Engineering

Overview

Engineering involves the application of scientific and mathematical principles used in design and in the solution of practical technical problems. CRC's program provides the foundation in mathematics, physics, and engineering necessary to transfer to a university and complete a Bachelor of Science degree in Engineering. However, because the lower division requirements of universities vary, the student should check the transfer university's catalog to be sure he/she meets its specific requirements. See a CRC counselor for assistance.

Program Maps

A.A./A.S. Degrees

Engineering - Civil/Mechanical Option A.S. Degree Map (/academics/programs-and-majors/engineering-civil/mechanical-option-as-degree-map)

Engineering - Electrical/Computer Option A.S. Degree Map (/academics/programs-and-majors/engineering-electrical/computer-option-as-degree-map)

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Associate Degrees

A.S. in Engineering - Civil/Mechanical Option

Pre-Professional Transfer Opportunities

CRC's program provides the foundation in mathematics, physics, and engineering necessary to transfer to a university and complete a bachelor's degree in engineering. Engineering involves the application of scientific and mathematical principles needed to solve practical technical problems. Although the first two years of engineering courses for all engineering degrees are similar, students should consult the lower division requirements of the institution to which they wish to transfer.

Highlights include:

* Challenging and rewarding classes that transfer to four-year universities

* A Mathematics, Engineering and Science Achievement (MESA) program

Note to Transfer Students:

If you are interested in transferring to a four-year college or university to pursue a bachelor's degree in this major, it is critical that you meet with a CRC counselor to select and plan the courses for your major. Schools vary widely in terms of the required preparation. The courses that CRC requires for an Associate's degree in this major may be different from the requirements needed for the Bachelor's degree.

When choosing whether to take the suggested electives, check university requirements; these courses may be required at some universities..

Catalog Date: August 1, 2024

Degree Requirements

COURSE CODE	COURSE TITLE	UNITS

CHEM 400	General Chemistry I	5
CISP 360	Introduction to Structured Programming (4)	4[1]
ENGR 400	Introduction to Electrical Circuits and Devices	3
ENGR 312	Engineering Graphics	3
ENGR 420	Statics	3
ENGR 412	Properties of Materials	4
MATH 400	Calculus I	5
MATH 401	Calculus II	5
MATH 402	Calculus III	5
MATH 420	Differential Equations	4
PHYS 411	Mechanics of Solids and Fluids	4
PHYS 421	Electricity and Magnetism	4
Total Units:		**49**

[1]Check specific university requirements before choosing a course

The Engineering - Civil/Mechanical Option Associate in Science (A.S.) degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See CRC graduation requirements.

Career Information

Aerospace Engineer; Architectural Engineer; Chemical Engineer; Civil Engineer; Computer Engineer; Electrical Engineer; Mechanical Engineer, and other types of engineers Most career options require a B.S. degree.

A.S. in Engineering - Electrical/Computer Option

Pre-Professional Transfer Opportunities

CRC's program provides the foundation in mathematics, physics, and engineering necessary to transfer to a university and complete a bachelor's degree in engineering. Engineering involves the application of scientific and mathematical principles needed to solve practical technical problems. Although the first two years of engineering courses for all engineering degrees are similar, students should consult the lower division requirements of the institution to which they wish to transfer.

Highlights include:

* Challenging and rewarding classes that transfer to four-year universities

* A Mathematics, Engineering and Science Achievement (MESA) program

Note to Transfer Students:

If you are interested in transferring to a four-year college or university to pursue a bachelor's degree in this major, it is critical that you meet with a CRC counselor to select and plan the courses for your major. Schools vary widely in terms of the required preparation. The courses that CRC requires for an Associate's degree in this major may be different from the requirements needed for the Bachelor's degree.

When choosing whether to take the suggested electives, check university requirements; these courses may be required at some universities..

