

**MAC 1114 - College Trigonometry**, Credit Hours: 3. **Prerequisite(s):** MAC 1105 or MAC 1105C each with a grade of C or higher. **Corequisite(s):** None. **Conditions:** A strong high-school Algebra background is recommended. This course fulfills the Gordon Rule computation requirement and must be completed with a grade of C or higher (pursuant to State Board of Education Rule 6A-10.030). **Terms Offered:** Fall, Spring, Summer.

**MAC 1140 - Precalculus Algebra**, Credit Hours: 4. **Prerequisite(s):** MAC 1105 or MAC 1105C each with a grade of C or higher or a satisfactory score on the placement test. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule computation requirement and must be completed with a grade of C or higher (pursuant to State Board of Education Rule 6A-10.030). **Terms Offered:** Fall, Spring, Summer.

**MAC 1147 - Precalculus Algebra and Trigonometry**, Credit Hours: 5. **Prerequisite(s):** MAC 1105 or MAC 1105C each with a grade of B or higher or satisfactory score on the placement test. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule computation requirement and must be completed with a grade of C or higher (pursuant to State Board of Education Rule 6A-10.030). **Terms Offered:** Fall, Spring, Summer.

**MAC 2233 - Calculus for Business and Social Sciences**, Credit Hours: 3. **Prerequisite(s):** MAC 1105 or MAC 1105C or MAC 1140 each with a grade of C or higher or a satisfactory score on the placement test. **Corequisite(s):** None. **Conditions:** Appropriate technology is required. This course does not satisfy degree requirements for students majoring in mathematics or engineering. This course fulfills the Gordon Rule computation requirement and must be completed with a grade of C or higher (pursuant to State Board of Education Rule 6A-10.030). **Terms Offered:** Fall, Spring, Summer.

**MAC 2311 - Calculus With Analytic Geometry I**, Credit Hours: 4. *State Core course.* **Prerequisite(s):** MAC 1140 and MAC 1114 each with a grade of C or higher or MAC 1147 with a grade of a C or higher. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule computation requirement and must be completed with a grade of C or higher (pursuant to State Board of Education Rule 6A-10.030). **Terms Offered:** Fall, Spring, Summer.

**MAC 2312 - Calculus With Analytic Geometry II**, Credit Hours: 4. **Prerequisite(s):** MAC 2311 with a grade of C or higher. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule computation requirement and must be completed with a grade of C or higher (pursuant to State Board of Education Rule 6A-10.030). **Terms Offered:** Fall, Spring, Summer.

**MAC 2313 - Calculus With Analytic Geometry III**, Credit Hours: 4. **Prerequisite(s):** MAC 2312 with a grade of C or higher. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule computation requirement and must be completed with a grade of C or higher (pursuant to State Board of Education Rule 6A-10.030). **Terms Offered:** Fall, Spring, Summer.

**MAP 2302 - Differential Equations**, Credit Hours: 3. **Prerequisite(s):** MAC 2312 with a grade of C or higher. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule computation requirement and must be completed with a grade of C or higher (pursuant to State Board of Education Rule 6A-10.030). **Terms Offered:** Fall, Spring, Summer.

**MGF 1130 - Mathematical Thinking**, Credit Hours: 3. *State Core course.* **Prerequisite(s):** Satisfactory score on the placement test for non-exempt students. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule of Computation requirement and must be completed with a grade of C or higher (pursuant to State Board of Education Rule 6A-10.030). Effective Spring 2014, students who entered the ninth grade in a Florida public high school in the 2003-2004 school year, or any year thereafter, and earned a standard Florida high school diploma, or students who are serving as active duty members in any branch of the United States Armed Services, will not be required to take the common placement test or to enroll in developmental education at any Florida College System institution, including Florida State College at Jacksonville (per State Board Rule 6A-10.0315). These students shall be considered exempt from common placement testing and developmental education instruction, and may accordingly enroll directly in MAT 1033 or MGF 1130 or MGF 1131, depending on their program of study requirement. For placement in any math course beyond MAT 1033 or MGF 1130 or MGF 1131, exempt students will be required to take the common placement test. **Terms Offered:** Fall, Spring, Summer.

