

ENGINEERING, ASSOCIATE IN SCIENCE

The Associate in Science in Engineering Program introduces students to the high demand fields of Engineering including, but not limited to Aerospace, Chemical, Civil, Electrical, Manufacturing, Mechanical, and Structural Engineering.

Engineers are significant and valuable members of our society that are relied upon to generally produce solutions through the utilization, design, and development of a plethora of technologies. With the increasingly high demand for qualified engineers in the workforce, this program allows those in the local community the opportunity to fill a vital role. Completion of the Associate in Science in Engineering will prepare students for transfer into an Engineering program at a four year university as well as entry level engineering positions for those seeking immediate employment.

Oxnard College's A.S. in Engineering is structured to allow students to complete core requirements found in the majority of Engineering majors within the UC and CSU systems while also customizing their major, through the choice of restricted electives and support courses, to align with their specific Engineering field at the particular universities to which they are applying. Completion of the A.S. degree also requires students to complete a general education pattern. Students can choose from the Oxnard College General Education pattern, CSU GE-Breadth, or IGETC, whichever best aligns with their educational goals and/or transfer destination.

Engineering majors are highly selective and impacted at most universities and students are advised to make themselves as competitive as possible when applying for admission both in GPA and course preparation. Students should consult with an Oxnard College Counselor, assist.org, university websites, and the admission office at their intended transfer destination to make sure they are adequately prepared for transfer.

| Course ID | Title | Units/ Hours |
|--|--|-----------------|
| Required Core Courses | | 30 |
| ENGR R101 | Introduction to Engineering | 2 |
| MATH R120 | Calculus with Analytic Geometry I | 5 |
| MATH R121 | Calculus with Analytic Geometry II | 5 |
| MATH R122 | Calculus with Analytic Geometry III | 5 |
| MATH R143 | Differential Equations | 3 |
| PHYS R131 | Physics for Scientists and Engineers 1 | 5 |
| PHYS R132 | Physics for Scientists and Engineers 2 | 5 |
| Choose a minimum of one course from the following support courses as appropriate to satisfy requirements for the intended transfer institution: | | |
| CHEM R120 | General Chemistry I | 5 |
| CHEM R122 | General Chemistry II | 5 |
| CHEM R130 | Organic Chemistry I | 5 |
| CHEM R132 | Organic Chemistry II | 5 |
| MATH R134 | Linear Algebra | 3 |
| PHYS R133 | Physics for Scientists and Engineers 3 | 5 |
| Choose a minimum of four Engineering courses as appropriate to satisfy requirements of the intended transfer institution: | | |
| ENGR R130 | Engineering Statics | 3 |

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| ENGR R135 | Dynamics | 3 |
| ENGR R140 | Materials Science and Engineering | 3 |
| ENGR R140L | Materials Science and Engineering Laboratory | 1 |
| ENGR R148 | Programming and Problem-Solving in MATLAB | 3 |
| ENGR R150 | Engineering Graphics and Design | 3 |
| ENGR R160 | Electronic Circuits and Devices | 3 |
| ENGR R160L | Electronic Circuits and Devices Laboratory | 1 |

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| Total Required Major Units | 41-47 |
| Oxnard College General Education | 29 |
| Double-Counted Units | - 6 |
| Free Electives Required | 0 |
| Total Units Required for A.S. Degree | 64-70 |
| CSU GE-Breadth | 39 |
| Health (can be taken within CSU GE) | 3 |
| PE / Kinesiology | 1 |
| Double-Counted Units | -6-9 |
| Free Electives Required | 0 |
| Total Required Units for A.S. Degree | 75-81 |
| IGETC | 37 |
| Health | 3 |
| PE / Kinesiology | 1 |
| Double-Counted Units | - 6 |
| Free Electives Required | 0 |
| Total Required Units for A.S. Degree | 76-82 |

| Year 1 | | |
|--------------------------|-----------------------------------|-------------|
| Fall Semester | | Units/Hours |
| ENGR R101 | Introduction to Engineering | 2 |
| MATH R120 | Calculus with Analytic Geometry I | 5 |
| CHEM R120 | General Chemistry I | 5 |
| Units/Hours | | 12 |
| Total Units/Hours | | 12 |

| Year 1 | | |
|--------------------------|---|-------------|
| Spring Semester | | Units/Hours |
| MATH R121 | Calculus with Analytic Geometry II | 5 |
| PHYS R131 | Physics for Scientists and Engineers 1 | 5 |
| ENGR R148 | Programming and Problem-Solving in MATLAB | 3 |
| CHEM R122 | General Chemistry II | 5 |
| Units/Hours | | 18 |
| Total Units/Hours | | 18 |

| Year 2 | | |
|--------------------------|--|-------------|
| Fall Semester | | Units/Hours |
| MATH R122 | Calculus with Analytic Geometry III | 5 |
| PHYS R132 | Physics for Scientists and Engineers 2 | 5 |
| CHEM R130 | Organic Chemistry I | 5 |
| ENGR R130 | Engineering Statics | 3 |
| Units/Hours | | 18 |
| Total Units/Hours | | 18 |

| Year 2 | | |
|-----------------|------------------------|-------------|
| Spring Semester | | Units/Hours |
| MATH R143 | Differential Equations | 3 |
| CHEM R132 | Organic Chemistry II | 5 |
| MATH R134 | Linear Algebra | 3 |

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|--------------------------|---|-----------|
| PHYS R133 | Physics for Scientists and Engineers 3 | 5 |
| ENGR R135 | Dynamics | 3 |
| ENGR R140 & R140L | Materials Science and Engineering and Materials Science and Engineering Laboratory | 3 |
| ENGR R150 | Engineering Graphics and Design | 3 |
| ENGR R160 & R160L | Electronic Circuits and Devices and Electronic Circuits and Devices Laboratory | 3 |
| Units/Hours | | 28 |
| Total Units/Hours | | 28 |

Upon successful completion of this program, students will be able to:

- Explain the principles of engineering and their application to the design and manufacturing of products.
- Critically evaluate a given system through observations, measurements, and accepted engineering analyses.
- Apply physical laws, engineering concepts and formulas to analyze engineering problems and to produce proper solutions qualitatively and quantitatively.
- Communicate engineering design ideas and solutions to problems through engineering drawings, oral presentations, and technical writing.