Catalog Date: August 1, 2024

Degree Requirements

COURSE CODE	COURSE TITLE	UNITS
CHEM 400	General Chemistry I	5
CISP 360	Introduction to Structured Programming (4)	4
ENGR 400	Introduction to Electrical Circuits and Devices	3
MATH 400	Calculus I	5
MATH 401	Calculus II	5
MATH 402	Calculus III	5
MATH 420	Differential Equations	4
PHYS 411	Mechanics of Solids and Fluids	4
PHYS 421	Electricity and Magnetism	4
Total Units:		**39**

The Engineering - Electrical/Computer Option Associate in Science (A.S.) degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See CRC graduation requirements.

Career Information

Aerospace Engineer; Architectural Engineer; Chemical Engineer; Civil Engineer; Computer Engineer; Electrical Engineer; Mechanical Engineer, and other types of engineers Most career options require a B.S. degree.

A.S. in General Science

Areas of Study include:

• Biological Anthropology

• Astronomy

• Biology

• Chemistry

• Engineering

• Physical Geography

• Geology

• Physics

Eighteen (18) units of transfer-level course work in science are required. Two laboratory courses must be included: one in the physical sciences and one in the biological sciences. Courses may be selected from astronomy, biology, chemistry, geology, physical geography, biological anthropology, and physics. The student, in consultation with a counselor, should choose science courses to meet their program, transfer, or general education requirements.

Students interested in transferring to a four-year university with a science major are encouraged to complete a science AS or AS-T degree such as Anthropology, Biology, Chemistry, Engineering, Geography, Geology, or Physics. This General Science degree may not include the majors-level transfer courses needed for many science majors. Students are strongly recommended to see a counselor for guidance.

Catalog Date: August 1, 2024

Degree Requirements

COURSE CODE	COURSE TITLE	UNITS
Life Science with Lab :		
A minimum of 4 units from the following:		4
ANTH 300	Biological Anthropology (3)	
and ANTH 301	Biological Anthropology Laboratory (1)	
ANTH 480	Honors Biological Anthropology (3)	
and ANTH 482	Honors Biological Anthropology Laboratory (1)	
BIOL 308	Contemporary Biology (3)	
and BIOL 309	Contemporary Biology Laboratory (1)	
BIOL 400	Principles of Biology (5)	
BIOL 410	Principles of Botany (5)	
BIOL 420	Principles of Zoology (5)	
BIOL 430	Anatomy and Physiology (5)	
BIOL 431	Anatomy and Physiology (5)	
BIOL 440	General Microbiology (4)	
HONOR 387	Biological Anthropology Laboratory-Honors (1)	
and HONOR 386	Biological Anthropology-Honors (3)	
Physical Science with Lab:		
A minimum of 3 units from the following:		3
ASTR 300	Introduction to Astronomy (3)	
and ASTR 400	Astronomy Laboratory (1)	
CHEM 300	Beginning Chemistry (4)	

