MECHANICAL ENGINEERING (EME)

College of Engineering

EME 001 — Mechanical Engineering (1 unit)

Course Description: Description of the field of mechanical engineering with examples taken from industrial applications, discussions of the practice with respect to engineering principles, ethics, and responsibilities.
Learning Activities: Lecture 1 hour(s).
Grade Mode: Pass/No Pass only.

EME 050 — Manufacturing Processes (4 units)

Course Description: Modern manufacturing methods, safety, manufacturing instructions, computer-aided manufacturing and their role in the engineering design and development process.
Prerequisite(s): ENG 004 C- or better; PHY 009A C- or better.
Learning Activities: Lecture/Discussion 3 hour(s), Laboratory 3 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering and Mechanical Engineering/Materials Science Engineering majors.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 092 — Internship in Mechanical Engineering (1-5 units)

Course Description: Supervised work-study experience in engineering.
Prerequisite(s): Lower division standing; approval of project prior to period of internship.
Learning Activities: Internship.
Repeat Credit: May be repeated.
Grade Mode: Pass/No Pass only.

EME 097TC — Mentoring & Tutoring Engineering in the Community (1-4 units)

Course Description: Mentoring, coaching, tutoring and/or supervision of students in K-12 schools in Engineering-related topics.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable 3-12 hour(s).
Repeat Credit: May be repeated.
Grade Mode: Pass/No Pass only.

EME 099 — Special Study for Undergraduates (1-5 units)

Course Description: Special study for undergraduates.
Prerequisite(s): Consent of instructor. Lower division standing.
Learning Activities: Variable.
Grade Mode: Pass/No Pass only.

EME 106 — Thermo-Fluid Dynamics (4 units)

Course Description: Inviscid incompressible flow, compressible flow, ideal gas mixtures, psychrometrics, reacting mixtures and combustion.
Prerequisite(s): ENG 103 C- or better; ENG 105 C- or better.
Learning Activities: Lecture 4 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, and Mechanical Engineering/Materials Science Engineering majors.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 108 — Measurement Systems (4 units)

This version has ended; see updated course, below.
Course Description: Experiments to illustrate principles of mechanical systems. Signal analysis; Demonstration of basic sensors for mechanical systems; Experimental project design; Experiments involving voltage measurement; strain gauges, dynamic systems of 1st order.
Prerequisite(s): ENG 100 C- or better; ENG 102 C- or better; ENG 104 recommended.
Learning Activities: Lecture 2 hour(s), Laboratory 3 hour(s), Discussion 1 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering and Mechanical/Materials Science & Engineering.
Credit Limitation(s): Only 3 units of credit for students who have previously taken BIM 111; 2 units of credit for students who have previously taken EBS 165; 1 unit of credit allowed for students who have completed EME 107B (former version of EME 108).
Grade Mode: Letter.
General Education: Science & Engineering (SE); Writing Experience (WE).

EME 108 — Measurement Systems (4 units)
Course Description: Experiments to illustrate principles of mechanical systems. Signal analysis; demonstration of basic sensors for mechanical systems; experimental project design; experiments involving voltage measurement; strain gauges, dynamic systems of 1st order.
Prerequisite(s): ENG 100 C- or better; ENG 102 C- or better; ENG 104 recommended.
Learning Activities: Lecture 3 hour(s), Lecture/Discussion 3 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering and Mechanical/Materials Science & Engineering.
Credit Limitation(s): Only 3 units of credit for students who have previously taken BIM 111; 2 units of credit for students who have previously taken EBS 165; 1 unit of credit allowed for students who have completed EME 107B (former version of EME 108).
Grade Mode: Letter.
General Education: Science & Engineering (SE); Writing Experience (WE).
This course version is effective from, and including: Spring Quarter 2026.

EME 109 — Experimental Methods for Thermal Fluids (4 units)

This version has ended; see updated course, below.
Course Description: Experiments illustrating principles of thermal-fluid systems and related measurement devices. Statistical design of experiments and uncertainty analysis of data; thermodynamic cycles, combustion, compressible and incompressible flows.
Prerequisite(s): EME 106 C- or better.
Learning Activities: Lecture 2 hour(s), Laboratory 1.50 hour(s), Discussion 1 hour(s), Extensive Writing.
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering and Mechanical/Materials Science Engineering Majors.
Credit Limitation(s): Only 3 units of credit for students who have previously taken ECH 155A; 2 units of credit for students who have previously taken ECH 155B; 3 units of credit for students who have previously taken ECI 141L; 1 unit of credit for students who have already completed EME 107A (former version of EME 109).
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 109 — Experimental Methods for Thermal Fluids (4 units)