**STA 2023 - Elementary Statistics**, Credit Hours: 3. *State Core course.* **Prerequisite(s):** Satisfactory score on placement test or successful completion of MAT 1033 with a grade of C or higher. **Corequisite(s):** None. **Conditions:** This course fulfills the Gordon Rule computation requirement and must be completed with a grade of C or higher (pursuant to State Board of Education Rule 6A-10.030). **Terms Offered:** Fall, Spring, Summer.

### General Education Natural Sciences Courses

Complete one of the following courses.

**AST 1002 - Introduction to Astronomy**, Credit Hours: 3. *State Core course.* **Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** Suggested course: AST 1002L (course may be taken following or concurrent with AST 1002L). This course may require proctored testing at an approved location. Students may be charged testing fees at off-campus and virtual testing locations. For additional information and resources, please see the College's Online Learning website. **Terms Offered:** Fall, Spring, Summer.

**BSC 1005 - Life in Its Biological Environment**, Credit Hours: 3. *State Core course.* **Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** This course may require proctored testing at an approved location. Students may be charged testing fees at off-campus and virtual testing locations. For additional information and resources, please see the College's Online Learning website. **Terms Offered:** Fall, Spring, Summer.

**BSC 2010C - Principles of Biology I**, Credit Hours: 4. *State Core course.* **Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** This course fulfills the General Education Requirements and the laboratory requirement needed by many students who plan to transfer to a four-year institution. **Terms Offered:** Fall, Spring, Summer.

**BSC 2085C - Human Anatomy and Physiology I**, Credit Hours: 4. *State Core course.* **Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** High School Chemistry taken within the past five years. High School Biology taken within the past five years. This course may require proctored testing at an approved location. Students may be charged testing fees at off-campus and virtual testing locations. For additional information and resources, please see the College's Online Learning website. **Terms Offered:** Fall, Spring, Summer.



**CHM 1020 - Chemistry for Liberal Arts**, Credit Hours: 3. *State Core course.*  
**Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** This course may require proctored testing at an approved location. Students may be charged testing fees at off-campus and virtual testing locations. For additional information and resources, please see the College's Online Learning website. **Terms Offered:** Fall, Spring, Summer.

**CHM 2045C - General Chemistry and Qualitative Analysis I**, Credit Hours: 4. *State Core course.* **Prerequisite(s):** MAC 1105 or MAC 1105C or higher-level MAC prefix course or MAP 2302, and CHM 1025C with a grade of C or higher. **Corequisite(s):** None. **Conditions:** Passing score on the Toledo Chemistry test may substitute for CHM 1025C prerequisite requirement. **Terms Offered:** Fall, Spring, Summer.

**ESC 1000 - Earth and Space Science**, Credit Hours: 3. *State Core course.*  
**Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall, Spring, Summer.

**EVR 1001 - Introduction to Environmental Science**, Credit Hours: 3. *State Core course.* **Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** This course fulfills the General Education Physical Science requirement. **Terms Offered:** Fall, Spring, Summer.

**OCE 2001 - Survey of Oceanography**, Credit Hours: 3. *State Core course.*  
**Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** This course may require proctored testing at an approved location. Students may be charged testing fees at off-campus and virtual testing locations. For additional information and resources, please see the College's Online Learning website. **Terms Offered:** TBA.

**PHY 1020C - Physics for Liberal Arts with Laboratory**, Credit Hours: 3. *State Core course.* **Prerequisite(s):** MAT 1033 or higher. **Corequisite(s):** MAT 1033 or higher. **Conditions:** This course may require proctored testing at an approved location. Students may be charged testing fees at off-campus and virtual testing locations. For additional information and resources, please see the College's Online Learning website. **Terms Offered:** Fall, Spring, Summer.

**PHY 2048C - Physics I with Calculus**, Credit Hours: 4. **Prerequisite(s):** MAC 2311. **Corequisite(s):** MAC 2312. **Conditions:** This course may require proctored testing at an approved location. Students may be charged testing fees at off-campus and virtual testing locations. For additional information and resources, please see the College's Online Learning website. **Terms Offered:** Fall, Spring, Summer.

