

STEM School Engineering and Computer Science Preparation Four-Year Plan (2028 and forward)

Four-Year Engineering and Computer Science Plan Expectations

These expectations are recommended for all students pursuing engineering and/or computer science post-secondary pathways.

- Mathematics: Goal is to complete at least Calculus II. Minimum is completing Calculus I.
- Science: Goal is to complete at least five science credits, including college courses in Chemistry and Physics.
- College Success: Complete ChSCC College Success for Engineering course during 11th grade fall.
- Tech Time: Complete Coding and/or Digital Fabrication Time Time in 11th and/or 12th grades.
- Digital Fabrication: Earn Master Fabricator distinction and intern in the Global Center for Digital Innovation (GCDI).
- Graduation Distinctions: Earn Master Fabricator distinction AND at least one of the following - Grand Challenge Scholar, Mathematics Scholar, Science Scholar and/or Computer Science Scholar.
- HIPs College Courses at Chattanooga State: Students are encouraged to enroll in the High Impact Practices (HIPs) sections for college coursework. Courses with High-Impact Practices (HIPs) Attributes indicate a course in which a faculty member has opted to offer experiential-learning, which help students apply the theories and concepts learned in the classroom to practical problems and/or real-world experiences.

Graduation Distinctions

- Grand Challenges Scholar: Student has scored Advanced on Grand Challenge PBLs in 9th, 10th, 11th and 12th grades showing expertise in one of the fourteen grand challenges for improving life on our planet in the 21st century.
- Master Fabricator: Graduating cohort 2028 and beyond-
 - Apprentice Fabricator - Completes one Fab Folio Industry Certification pathway (with earned certificate) or completes one of the following Fab Folio Concentration pathways (Digital Fabrication, Physical Computing, or Textile Fabricator)
 - Journeyman Fabricator - Meets Apprentice Fabricator level plus an additional Industry Certification or Concentration pathway (Digital Fabrication, Physical Computing, or Textile Fabricator)
- Master Fabricator- Meets Journeyman Fabricator level plus an additional Industry Certification or Concentration pathway (Digital Fabrication, Physical Computing, or Textile Fabricator).
- Mathematics Scholar: Student has excelled in mathematics earning college credit in mathematics courses above and beyond Calculus II.
- Science Scholar: Two pathways to achieve Science Scholar recognition.
 - Option 1: 5 Science Credits, with all As, with at least one class at the college level.
 - Option 2: 4 Science Credits from STEM School, with all As, and one of the following:
 - A member of the STEM School 4K Microscopy Graduate Assistant Team
 - Acceptance and completion of the BASF Summer Academy program
 - Design and completion of an original research project, carried out as an independent research project, with a focus in either Biology, Chemistry, or Physics/PWC (or interdisciplinary)
 - Successful completion of a teacher assistant position with the STEM School PWC, Chemistry, or Biology Teacher

- Computer Science Scholar: Three pathways to achieve the Computer Science Scholar
 - Option 1: Student has earned all four Programming Beginner, Programming Intermediate, Physical Computing I, and Physical Computing II pathways in FabFolio
 - Option 2: Student has earned an A in both Coding I and Coding II at the STEM School and has earned both programming Beginner and Programming Intermediate pathways in FabFolio
 - Option 3: Completed Coding I having earned an A and successfully completed a Computer Science course at the college level.

Four Year Engineering and Computer Science Preparation Progression

	Year 1 (9 th)	Year 2 (10 th)	Year 3 (11 th)	Year 4 (12 th)
Math	-Minimum (by end of 10th): Algebra II Honors Includes Algebra I Honors, Geometry Honors, Algebra II Honors credits		-Precalculus Honors (STEM) -Calculus I Honors (STEM or CC)	-Calculus I Honors (STEM or CC) -Calculus II (CC)
Science	-Physical World Concepts Honors	-Chemistry Honors	-Biology Honors (STEM) -Chemistry I (CC)	-Physics I (CC)
English	-English I Honors	-English II Honors	-English III Honors (STEM) OR Composition I (CC)	-English IV Honors (STEM) OR Composition II (CC)
Social Studies	-World History and Geography Honors	-AP US History		-US Government and Economics Honors (STEM)
STEM Focus	-STEM I: School Based PBLs	-STEM II: PBLs w/ Business Partner	-STEM III: Choice PBLs w/ Business Partner	-STEM IV: STEM Entrepreneurship
Fine Art, Foreign Language, Tech	-Digital Arts -Spanish I or II Honors (STEM) OR Foreign Lang (CC)	-Spanish II Honors (STEM) OR Foreign Lang (CC) OR Coding 1	-Required Coding I -Optional-STEM Multimedia, Coding II, Video Game Design OR Elective 3+ Hr ChSCC College Course (CC)	
Other Required Electives		-Personal Finance -Coding I	-ACT Review (STEM) -College Success for Engineering (CC)	-PE (CC) -College STEM Related Course (CC)
			-Wellness (CC)	

Minimum High School Graduation Requirements (for all STEM students)

- 23 credits for graduation (4 each – math, science, English; 3 each – social studies, elective focus; 2 – foreign language; 1 – fine art, wellness; 0.5 – PE, personal finance 1.0 - Coding I)