Course Description: Experiments illustrating principles of thermal-fluid systems and related measurement devices. Statistical design of experiments and uncertainty analysis of data; thermodynamic cycles, combustion, compressible and incompressible flows.
Prerequisite(s): EME 106 C- or better.
Learning Activities: Lecture/Discussion 3 hour(s), Laboratory 1.5 hour(s), Extensive Writing.
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering and Mechanical/Materials Science Engineering Majors.
Credit Limitation(s): Only 3 units of credit for students who have previously taken ECH 155A; 2 units of credit for students who have previously taken ECH 155B; 3 units of credit for students who have previously taken ECI 141L; 1 unit of credit for students who have already completed EME 107A (former version of EME 109).
Grade Mode: Letter.
General Education: Science & Engineering (SE).
This course version is effective from, and including: Spring Quarter 2026.

EME 115 — Introduction to Numerical Analysis & Methods (4 units)

This version has ended; see updated course, below.
Course Description: Number representation, Taylor expansions, error and stability analysis, roots of nonlinear equations, sets of linear equations, numerical integration, ordinary differential equations.
Prerequisite(s): (ENG 006 C- or better or EME 005 C- or better or ECS 030 C- or better or ECS 032A C- or better or ECS 032AV C- or better or ECS 036A C- or better or ECH 060 C- or better or ECM 006 C- or better); ((MAT 021A C- or better, MAT 021B C- or better, MAT 021C C- or better, MAT 021D C- or better, (MAT 022A C- or better or MAT 027A C- or better), (MAT 022B C- or better or MAT 027B C- or better)), (PHY 009A C- or better, PHY 009B C- or better, PHY 009C C- or better).
Learning Activities: Lecture 3 hour(s), Lecture/Discussion 1 hour(s).
Credit Limitation(s): Not open for credit to students who have taken EAD 115.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 115 — Introduction to Numerical Analysis & Methods (4 units)

Course Description: Number representation, Taylor expansions, error and stability analysis, roots of nonlinear equations, sets of linear equations, numerical integration, ordinary differential equations.
Prerequisite(s): (ENG 006 C- or better or EME 005 C- or better or ECS 030 C- or better or ECS 032A C- or better or ECS 032AV C- or better or ECS 036A C- or better or ECH 060 C- or better or ECM 006 C- or better); ((MAT 021A C- or better, MAT 021B C- or better, MAT 021C C- or better, MAT 021D C- or better, (MAT 022A C- or better or MAT 027A C- or better), (MAT 022B C- or better or MAT 027B C- or better)), (PHY 009A C- or better, PHY 009B C- or better, PHY 009C C- or better).
Learning Activities: Lecture/Discussion 4 hour(s).
Credit Limitation(s): Not open for credit to students who have taken EAD 115.
Grade Mode: Letter.
General Education: Science & Engineering (SE).
This course version is effective from, and including: Spring Quarter 2026.

EME 121 — Engineering Applications of Dynamics (4 units)

Course Description: Technical elective that revisits dynamic principles with emphasis on engineering applications; Equations of motion are derived and put into a format for computer solution; There is a computer laboratory where real engineering systems are simulated.
Prerequisite(s): ENG 102 C- or better; (ENG 006 C- or better or EME 005 C- or better or ECS 030 C- or better).
Learning Activities: Lecture 3 hour(s), Laboratory 3 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, and Mechanical Engineering/Materials Science Engineering majors.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 134 — Vehicle Stability (4 units)

Course Description: Analytical and experimental studies of the dynamics, stability and control of vehicles such as cars, trailers, airplanes, motorcycles, bicycles and rail cars.
Prerequisite(s): ENG 102 C- or better.
Learning Activities: Lecture 3 hour(s), Laboratory 3 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, and Mechanical Engineering/Materials Science Engineering majors.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 139 — Stability of Flexible Dynamic Systems (4 units)

Course Description: Stability of flexible systems. Introduction to fluid-structure interaction. Mechanical vibrations. Design of mechanical subsystems or systems under constraints. Dynamic instabilities. Flutter. Control effectiveness. Energy extraction from fluid-structure interactions. Design applications to aerospace, mechanical and biomedical systems.
Prerequisite(s): ENG 102 C- or better; ENG 103 C- or better.
Learning Activities: Lecture 3 hour(s), Laboratory 3 hour(s).
Credit Limitation(s): No credit for students who have completed former course EAE 139.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 150A — Mechanical Design (4 units)

This version has ended; see updated course, below.
Course Description: Principles of mechanics applied to design. Deformation and stress analysis. Structural integrity under static and fluctuating loads. Projects demonstrate progression from concept to engineering analysis, with emphasis on strength and durability.
Prerequisite(s): (ENG 045 C- or better or ENG 045Y C- or better); ((ENG 104 C- or better or ENG 104B C- or better), EME 050 C- or better (can be concurrent)).
Learning Activities: Lecture 3 hour(s), Discussion 1 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science and Engineering majors.
Grade Mode: Letter.
General Education: Science & Engineering (SE); Writing Experience (WE).

