

A.S. in Engineering Fundamentals

The Associate of Science in Engineering Fundamentals is for aspiring engineering students who want world-class educational opportunities that meet their needs in new and innovative ways. The Associate of Science in Engineering Fundamentals is accredited by the Applied and Natural Science Accreditation Commission (<https://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-applied-and-natural-science-programs-2023-2024/>) of ABET, <https://www.abet.org/>, under the commission's General Criteria with no applicable program criteria.

Program-Level Student Learning Outcomes

Students will:

- Have an ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.
- Have an ability to communicate effectively.
- Have an ability to conduct experiments or test theories and analyze and interpret data.
- Have an ability to apply appropriate dimensional units.
- Have an ability to function effectively on teams.
- Have an ability to demonstrate the knowledge of professional and ethical responsibilities.

Worldwide Program Requirements

General Education Requirements	19
Core Requirements	44
Total Credits	63

Program Details

The Associate of Science in Engineering Fundamentals requires successful completion of a minimum of 63 credit hours. Students enrolled in the Worldwide Undergraduate Online program may complete the degree in 10 terms, or approximately two years, assuming full-time enrollment and continuous progress. Students pursuing this undergraduate degree must earn a minimum cumulative grade point average (CGPA) of 2.00 for all work completed at the University. The courses required to earn this degree are listed below.

Students should be aware that many courses have prerequisites and/or corequisites. Students are responsible for ensuring that all prerequisite and degree requirements are satisfied prior to enrollment in advanced coursework. The suggested plan of study is provided as a guide. A student's actual plan of study may vary based on term of admission, course availability, transfer credit, and other academic considerations. Students should consult with their academic advisor to develop an individualized plan of study.

General Education Requirements

Communication	9
COMM 122 English Composition	
COMM 219 Speech	
COMM 221 Technical Communication	
Humanities - Lower Level	3
Humanities (HUMN) 140 Series	
Social Sciences - Lower Level	3
ECON 225 Engineering Economics	
Mathematics	4

MATH 241 Calculus and Analytical Geometry I

Total Credits **19**

Core Requirements

ENGR 101W	Introduction to Engineering	3
ENGR 115	Introduction to Computing for Engineers	3
ENGR 120	Graphical Communications	3
ESCI 201	Statics	3
ESCI 202	Solid Mechanics	3
ESCI 204	Dynamics	3
ESCI 206	Fluid Mechanics	3
MATH 242	Calculus and Analytical Geometry II	4
MATH 243	Calculus and Analytical Geometry III	4
MATH 345	Differential Equations and Matrix Methods	4
PHYS 150	Physics with Calculus I	3
PHYS 160	Physics with Calculus II	3
PHYS 250	Physics with Calculus III	3
PHYS 250W	Physics with Calculus III Laboratory	2
Total Credits		44

Suggested Plan of Study

Year One

Requirements	Credits
ENGR 101W - Introduction to Engineering	3
COMM 122 - English Composition	3
Semester Hours	6

Requirements	Credits
MATH 241 - Calculus and Analytical Geometry I	4
ENGR 115 - Introduction to Computing for Engineers	3
Humanities - Lower Level	3
Semester Hours	10

Requirements	Credits
MATH 242 - Calculus and Analytical Geometry II	4
PHYS 150 - Physics with Calculus I	3
Semester Hours	7

Requirements	Credits
PHYS 160 - Physics with Calculus II	3
COMM 219 - Speech	3
ECON 225 - Engineering Economics	3
Semester Hours	9

Total Credits

Total Hours for All Requirements: 32

Year Two

Requirements	Credits
ESCI 201 - Statics	3
MATH 243 - Calculus and Analytical Geometry III	4
COMM 221 - Technical Communication	3
Semester Hours	10

Requirements	Credits
ENGR 120 - Graphical Communications	3
ESCI 202 - Solid Mechanics	3
ESCI 204 - Dynamics	3
Semester Hours	9

Requirements	Credits
ESCI 206 - Fluid Mechanics	3
MATH 345 - Differential Equations and Matrix Methods	4
Semester Hours	7

Requirements	Credits
PHYS 250 - Physics with Calculus III	3
PHYS 250W - Physics with Calculus III Laboratory	2
Semester Hours	5

Total Credits

Total Hours for All Requirements: 31

Estimated Cost of Attendance

Estimated Cost of Attendance: California Student Information (<https://catalog.erau.edu/student-life/student-affairs/california-student/>)