

ASSOCIATE OF SCIENCE - ENGINEERING EMPHASIS

This is a two-year transferable program leading to an Associate of Science with an emphasis in engineering. The Associate of Science degree in engineering is designed for students planning to obtain a four-year engineering degree. Engineering is the practical application of scientific theory and principles. This program develops a strong foundation in mathematics and physical science while providing an introduction to the fundamental aspects of engineering. Students who complete the associate degree can transfer to other colleges or universities in many engineering disciplines including civil, chemical, computer, electrical, geological, mechanical, metallurgical, mining, computer science and engineering physics.

Emphasis Outcomes

Students completing the emphasis will:

- Describe and apply the engineering design process.
- Demonstrate effective communication skills via writing and presentations, work effectively in teams, and perform basic computational skills appropriate to the engineering field.

General Education Requirements

English 3-6
Must include ENG 102 or ENG 114 ¹

Fine Arts 3

Humanities 3

Mathematics [3]

Required:

MATH 181 Calculus I ² 4

Science [3]

Required:

CHEM 121 General Chemistry I ² 4

or CHEM 201 General Chemistry for Scientists and Engineers

PHYS 180/180L Physics for Scientists and Engineers I ² 3

Social Science 3

Required:

ECON 102 Principles of Microeconomics

Additional College Requirements

Diversity ³ [3]

Science 6

Science courses fulfilling the 6 units include:

PHYS 180 Physics for Scientists and Engineers I (1 unit from General Education) ²

PHYS 180L Physics for Scientists/Engineers Lab I (1 unit from General Education) ²

PHYS 181 Physics for Scientists and Engineers II (3 units) ²

PHYS 181L Physics for Scientists/Engineers Lab II (1 unit) ²

U.S. and Nevada Constitutions 3

Degree Requirements

CS 135 Computer Science I 3

ENGR 100 Introduction to Engineering Design 3

Mathematics: one unit counted from GE MATH 181 [1]

MATH 182	Calculus II ²	4
MATH 283	Calculus III ²	4
MATH 285	Differential Equations ²	3
ME 241	Statics ²	3

Elective Requirements

Select up to 8 units from the following based on appropriate engineering major desired: ⁴ 6-8

BIOL 190/190L Introduction to Cell and Molecular Biology (civil)

CHEM 202 General Chemistry for Scientists and Engineers II (chemical)

CPE 201 Digital Design (electrical, computer)

CS 202 Computer Science II (computer)

ENGR 110 Introduction to Renewable Energy (renewable energy minor)

GEOL 101 Geology: Exploring Planet Earth (civil)

Total Units 60

¹ If you place into ENG 102 or ENG 114, the additional 3 required units will become elective credit.

² Must maintain a "C" or higher in these courses.

³ Course may also count toward degree requirements. Please consult with Academic Advisement.

⁴ The proper selection of units from this list is highly dependent on the engineering discipline. Please consult an advisor prior to selecting from this list.

Course	Title	Units
1st semester		
CHEM 121	General Chemistry I	4
or	or General Chemistry for Scientists and	
CHEM 201	Engineers	
English ⁵		3
Humanities/Diversity ⁵		3
MATH 181	Calculus I	4
Semester Total		14

2nd semester

ECON 102	Principles of Microeconomics	3
U.S. and Nevada Constitutions ⁵		3
English ⁶		3
ENGR 100	Introduction to Engineering Design	3
MATH 182	Calculus II	4
Semester Total		16

3rd semester

CS 135	Computer Science I	3
Fine Arts ⁵		3
MATH 283	Calculus III	4
PHYS 180	Physics for Scientists and Engineers I	4
& PHYS 181L	and Physics for Scientists/Engineers Lab II	
Semester Total		14

4th semester

Elective ⁶		6
PHYS 181	Physics for Scientists and Engineers II	4
& 181L	and Physics for Scientists/Engineers Lab II	
MATH 285	Differential Equations	3

ME 241	Statics	3
Semester Total		16
Total Units		60

⁵ See approved General Education list for the AA/AS Degree. (<http://catalog.tmcc.edu/degrees-certificates/general-education/aa-as>)

⁶ See program recommendations or requirements.