EME 150A — Mechanical Design (4 units)

Course Description: Principles of mechanics applied to design. Deformation and stress analysis. Structural integrity under static and fluctuating loads. Projects demonstrate progression from concept to engineering analysis, with emphasis on strength and durability.
Prerequisite(s): (ENG 045 C- or better or ENG 045Y C- or better); ((ENG 104 C- or better or ENG 104B C- or better), EME 050 C- or better (can be concurrent)).
Learning Activities: Lecture/Discussion 4 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science & Engineering majors.
Grade Mode: Letter.
General Education: Science & Engineering (SE); Writing Experience (WE).
This course version is effective from, and including: Spring Quarter 2026.

EME 150B — Mechanical Design (4 units)

This version has ended; see updated course, below.
Course Description: Principles of engineering mechanics applied to the design and selection of mechanical components. Design projects, which concentrate on conceptual design, engineering analysis, methods of manufacture, material selection, and cost.
Prerequisite(s): EME 150A C- or better.
Learning Activities: Lecture 3 hour(s), Discussion 1 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science and Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 150B — Mechanical Design (4 units)

Course Description: Principles of engineering mechanics applied to the design and selection of mechanical components. Design projects, which concentrate on conceptual design, engineering analysis, methods of manufacture, material selection, and cost.
Prerequisite(s): EME 150A C- or better.
Learning Activities: Lecture/Discussion 4 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science & Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).
This course version is effective from, and including: Spring Quarter 2026.

EME 151 — Statistical Methods in Design & Manufacturing (4 units)

This version has ended; see updated course, below.
Course Description: Methods of statistical analysis with emphasis on applications in mechanical design and manufacturing. Applications include product evaluation and decision making, probabilistic design, systems reliability, and fatigue under random loading.
Prerequisite(s): EME 150A C- or better.
Learning Activities: Lecture 3 hour(s), Discussion 1 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science and Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 151 — Statistical Methods in Design & Manufacturing (4 units)

Course Description: Methods of statistical analysis with emphasis on applications in mechanical design and manufacturing. Applications include product evaluation and decision making, probabilistic design, systems reliability, and fatigue under random loading.
Prerequisite(s): EME 150A C- or better.
Learning Activities: Lecture/Discussion 4 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science & Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).
This course version is effective from, and including: Spring Quarter 2026.

EME 152 — Computer-Aided Mechanism Design (4 units)

This version has ended; see updated course, below.
Course Description: Principles of computer-aided mechanism design. Computer-aided kinematic, static, and dynamic analysis and design of planar mechanisms such as multiple-loop linkages and geared linkages. Introduction to kinematic synthesis of mechanisms.
Prerequisite(s): ENG 102 C- or better; (EME 005 C- or better or ENG 006 C- or better or ECS 030 C- or better).
Learning Activities: Lecture 3 hour(s), Discussion 1 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science and Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 152 — Computer-Aided Mechanism Design (4 units)
Course Description: Principles of computer-aided mechanism design. Computer-aided kinematic, static, and dynamic analysis and design of planar mechanisms such as multiple-loop linkages and geared linkages. Introduction to kinematic synthesis of mechanisms.
Prerequisite(s): ENG 102 C- or better; (EME 005 C- or better or ENG 006 C- or better or ECS 030 C- or better).
Learning Activities: Lecture/Discussion 4 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science and Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).
This course version is effective from, and including: Spring Quarter 2026.

EME 154 — Mechatronics (4 units)

Course Description: Overview of mechatronics system and control system design concepts, control software architecture, control hardware architecture, microcontroller and interface technology for mechatronics control, sensor for mechatronics systems, actuator drives.
Prerequisite(s): ENG 100 C- or better; ENG 102 C- or better; EME 050 C- or better.
Learning Activities: Lecture 3 hour(s), Laboratory 3 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science and Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 161 — Combustion & the Environment (4 units)

This version has ended; see updated course, below.
Course Description: Introduction to combustion kinetics; premixed and diffusion flames; turbulent combustion; pollutant formation; examples of combustion devices such as internal combustion engines, gas turbines, furnaces and incinerators; alternative fuels.
Prerequisite(s): EME 106 C- or better.
Learning Activities: Lecture 3 hour(s), Lecture/Discussion 1 hour(s).
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 161 — Combustion & the Environment (4 units)
Course Description: Introduction to combustion kinetics; premixed and diffusion flames; turbulent combustion; pollutant formation; examples of combustion devices such as internal combustion engines, gas turbines, furnaces and incinerators; alternative fuels.
Prerequisite(s): EME 106 C- or better.
Learning Activities: Lecture/Discussion 4 hour(s).
Grade Mode: Letter.
General Education: Science & Engineering (SE).
This course version is effective from, and including: Spring Quarter 2026.