**PHY 2053C - General Physics I**, Credit Hours: 4. *State Core course.*  
**Prerequisite(s):** (1) MAC 1140 and MAC 1114; or (2) MAC 2311; or (3) MAC 1147 with a grade of C or higher. **Corequisite(s):** None. **Conditions:** This course may require proctored testing at an approved location. Students may be charged testing fees at off-campus and virtual testing locations. For additional information and resources, please see the College's Online Learning website. **Terms Offered:** Fall, Spring, Summer.

### General Education Social and Behavioral Sciences Courses

Complete one of the following courses.

**AMH 2010 - United States History to 1877**, Credit Hours: 3. *State Core course.*  
**Prerequisite(s):** Qualify for enrollment in ENC 1101. **Corequisite(s):** None. **Conditions:** Successful completion of this course satisfies the following Civic Literacy Competency Requirement: Prior to the award of an associate in arts or baccalaureate degree, first-time-in-college students entering a Florida College System institution in the 2018-2019 school year, and thereafter, must demonstrate competency in civic literacy (Florida Statute 1007.25, Section 4; State Board of Education Rule 6A-10.02413). **Terms Offered:** Fall, Spring, Summer.

**AMH 2020 - United States History from 1877 to the Present**, Credit Hours: 3. *State Core course.* **Prerequisite(s):** Qualify for enrollment in ENC 1101. **Corequisite(s):** None. **Conditions:** Successful completion of this course satisfies the following Civic Literacy Competency Requirement: Prior to the award of an associate in arts or baccalaureate degree, first-time-in-college students entering a Florida College System institution in the 2018-2019 school year, and thereafter, must demonstrate competency in civic literacy (Florida Statute 1007.25, Section 4; State Board of Education Rule 6A-10.02413). **Terms Offered:** Fall, Spring, Summer.

**POS 2041 - American Federal Government**, Credit Hours: 3. *State Core course.*  
**Prerequisite(s):** Qualify for enrollment in ENC 1101. **Corequisite(s):** None. **Conditions:** Successful completion of this course satisfies the following Civic Literacy Competency Requirement: Prior to the award of an associate in arts or baccalaureate degree, first-time-in-college students entering a Florida College System institution in the 2018-2019 school year, and thereafter, must demonstrate competency in civic literacy (Florida Statute 1007.25, Section 4; State Board of Education Rule 6A-10.02413). **Terms Offered:** Fall, Spring, Summer.

### Professional Courses

Complete all of the following courses.

**BCN 2732 - Industrial Safety & Human Factors**, Credit Hours: 3.  
**Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall, Spring, Summer.

**EET 1084C - Survey of Electronics**, Credit Hours: 3. **Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall, Spring.

**ETI 2622C - Introduction to Lean Manufacturing**, Credit Hours: 3.  
**Prerequisite(s):** ETS 1352C. **Corequisite(s):** ETS 1352C. **Conditions:** None. **Terms Offered:** Fall, Spring, Summer.

**ETS 1352C - Introduction to Manufacturing Processes**, Credit Hours: 3.  
**Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall, Spring, Summer.

**ETS 1511C - Motors and Controls**, Credit Hours: 3. **Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Spring.

**ETS 1520C - Basics of Instrumentation**, Credit Hours: 3. **Prerequisite(s):** EET 1084C. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Spring.

**ETS 1542C - Introduction to Programmable Logic Controllers**, Credit Hours: 3.  
**Prerequisite(s):** ETS 1511C and ETS 1700C. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall.

**ETS 1603C - Robotics - Mechanics and Controls**, Credit Hours: 3.  
**Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall, Summer.

**ETS 1632C - Computer Integrated Manufacturing**, Credit Hours: 3.  
**Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall, Spring, Summer.

**ETS 1700C - Hydraulics and Pneumatics**, Credit Hours: 3. **Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Spring.

### Professional Elective Courses

Complete a minimum of 15 credit hours from the following courses.