COURSE CODE	COURSE TITLE	UNITS
CHEM 305	Introduction to Chemistry (5)	
CHEM 306	Introduction to Organic and Biological Chemistry (5)	
CHEM 309	Integrated General, Organic, and Biological Chemistry (5)	
CHEM 400	General Chemistry I (5)	
CHEM 401	General Chemistry II (5)	
CHEM 420	Organic Chemistry I (5)	
CHEM 421	Organic Chemistry II (5)	
GEOG 300	Physical Geography: Exploring Earth's Environmental Systems (3)	
and GEOG 301	Physical Geography Laboratory (1)	
GEOL 300	Physical Geology (3)	
and GEOL 301	Physical Geology Laboratory (1)	
GEOL 305	Earth Science (3)	
and GEOL 306	Earth Science Laboratory (1)	
GEOL 310	Historical Geology (3)	
and GEOL 311	Historical Geology Laboratory (1)	
ENGR 304	How Things Work (3)	
PHYS 350	General Physics (4)	
PHYS 360	General Physics (4)	
PHYS 370	Introductory Physics - Mechanics and Thermodynamics (5)	
PHYS 380	Introductory Physics - Electricity and Magnetism, Light and Modern Physics (5)	
PHYS 411	Mechanics of Solids and Fluids (4)	
PHYS 421	Electricity and Magnetism (4)	
PHYS 431	Heat, Waves, Light and Modern Physics (4)	
Additional Science Courses :		
A minimum of 11 units from the following:		11[1]
ANTH 300	Biological Anthropology (3)	
ANTH 301	Biological Anthropology Laboratory (1)	
ANTH 480	Honors Biological Anthropology (3)	
ANTH 482	Honors Biological Anthropology Laboratory (1)	
ASTR 300	Introduction to Astronomy (3)	
ASTR 400	Astronomy Laboratory (1)	
BIOL 308	Contemporary Biology (3)	
BIOL 309	Contemporary Biology Laboratory (1)	
BIOL 342	The New Plagues: New and Ancient Infectious Diseases Threatening World Health (3)	
BIOL 350	Environmental Biology (3)	
BIOL 352	Conservation Biology (3)	
BIOL 400	Principles of Biology (5)	
BIOL 410	Principles of Botany (5)	
BIOL 420	Principles of Zoology (5)	
BIOL 430	Anatomy and Physiology (5)	
BIOL 431	Anatomy and Physiology (5)	
BIOL 440	General Microbiology (4)	
CHEM 300	Beginning Chemistry (4)	
CHEM 305	Introduction to Chemistry (5)	
CHEM 306	Introduction to Organic and Biological Chemistry (5)	
CHEM 309	Integrated General, Organic, and Biological Chemistry (5)	
CHEM 400	General Chemistry I (5)	
CHEM 401	General Chemistry II (5)	
CHEM 420	Organic Chemistry I (5)	
CHEM 421	Organic Chemistry II (5)	
ENGR 304	How Things Work (3)	
GEOG 300	Physical Geography: Exploring Earth's Environmental Systems (3)	
GEOG 301	Physical Geography Laboratory (1)	
GEOG 305	Global Climate Change (3)	
GEOG 306	Weather and Climate (3)	
GEOL 300	Physical Geology (3)	
GEOL 301	Physical Geology Laboratory (1)	
GEOL 305	Earth Science (3)	

COURSE CODE	COURSE TITLE	UNITS
GEOL 306	Earth Science Laboratory (1)	
GEOL 310	Historical Geology (3)	
GEOL 311	Historical Geology Laboratory (1)	
GEOL 330	Introduction to Oceanography (3)	
GEOL 390	Field Studies in Geology (1 - 4)	
HONOR 386	Biological Anthropology-Honors (3)	
HONOR 387	Biological Anthropology Laboratory-Honors (1)	
PHYS 310	Conceptual Physics (3)	
PHYS 350	General Physics (4)	
PHYS 360	General Physics (4)	
PHYS 370	Introductory Physics - Mechanics and Thermodynamics (5)	
PHYS 380	Introductory Physics - Electricity and Magnetism, Light and Modern Physics (5)	
PHYS 411	Mechanics of Solids and Fluids (4)	
PHYS 421	Electricity and Magnetism (4)	
PHYS 431	Heat, Waves, Light and Modern Physics (4)	
Total Units:		**18**

[1]Courses used in A or B above will not count towards C, except units exceeding the 4 or 3 unit minimum in A and B. For example, a student completing the 5 unit CHEM 309 under B could apply 2 of those units towards C. A total of 18 science units is required.

The General Science Associate in Science (A.S.) degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See CRC graduation requirements.