EME 163 — Internal Combustion Engines & Future Alternatives (4 units)

Course Description: Fundamentals of internal combustion engine design and performance. Future needs to adapt to environmental concerns, and the feasibility of better alternatives in the future.
Prerequisite(s): EME 050 C- or better; EME 106 C- or better.
Learning Activities: Lecture 3 hour(s), Laboratory 3 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science and Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 164 — Introduction to Heating, Ventilation & Air Conditioning Systems (4 units)

Course Description: Introduction to basic mechanisms and processes associated with heating, ventilation and air conditioning (HVAC), including equipment and systems used for HVAC in residential and commercial buildings.
Prerequisite(s): EME 106 C- or better; EME 165 C- or better.
Learning Activities: Lecture 4 hour(s).
Credit Limitation(s): Only 2 units for students who have completed ECI 125.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 165 — Heat Transfer (4 units)

This version has ended; see updated course, below.
Course Description: Conduction, convection, and radiation heat transfer. Computational modeling of heat transfer in engineering. Applications to engineering equipment with the use of digital computers.
Prerequisite(s): (ENG 006 C- or better or EME 005 C- or better or ECS 030 C- or better); ENG 103 C- or better; ENG 105 C- or better.
Learning Activities: Lecture 3 hour(s), Discussion 1 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science and Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 165 — Heat Transfer (4 units)
Course Description: Conduction, convection, and radiation heat transfer. Computational modeling of heat transfer in engineering. Applications to engineering equipment with the use of digital computers.
Prerequisite(s): (ENG 006 C- or better or EME 005 C- or better or ECS 030 C- or better); ENG 103 C- or better; ENG 105 C- or better.
Learning Activities: Lecture/Discussion 4 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science & Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).
This course version is effective from, and including: Spring Quarter 2026.

EME 171 — Analysis, Simulation & Design of Mechatronic Systems (4 units)

Course Description: Modeling of dynamic engineering systems in various energy domains. Analysis and design of dynamic systems. Response of linear systems. Digital computer simulation and physical experiments.
Prerequisite(s): ENG 100 C- or better; ENG 102 C- or better.
Learning Activities: Lecture 3 hour(s), Laboratory 3 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science and Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 172 — Automatic Control of Engineering Systems (4 units)

This version has ended; see updated course, below.
Course Description: Classical feedback control systems; block diagrams; performance specifications; steady state errors; rise and settling times; root locus; PID controllers; Bode and Nyquist plots; stability; phase and gain margins; advanced topics as time allows.
Prerequisite(s): ENG 100 C- or better; ENG 102 C- or better.
Learning Activities: Lecture 3 hour(s), Discussion 1 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science and Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 172 — Automatic Control of Engineering Systems (4 units)
Course Description: Classical feedback control systems; block diagrams; performance specifications; steady state errors; rise and settling times; root locus; PID controllers; Bode and Nyquist plots; stability; phase and gain margins; advanced topics as time allows.
Prerequisite(s): ENG 100 C- or better; ENG 102 C- or better.
Learning Activities: Lecture/Discussion 4 hour(s).
Enrollment Restriction(s): Restricted to Mechanical Engineering, Aerospace Science & Engineering, Mechanical Engineering/Materials Science & Engineering.
Grade Mode: Letter.
General Education: Science & Engineering (SE).
This course version is effective from, and including: Spring Quarter 2026.

EME 185A — Mechanical Engineering Systems Design Project (4 units)

Course Description: Major mechanical engineering design experience; the mechanical engineering design process and its use in the design of engineering systems incorporating appropriate engineering standards and multiple realistic constraints.
Prerequisite(s): EME 050 C- or better; EME 150A C- or better; EME 165 C- or better (can be concurrent); ENG 003, CMN 001 or CMN 003 recommended; upper division composition recommended.
Learning Activities: Lecture 1 hour(s), Laboratory 3 hour(s).
Enrollment Restriction(s): Restricted to Senior standing in Mechanical Engineering (EMEC).
Grade Mode: Letter.
General Education: Science & Engineering (SE); Oral Skills (OL); Visual Literacy (VL).

