

# ENGINEERING: MECHANICAL, AEROSPACE, AND MANUFACTURING ENGINEERING EMPHASIS – ASSOCIATE IN SCIENCE DEGREE

Top Code:

0901.00

The Associate in Science in Engineering: Mechanical, Aerospace, and Manufacturing Engineering Emphasis provides a strong preparation for students planning to transfer to a 4-year university and major in Mechanical, Aerospace, and Manufacturing Engineering. The curriculum includes fundamental engineering and science core courses as well as required lower-division courses in Mechanical, Aerospace, and Manufacturing Engineering.

**Please Note:** *The courses that universities and colleges require for transfer vary. When selecting courses for transfer purposes, students should consult with Counseling Services to determine the particular transfer requirements of specific transfer institutions.*

## Program Outcomes

- Develop technical solutions to mechanical, aerospace, and manufacturing engineering problems using principles of mathematics, science, and engineering.
- Analyze and interpret empirical data to provide a basis for solutions to mechanical, aerospace, and manufacturing engineering problems.
- Communicate orally and in writing the results of experiments, projects, and data analysis.

## Requirements for the Major

| Code          | Title                                     | Units |
|---------------|---|-------|
| CHEM 001A     | GENERAL CHEMISTRY AND CHEMICAL ANALYSIS I | 5     |
| ENGR 002      | ENGINEERING GRAPHICS                      | 3     |
| ENGR 010      | INTRODUCTION TO ENGINEERING               | 2     |
| ENGR 011      | STATICS                                   | 3     |
| ENGR 014      | MATERIALS OF CONSTRUCTION                 | 3     |
| ENGR 016      | ENGINEERING CIRCUITS                      | 3     |
| ENGR 018      | INTRODUCTION TO NUMERICAL ANALYSIS        | 3     |
| MATH 005A     | SINGLE VARIABLE CALCULUS I                | 5     |
| or MATH 005A# | HONORS SINGLE VARIABLE CALCULUS I         |       |
| MATH 005B     | SINGLE VARIABLE CALCULUS II               | 5     |
| or MATH 005B# | HONORS SINGLE VARIABLE CALCULUS II        |       |
| MATH 005C     | MULTIVARIABLE CALCULUS                    | 5     |
| or MATH 005C# | HONORS MULTIVARIABLE CALCULUS             |       |

|                    |  |           |
|--------------------|--|-----------|
| MATH 055           | DIFFERENTIAL EQUATIONS   | 4         |
| or MATH 055H       | HONORS DIFFERENTIAL EQUATIONS  |           |
| PHYS 008A          | PHYSICS FOR SCIENTISTS AND ENGINEERS I: MECHANICS                                    | 5         |
| or PHYS 001A       | PHYSICS FOR SCIENTISTS AND ENGINEERS I: MECHANICS                                    |           |
| PHYS 008C          | PHYSICS FOR SCIENTISTS AND ENGINEERS III: THERMODYNAMICS, OPTICS, AND MODERN PHYSICS | 5         |
| or PHYS 001C       | GENERAL PHYSICS  |           |
| <b>Total Units</b> |  | <b>51</b> |

## Recommended Electives

| Code     | Title                 | Units |
|----------|-----------------------|-------|
| ENGR 012 | DYNAMICS              | 3     |
| ENGR 013 | STRENGTH OF MATERIALS | 3     |

Visit the Program Mapper (<https://pasadena-city.programmapper.ws/academics/interest-clusters/35afad1b-8598-4ecf-a320-0ed4834a7df8/programs/814720ec-8117-c6ca-a336-d1919f93cc07/>) for a suggested sequence of courses.

## General Education Requirements for the Associate in Science Degree

- General Information (<https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/>)
- PCC Local Gen Ed (<https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/#pcclocaltext>)
- CSU Breadth (<https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/#csubreadthtext>)
- IGETC (<https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/#igetctext>)