Student Learning Outcomes

Upon completion of this program, the student will be able to:

- explain the core perspectives of the scientific method and apply it to at least one scientific discipline. (PSLO 1)
- solve introductory problems of a conceptual and/or numerical nature of at least one scientific discipline. (PSLO 2)
- accurately apply the basic vocabulary and concepts of at least one scientific discipline verbally and in writing. (PSLO 3)
- recognize the use and misuse of scientific concepts in society including politics and the media. (PSLO 4)

Engineering (ENGR) Courses

ENGR 300 Introduction to Engineering

Units: 1
Hours: 18 hours LEC
Prerequisite: None.
Transferable: CSU; UC
Catalog Date: August 1, 2024

This course will provide students with information to evaluate the engineering profession as a personal career choice. Students will explore the branches of engineering and the different types of work that engineers do. Participants will investigate personal characteristics which contribute to being happy and successful engineers, and will examine their own traits. They will learn what preparation is needed and strategies for successful completion. Course participants will appreciate the role of engineers in society and understand the responsibilities of engineers in their service to society.

Student Learning Outcomes

Upon completion of this course, the student will be able to:

- SLO#1 – DESCRIBE ASPECTS OF ENGINEERING AS A PROFESSION
- describe different branches of engineering
- describe different types of work functions performed by engineers
- explain the responsibility of engineers to their clients
- SLO#2 – ASSESS ENGINEERING AS A SUITABLE PERSONAL CAREER CHOICE
- investigate personal characteristics which contribute to satisfaction and success in engineering and compare them to their own traits
- SLO#3 – UNDERSTAND THE REQUIREMENTS FOR BECOMING AN ENGINEER
- ascertain the requirements for different engineering majors at different universities
- create a personal education plan to become an engineer
- describe and perform behaviors that will support success in becoming an engineer

ENGR 304 How Things Work

Units: 3
Hours: 36 hours LEC; 54 hours LAB
Prerequisite: None.
Advisory: MATH 100
Transferable: CSU; UC
General Education: AA/AS Area IV; CSU Area B1; CSU Area B3
Catalog Date: August 1, 2024

This course covers how everyday things and technologies operate and is designed primarily for non-science students or anyone interested in learning about technology. The basic scientific principles behind the technology will be explored. Systems studied will include mechanical, electrical, thermal, optical and others. Students will gain hands-on experience with basic machines and technologies during lab.

Student Learning Outcomes

Upon completion of this course, the student will be able to:

- APPLY THE SCIENTIFIC METHOD TO DEMONSTRATE HOW MODERN TECHNOLOGY WORKS AND IS DEVELOPED. (SLO 1)
- identify the scientific principles used in common engineering systems.
- CONSTRUCT A SCIENTIFIC ANALYSIS OF AN ENGINEERING SYSTEM THAT THE STUDENT ENCOUNTERS ROUTINELY. (SLO 2)
- analyze a system and break it down into simpler components and explain how the components interface to create a desired result.
- Build basic machines or technologies and investigate hands-on how things function
- DEMONSTRATE AN INCREASED SCIENTIFIC AND TECHNICAL LITERACY, INCLUDING AN INCREASED TECHNICAL VOCABULARY. (SLO 3)
- critique common scientific misconceptions regarding technology.
- SOLVE ENGINEERING PROBLEMS THAT REQUIRE CRITICAL THINKING TO COMPLETE. (SLO 4)

ENGR 312 Engineering Graphics

Units: 3
Hours: 36 hours LEC; 72 hours LAB
Prerequisite: None.
Advisory: Completion of high school geometry with a grade of C or better
Transferable: CSU; UC
Catalog Date: August 1, 2024

In this class, students will learn the graphical tools needed to develop and communicate engineering ideas. They will learn to use parametric solid modeling software as a design and analysis tool. Freehand sketches for spatial visualization skill development and design conceptualization will be used throughout the semester. Students will learn to make part and assembly models, orthographic projections, and engineering drawings. Students will complete both group and individual work. Students will demonstrate the skills they learn through a series of design projects. This course is primarily for Mechanical and Civil Engineering majors.