EME 185B — Mechanical Engineering Systems Design Project (4 units)

Course Description: Major mechanical engineering design experience; the mechanical engineering design process and its use in the design of engineering systems incorporating appropriate engineering standards and multiple realistic constraints.
Prerequisite(s): EME 185A; senior standing in the Department of Mechanical and Aerospace Engineering.
Learning Activities: Lecture 1 hour(s), Laboratory 3 hour(s).
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 189A — Selected Topics in Mechanical Engineering: Energy Systems & the Environment (1 unit)

Course Description: Directed group study in Energy Systems & the Environment.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Repeat Credit: May be repeated when topic differs.
Grade Mode: Letter.

EME 189B — Selected Topics in Mechanical Engineering: Engineering Controls (1-5 units)

Course Description: Directed group study in Engineering Controls.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Repeat Credit: May be repeated when topic differs.
Grade Mode: Letter.
General Education: Science & Engineering (SE).

EME 189C — Selected Topics in Mechanical Engineering: Engineering Dynamics (1-5 units)

Course Description: Directed group study in Engineering Dynamics.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Repeat Credit: May be repeated when topic differs.
Grade Mode: Letter.

EME 189D — Selected Topics in Mechanical Engineering: Biomechanics (1-5 units)

Course Description: Directed group study in Biomechanics.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Repeat Credit: May be repeated when topic differs.
Grade Mode: Letter.

EME 189E — Selected Topics in Mechanical Engineering: Fluid Mechanics (1-5 units)

Course Description: Directed group study in Fluid Mechanics.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Repeat Credit: May be repeated when topic differs.
Grade Mode: Letter.

EME 189F — Selected Topics in Mechanical Engineering: Manufacturing Engineering (1-5 units)

Course Description: Directed group study in Manufacturing Engineering.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Repeat Credit: May be repeated when topic differs.
Grade Mode: Letter.

EME 189G — Selected Topics in Mechanical Engineering: Mechanical Engineering & Product Design (1-5 units)

Course Description: Directed group study in Mechanical Engineering & Product Design.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Repeat Credit: May be repeated when topic differs.
Grade Mode: Letter.

EME 189H — Selected Topics in Mechanical Engineering: Mechatronics Systems (1-5 units)

Course Description: Directed group study in Mechatronics Systems.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Repeat Credit: May be repeated when topic differs.
Grade Mode: Letter.

EME 189I — Selected Topics in Mechanical Engineering: MEMS/Nanotechnology (1-5 units)

Course Description: Directed group study in MEMS/Nanotechnology.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Repeat Credit: May be repeated when topic differs.
Grade Mode: Letter.

EME 189J — Selected Topics in Mechanical Engineering: Solid & Structural Mechanics (1-5 units)

Course Description: Directed group study in Solid & Structural Mechanics.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Repeat Credit: May be repeated when topic differs.
Grade Mode: Letter.

EME 189K — Selected Topics in Mechanical Engineering: Thermodynamics (1-5 units)

Course Description: Directed group study in Thermodynamics.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Repeat Credit: May be repeated when topic differs.
Grade Mode: Letter.

EME 189L — Selected Topics in Mechanical Engineering: Vehicle & Transportation Systems (1-5 units)

Course Description: Directed group study in Vehicle & Transportation Systems.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Repeat Credit: May be repeated when topic differs.
Grade Mode: Letter.

EME 192 — Intership in Engineering (1-5 units)

Course Description: Supervised work experience in mechanical engineering.
Prerequisite(s): Upper division standing; approval of project prior to period of internship.
Learning Activities: Variable.
Repeat Credit: May be repeated.
Grade Mode: Pass/No Pass only.

EME 197TC — Mentoring & Tutoring Engineering in the Community (1-4 units)

Course Description: Mentoring, coaching, tutoring and/or supervision of students in K-12 schools in Engineering-related topics.
Prerequisite(s): Consent of instructor. Upper division standing.
Learning Activities: Variable 3-12 hour(s).
Repeat Credit: May be repeated.
Grade Mode: Pass/No Pass only.

EME 198 — Directed Group Study (1-5 units)

Course Description: Directed group study.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Grade Mode: Pass/No Pass only.

EME 199 — Special Study for Advanced Undergraduates (1-5 units)

Course Description: Special study for advanced undergraduates. May be taught abroad.
Prerequisite(s): Consent of instructor.
Learning Activities: Variable.
Grade Mode: Pass/No Pass only.