**CGS 2470 - Computer Aided Drafting and Design**, Credit Hours: 3.  
**Prerequisite(s):** ETD 1100C or ETS 1520C. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall, Spring, Summer.

**ETD 1100C - Engineering Drawing**, Credit Hours: 3. **Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall, Spring, Summer.

**ETD 2371C - Introduction to Additive Manufacturing**, Credit Hours: 3.  
**Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Spring.

**ETI 1110 - Introduction to Quality Assurance**, Credit Hours: 3.

**Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** None. **Terms**

**Offered:** Fall, Spring, Summer.

**ETI 2460C - Introduction to Composites**, Credit Hours: 3. **Prerequisite(s):** None.

**Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall.

**ETI 2464C - Advanced Composites**, Credit Hours: 3. **Prerequisite(s):** ETI 2460C.

**Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Spring.

**ETI 2465C - Introduction to Plastics**, Credit Hours: 3. **Prerequisite(s):** None.

**Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall.

**ETM 1010C - Measurement and Instrumentation**, Credit Hours: 3.

**Prerequisite(s):** EET 1084C. **Corequisite(s):** None. **Conditions:** None. **Terms**

**Offered:** TBA.

**ETM 2315C - Mechanical Devices and Systems**, Credit Hours: 3.

**Prerequisite(s):** None. **Corequisite(s):** None. **Conditions:** None. **Terms**

**Offered:** Fall, Spring.

**ETM 2317C - Drive and Pump Systems**, Credit Hours: 3. **Prerequisite(s):** None.

**Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall.

**ETS 1531C - Human Machine Interface and Systems Graphics**, Credit Hours: 3.

**Prerequisite(s):** ETS 1540C. **Corequisite(s):** ETS 1540C. **Conditions:** None. **Terms**

**Offered:** Fall.

**ETS 1535C - Automated Process Control**, Credit Hours: 3. **Prerequisite(s):** ETS

1520C and ETS 1540C. **Corequisite(s):** None. **Conditions:** None. **Terms**

**Offered:** Fall.

**ETS 1540C - Industrial Applications Using Programmable Logic Controllers in Instrumentation**, Credit Hours: 3. **Prerequisite(s):** ETS 1603C.

**Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall.

**ETS 1633C - Applied Robotics**, Credit Hours: 3. **Prerequisite(s):** ETS 1542C and

ETS 1603C. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall.

**ETS 1680C - Mechatronics I**, Credit Hours: 3. **Prerequisite(s):** ETS 1542C.

**Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall, Spring.

**ETS 1681C - Mechatronics II**, Credit Hours: 3. **Prerequisite(s):** ETS 1680C.

**Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Summer.

**ETS 1941 - Internship**, Credit Hours: 1. **Prerequisite(s):** None.

**Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Spring.

**ETS 2590C - Engineering Technology Capstone**, Credit Hours: 3.

**Prerequisite(s):** ETS 1542C and ETS 1603C and ETM 2315C. **Corequisite(s):** None.

**Conditions:** Sophomore-level or higher. Department permission required prior to enrolling in this course. **Terms Offered:** Spring.

**PMT 1203C - Introduction to Machining**, Credit Hours: 3. **Prerequisite(s):** None.

**Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall.

**PMT 2213C - Advanced Machining I**, Credit Hours: 3. **Prerequisite(s):** PMT

1203C. **Corequisite(s):** None. **Conditions:** None. **Terms Offered:** Fall.

**PMT 2214C - Advanced Machining II**, Credit Hours: 3. **Prerequisite(s):** PMT

1203C and PMT 2213C. **Corequisite(s):** PMT 1203C and PMT 2213C.

**Conditions:** None. **Terms Offered:** Spring.

**PMT 2250C - CNC Programming I**, Credit Hours: 3. **Prerequisite(s):** PMT 2213C

and PMT 2214C. **Corequisite(s):** PMT 2213C and PMT 2214C.

**Conditions:** Students who have not completed the prerequisite course requirements may seek departmental permission prior to enrollment in this course. **Terms Offered:** Spring.