Student Learning Outcomes

Upon completion of this course, the student will be able to:

- SLO#1 – Create and use technical drawings
- Apply rules of orthographic projection to create multi-view drawings.
- Create pictorials from orthographic views.
- Create auxiliary and section views of an object following correct conventions.
- Apply standards of dimensioning and tolerancing to engineering drawings.
- SLO#2 – Create and use three dimensional solid models
- Use computer-aided design (CAD) software to create 2D engineering drawings, including working drawings and assembly drawings.
- Use CAD software to create 3D models and assemblies.
- SLO#3 – Create simple engineering designs
- Apply the engineering design process to a design project.

ENGR 400 Introduction to Electrical Circuits and Devices

Units: 3
Hours: 54 hours LEC; 18 hours LAB
Prerequisite: PHYS 421 with a grade of "C" or better
Transferable: CSU; UC
Catalog Date: August 1, 2024

This course will provide engineering students with circuit analysis concepts and applications that will be of value in any engineering field as well as a solid foundation for electrical engineering and related majors. The course includes the analysis of circuits with resistors, inductors, capacitors, and independent and dependent voltage and current sources. Many analysis techniques will be applied to DC and AC circuits. Differential equations will be used to find the transient response of circuits. Power calculations will be performed on both DC and

AC circuits, including an introduction to three-phase AC power. This course is required for most engineering Bachelors of Science degrees.

Student Learning Outcomes

Upon completion of this course, the student will be able to:

- SLO#1 - ANALYZE ELECTRIC CIRCUITS FOR DC, TRANSIENT, AND AC VOLTAGE AND CURRENT RESPONSES
- understand and apply various analysis techniques such as nodal analysis, loop analysis, superposition, source transformations, and Thevenin and Norton equivalents
- evaluate different analysis techniques and choose an appropriate technique for a particular circuit
- in circuits with step functions applied, solve for transient, forced, and complete response
- use phasors and impedances to analyze AC circuits
- SLO#2 - APPLY A SIMPLE MODEL FOR OPERATIONAL AMPLIFIERS TO SOLVE SIMPLE CIRCUITS
- SLO#3 - USE MULTIMETERS, SIGNAL GENERATORS, AND OSCILLOSCOPES
- SLO#4 - CALCULATE POWER IN DC AND AC CIRCUITS
- perform conservation of power checks
- apply the concepts of complex power to analyze AC circuits
- analyze Y-Y connected balanced three phase circuits

ENGR 412 Properties of Materials

Units: 4
Hours: 54 hours LEC; 54 hours LAB
Prerequisite: CHEM 400 and PHYS 411 with grades of "C" or better
Transferable: CSU; UC
Catalog Date: August 1, 2024

This is an introductory course on the relationship of the internal structure of materials to their properties. Topics include crystalline structure, imperfections, phases and phase diagrams, steels and non-ferrous alloys, polymers, ceramics, semiconductors, and corrosion. Students will apply the concepts in laboratory activities and will use typical materials testing equipment and analysis techniques. This course is required for CRC's A.S.-Engineering, Civil/Mechanical Engineering option degree, and many university engineering B.S. degrees.

Student Learning Outcomes

Upon completion of this course, the student will be able to:

