



Program Map 2018-2019 College Credit Catalog

Engineering

Degree: Associate of Science (AS) in Engineering



SCIENCE, ENGINEERING & MATH

Program Description: Engineers apply the principles of physics and mathematics to design, develop, implement, and maintain structures and systems. Students in this program explore engineering theory and gain project-based laboratory experience.

The Associate of Science degree in Engineering is intended to match closely to the curriculum of the first two years of study in most university engineering programs. Upon completion, students will be ready to pursue any type of engineering degree at a four-year institution.

To receive an Associate of Science in Engineering, students must: (a) make a minimum grade of C in all required math and science courses and (b) have an overall GPA of 2.0 or greater.

Contact:

Dr. James Heath
Department Chair
jheath@austincc.edu
512-223-7489, 512-223-7483

Department Website
www.austincc.edu/engineering

*Use this **Program MAP** to choose courses with your advisor and track progress towards milestones and completion of program.*

Pre-Degree Requirements		
Program Specific	Reading and Writing Placement <i>Placements based on TSI</i>	Mathematics Placement <i>Placements based on TSI</i>
Prerequisites for MATH 2413 – Calculus I: <input type="checkbox"/> MATH 1314 – College Algebra <input type="checkbox"/> MATH 1316 – Trigonometry <input type="checkbox"/> MATH 2412 – Precalculus: Functions and Graphs	<input type="checkbox"/> Basic Developmental Courses <input type="checkbox"/> ESOL Courses <input type="checkbox"/> INRW Courses	<input type="checkbox"/> NCBM and MATD courses paired with MATH courses <input type="checkbox"/> NCBM and MATD courses
SEMESTER-BY-SEMESTER PROGRAM PLAN FOR FULL-TIME STUDENTS		
<i>Plans can be modified to fit the needs of part-time students by adding more semesters</i>		

Semester 1	CR	Advising Notes
EDUC 1100 – Effective Learning: Strategies for College Success	1-3	<u>Note:</u> All first time Austin Community College (ACC) students with fewer than 12 SCH of successful college credit must take an EDUC college success course in their first semester at ACC. All other students may select either the EDUC college success course or a SPCH course from the Component Area Option List of courses in the Core Curriculum Course List. See an advisor or a full-time faculty member in the Engineering program for more information.
MATH 2413 – Calculus I	4	<u>Prerequisite(s):</u> MATH 2412 with minimum grade C; OR satisfactory scores on both the ACC Mathematics Assessment and Higher Level Placement Tests. <u>Note:</u> Students should consult with a full-time mathematics instructor since one or more mathematics courses may be required before enrolling in MATH 2413.
ENGL 1301 – English Composition I	3	<u>Prerequisite(s):</u> TSI complete in reading and writing or exempt.
ENGR 1201 – Introduction to Engineering	2	<u>Prerequisite(s):</u> One full year of high school physics or equivalent and mathematics through trigonometry.
CHEM 1311 – General Chemistry I - Lecture	3	<u>Prerequisite(s):</u> High school chemistry or CHEM 1305/CHEM 1105 and MATH 1314 or equivalent academic preparation. <u>Corequisite(s):</u> CHEM 1111.
CHEM 1111 – General Chemistry I - Lab	1	<u>Prerequisite(s):</u> High school chemistry or CHEM 1305/CHEM 1105 and MATH 1314 or equivalent academic preparation. <u>Corequisite(s):</u> CHEM 1311.
	14-16	Program Semester Hours / Meet with your advisor
Semester 2		
MATH 2414 – Calculus II	4	<u>Prerequisite(s):</u> MATH 2413 with a C or better or the equivalent.

PHYS 2425 – Engineering Physics I	4	Prerequisite(s): 1) Grade of C or better in MATH 2413 or equivalent, 2) concurrent enrollment or credit in MATH 2414 or its equivalent, 3) one year of high school physics or grade of C or better in PHYS 1401. Note: Students lacking one full year of (recent) high school physics should take PHYS 1401 before taking PHYS 2425. All students must complete MATH 2413 before enrolling in PHYS 2425.
ENGL 1302 – English Composition II OR ENGL 2311 – Technical and Business Writing	3	Prerequisite(s): ENGL 1301 or equivalent with minimum grade of C. Note: Before choosing between these two ENGL courses, check with your prospective transfer institution to see if they accept your choice.
HIST 1301 – United States History I	3	Note: Select from the following courses: HIST 1301, HIST 2301, HIST 2327, or HIST 2381. HIST 2301 and HIST 2381 may only be taken once.
ARTS 1303 – Art History I (Prehistoric to the 14 th Century)	3	Note: Or choose a course from the Creative Arts section of the Core Curriculum Course List. Check with prospective transfer institutions for transferability.
	17	Program Semester Hours / Meet with your program advisor
Semester 3		
Engineering Elective	3-4	Note: Choose a course based on your proposed branch of engineering: ENGR 2301 (mechanical, civil, industrial, etc.) or MATH 2420 (computer, electrical, etc.) or CHEM 1312 and CHEM 1112 (chemical, biomedical, etc.)
MATH 2415 – Calculus III	4	Prerequisite(s): MATH 2414 with a C or better or its equivalent. Note: MATH 2420 is no longer required for the degree; however, it is strongly recommended.
PHYS 2426 – Engineering Physics II	4	Prerequisite(s): Grade of C or better in 1) PHYS 2425 or equivalent AND 2) credit in MATH 2414 or equivalent. Note: Credit for PHYS 2425 and credit for MATH 2414 are strictly required prerequisites for PHYS 2426.
GOVT 2305 – United States Government	3	
	14-15	Program Semester Hours / Meet with your program advisor
Semester 4		
HIST 1302 – United States History II	3	Note: Select from the following courses: HIST 1302, HIST 2301, HIST 2327, or HIST 2381. HIST 2301 and HIST 2381 may only be taken once.
PHIL 2306 – Ethics	3	Note: Or choose a course from the Component Area Option section of the Core Curriculum Course List. Check with prospective transfer institutions for transferability.
ECON 2301 – Principles of Macroeconomics	3	Note: Or choose a course from the Social and Behavioral section of the Core Curriculum Course List. Check with prospective transfer institutions for transferability.
GOVT 2306 – Texas State and Local Government	3	
Engineering Elective II	3-4	Note: Choose a course based on your Engineering Elective I course: ENGR 2302 or ENGR 2332 (if ENGR 2301 was taken) or ENGR 2405 (if MATH 2420 was taken) or CHEM 2323 and CHEM 2123 (if CHEM 1312 was taken). ACHIEVEMENT: Associate of Science degree in Engineering
	15-16	Program Semester Hours
Total Program Hours 60-64		