- SLO1: RELATE THE PROPERTIES OF A MATERIAL TO ITS STRUCTURE ON A SUB-MICROSCOPIC SCALE.
- Construct models of crystalline structures and explain how the structure's characteristics affect a material's properties.
- Distinguish between the types of imperfections that occur in crystalline structures and compare their effects on a material's properties.
- Describe different strengthening mechanisms and compare their effects.
- Relate typical properties of polymers and ceramics to their molecular and crystalline or amorphous structures.
- Describe the mechanism for electrical conduction in metals and semiconductors.
- SLO2: INTERPRET BINARY PHASE DIAGRAMS.
- Perform analysis involving different compositions, temperature, and phases.
- Analyze eutectic and eutectoid reactions and the microconstituents that result.
- SLO3: CHARACTERIZE MATERIAL PROPERTIES.
- Perform tension, compression, and hardness tests, and interpret the results.
- SLO4: DESCRIBE, SPECIFY, AND COMPARE DIFFERENT PROCESSES FOR FORMING OR TRANSFORMING MATERIALS.
- Calculate rates of steady-state diffusion.
- Specify processes involving cold work and annealing that provide specified properties.
- Describe solidification processes and the microstructures that result when casting metals.
- Compare different thermal processes for strengthening steel and aluminum alloys, the microstructures that result, and their effect on strength.
- Mix, pour, and test concrete.
- Describe different forming processes for ceramics.
- SLO5: IDENTIFY AND DESCRIBE DIFFERENT FAILURE MECHANISMS AND APPROACHES TO PREVENTION.
- Identify and describe ductile and brittle fracture, fatigue, and creep.
- Differentiate between different corrosion mechanisms and choose appropriate ways to prevent corrosion.
- SLO6: CONDUCT LABORATORY INVESTIGATIONS AND EXHIBET PROFESSIONALISM
- Produce and analyze data, discuss results, draw conclusions.
- Write well organized reports that demonstrate good technical writing skills and professional appearance.
- Demonstrate good practice and professional behavior (showing appropriate respect for people and equipment), including safety precautions, in lab work.
- Behave ethically in collaboration with others and in the use of assistance obtained outside the context of class.

ENGR 420 Statics

Units: 3
Hours: 54 hours LEC
Prerequisite: MATH 401 and PHYS 411 with grades of "C" or better
Transferable: CSU; UC
C-ID: C-ID ENGR 130
Catalog Date: August 1, 2024

This course covers analysis of two and three dimensional force systems for bodies in static equilibrium. Vector and scalar analysis methods address forces acting on rigid bodies, trusses, frames, and machines. Students will calculate internal forces in members and will create shear and bending moment diagrams for beams. Friction problems will include slipping vs tipping. Students will learn methods to calculate centroids and moments of inertia for bodies that are combinations of simple geometric shapes. This course is required for most engineering majors.

Student Learning Outcomes

Upon completion of this course, the student will be able to:

- SLO#1 - REDUCE SYSTEMS OF FORCES TO ONE EQUIVALENT FORCE, OR ONE FORCE AND ONE COUPLE.
- transform information describing forces in a variety of formats into Cartesian vectors
- calculate moments of forces and couples using scalar and vector approaches
- SLO#2 - ANALYZE OBJECTS IN STATIC EQUILIBRIUM FOR EXTERNAL FORCES
- characterize reactions at supports for two and three dimensional objects
- draw free body diagrams for particles, rigid bodies, and members of frames and machines
- formulate and solve equilibrium equations for forces on particles, rigid bodies, and members of frames and machines in two and three dimensions
- SLO#3 - DETERMINE INTERNAL FORCES
- apply Method of Joints and Method of Sections to find forces in truss members
- determine axial, shear, and bending moment at specified points in rigid bodies
- produce explicit functions for shear and bending moment in beams
- construct shear and bending moment diagrams for beams
- SLO#4 - ANALYZE SYSTEMS THAT INCLUDE DRY FRICTION
- solve for forces in problems that include impending motion, no impending motion, and slipping vs. tipping
- SLO#5 - DETERMINE GEOMETRICAL PROPERTIES OF COMPOSITE BODIES
- calculate centroids for two and three dimensional composite bodies
- calculate moments of inertia for two and three dimensional composite bodies

ENGR 495 Independent Studies in Engineering

Units: 1 - 3
Hours: 54 - 162 hours LAB
Prerequisite: None.
Transferable: CSU
Catalog Date: August 1, 2024

An independent studies project involves an individual student or small group of students in study, research, or activities beyond the scope of regularly offered courses. See the current catalog section of "Special Studies" for full details of Independent Studies.

Student Learning Outcomes

Upon completion of this course, the student will be able to:

- SLO #1: Actively engage in intellectual inquiry beyond that required in order to pass a course of study (College Wide Learning Outcome – Area 4).
- Discuss and outline a proposal of study (that can be accomplished within one semester term) with a supervising instructor qualified within the discipline.
- Design an independent study (to be completed individually or by collaboration of a small group) to foster special knowledge, skills, and experience that are not available in any one regularly scheduled course.
- Use information resources to gather discipline-specific information.
- SLO #2: Utilize modes of analysis and critical thinking to apply theoretical perspectives and/or concepts in the major discipline of study to significant problems and/or educational activities (College Wide Learning Outcome – Area 3).
- Analyze and apply the knowledge, skills and experience that are involved in the independent study to theoretical perspectives and/or concepts in the major discipline of study.
- Explain the importance of the major discipline of study in the broader picture of society.
- SLO #3: Communicate a complex understanding of content matter of the major discipline of study (College Wide Outcome – Area 3).
- Demonstrate competence in the skills essential to mastery of the major discipline of study that are necessary to accomplish the independent study.
- SLO #4: Identify personal goals and pursue these goals effectively (College Wide Outcome – Area 4).
- Utilize skills from the “academic tool kit” including time management, study skills, etc., to accomplish the independent study within one semester term.

ENGR 498 Work Experience in Engineering

Units: 0.5 - 4
Hours: 27 - 216 hours LAB
Prerequisite: None.
Enrollment Limitation: Students must be in a paid or unpaid internship, volunteer position or job related to career goals in Engineering.
Transferable: CSU
General Education: AA/AS Area III(b)
Catalog Date: August 1, 2024

This course provides students with opportunities to develop marketable skills in preparation for employment in their major field of study or advancement within their career. It is designed for students interested in work experience and/or internships in transfer level degree occupational programs. Course content includes understanding the application of education to the workforce; completion of required forms which document the student's progress and hours spent at the work site; and developing workplace skills and competencies. Appropriate level learning objectives are established by the student and the employer. During the semester, the student is required to participate in a weekly orientation and complete 27 hours of related work experience for 0.5 unit. An additional 27 hours of related work experience is required for each additional 0.5 units. Students may take up to 16 units total across all Work Experience course offerings. This course may be taken up to four times when there are new or expanded learning objectives. Only one Work Experience course may be taken per semester.

Student Learning Outcomes

Upon completion of this course, the student will be able to:

- SLO #1 DEMONSTRATE AN UNDERSTANDING AND APPLICATION OF PROFESSIONAL WORKPLACE BEHAVIOR IN A FIELD OF STUDY RELATED ONE'S CAREER.
- Understand the effects time, stress, and organizational management have on performance.
- Demonstrate an understanding of consistently practicing ethics and confidentiality in a workplace.
- Examine the career/life planning process and relate its relevance to the student.
- Demonstrate an understanding of basic communication tools and their appropriate use.
- Demonstrate an understanding of workplace etiquette.
- SLO #2 DESCRIBE THE CAREER/LIFE PLANNING PROCESS AND RELATE ITS RELEVANCY TO ONE'S CAREER.
- Link personal goals to long term achievement.
- Display an understanding of creating a professional first impression.
- Understand how networking is a powerful job search tool.
- Understand necessary elements of a résumé.
- Understand the importance of interview preparation.
- Identify how continual learning increases career success.
- SLO #3 DEMONSTRATE APPLICATION OF INDUSTRY KNOWLEDGE AND THEORETICAL CONCEPTS AS WRITTEN IN LEARNING OBJECTIVES IN PARTNERSHIP WITH THE EMPLOYER WORK SITE SUPERVISOR.

ENGR 499 Experimental Offering in Engineering

Units: 0.5 - 4
Prerequisite: None.
Transferable: CSU; UC (Credit for variable topics courses is given only after a review of the scope and content of the course by the enrolling UC campus.)
Catalog Date: August 1, 2024

This is the experimental courses description.

Faculty