Please always check online at catalog.austincc.edu or meet with your academic or program advisor to ensure that you are viewing the latest and most accurate information.

Career & Transfer Resources

ACC's Career & Transfer websites provide detailed, guided information on career exploration and transfer.

www.austincc.edu/career; www.austincc.edu/transfer

For further information regarding this specific program, please see the Career & Transfer Resources supplement provided in the next section of this Program Map.

Program Map

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Career & Transfer Resources Updated 11/26/18

Transfer Information

The Associate of Science in Engineering provides a transfer pathway to a 4-year institution where students can earn a bachelor's degree. Students are strongly encouraged to select a transfer destination by the time they have completed 24 semester credit hours.

Common majors students pursue at a 4-year institution include: Aerospace Engineering, Architectural Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Engineering Technology, Industrial Engineering, Manufacturing Engineering, Mechanical Engineering, Petroleum Engineering

Transfer Guides: *The universities listed here do not constitute an ACC endorsement. Transfer course evaluations and determination of what courses will count toward a bachelor's degree are made by the receiving transfer institution.*

Texas State University: <https://www.admissions.txstate.edu/future-students/transfer/tpg>

The University of Texas at Austin: <https://admissions.utexas.edu/apply/transfer-resources/acc-transfer-guides>

Texas A&M University: <http://admissions.tamu.edu/transfer/majors>

Texas Tech University: <https://catalog.ttu.edu/content.php?catoid=9&navoid=996>

The University of Texas at San Antonio: https://www.utsa.edu/advise/1617_transfer/acc.html

Reverse Transfer: If you transfer to a four-year institution prior to graduating from ACC, you can still earn your associate degree through reverse transfer. More information on the reverse transfer process and requirements can be found at www.austincc.edu/students/transfer-services/reverse-transfer.

Additional Transfer Resources: ACC's transfer website provides information on additional colleges & universities: <http://www.austincc.edu/transferguides>. Students are encouraged to consult with a faculty advisor, [area of study advisor](#), and/or their chosen transfer institution to ensure courses taken at ACC will apply toward their bachelor's degree program.

Career Information

Common Job Titles

Aerospace Engineer, Architectural Engineer, Biomedical Engineer, Chemical Engineer, Civil Engineer, Computer Engineer, Electrical Engineer, Engineering Technology, Manufacturing Engineer, Mechanical Engineer, Mining and Geological Engineers, Nuclear Engineers, Petroleum Engineer, Engineering Teachers, Postsecondary

Many career opportunities in this field require completion of a bachelor's degree or higher.

Regional Labor Market Information

Mechanical Engineer: New workers generally start around \$59,820. Normal pay for Mechanical Engineers is \$90,030 per year, while highly experienced workers can earn as much as \$131,772. Over the last year, 190 companies have posted 1,029 jobs for Mechanical Engineers. There are currently 1,608 Mechanical Engineers that are employed in Austin-Round Rock, TX.

Source: <https://austincc.emsicc.com/careers/mechanical-engineer/employment>

Civil Engineer: New workers generally start around \$50,941. Normal pay for Civil Engineers is \$80,753 per year, while highly experienced workers can earn as much as \$134,513. Over the last year, 204 companies have posted 2,077 jobs for Civil Engineers. There are currently 3,187 Civil Engineers that are employed in Austin-Round Rock.

Source: <https://austincc.emsicc.com/careers/civil-engineer>

Electrical engineering technician: New workers generally start around \$44,191. Normal pay for Electrical Engineering Technicians is \$68,033 per year, while highly experienced workers can earn as much as \$110,209. Over the last year, 20 companies have posted 49 jobs for Electrical Engineering Technicians.

(Source: <https://austincc.emsicc.com/careers/electrical-engineering-technician/wages>)

Career and labor market research tools (see Quick Reference Guide at <http://www.austincc.edu/career>):

EMSI: <https://austincc.emsicc.com/>, Bureau of Labor Statistics: <http://www.bls.gov/ooh/>, O*NET: <https://www.onetonline.org/>

Career Resources: ACC's career services website provides information on career exploration and employment at <http://www.austincc.edu/career>. Students are encouraged to consult with their [area of study advisor](#) for additional career assistance. The above information is provided as a guide and reference tool for occupations related to this program. This is not a guarantee of job placement in any of these occupations after successful completion of an ACC program. The common job titles listed are representative titles and are provided for career research. These are not the only occupations possible in this area of study.