Engineering (ENGIN)

Courses

ENGIN 7 Introduction to Computer Programming for Scientists and Engineers 4 Units
Terms offered: Fall 2017, Summer 2017 10 Week Session, Spring 2017 Elements of procedural and object-oriented programming. Induction, iteration, and recursion. Real functions and floating-point computations for engineering analysis. Introduction to data structures. Representative examples are drawn from mathematics, science, and engineering. The course uses the MATLAB programming language. Sponsoring departments: Civil and Environmental Engineering and Mechanical Engineering.

Introduction to Computer Programming for Scientists and Engineers: Read More [+]

Rules & Requirements

Prerequisites: Mathematics 1B (maybe taken concurrently)

Credit Restrictions: Students will receive no credit for Engineering 7 after completing Engineering W7. A deficient grade in Engineering W7 may be repeated by taking Engineering 7.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture, 1 hour of discussion, and 4 hours of laboratory per week

Summer: 10 weeks - 3 hours of lecture, 1.5 hours of discussion, and 6 hours of laboratory per week

Additional Details

Subject/Course Level: Engineering/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: 77

Introduction to Computer Programming for Scientists and Engineers: Read Less [-]

ENGIN W7 Introduction to Computer Programming for Scientists and Engineers 4 Units
Terms offered: Summer 2016 10 Week Session, Summer 2015 10 Week Session, Summer 2014 10 Week Session
Elements of procedural and object-oriented programming. Induction, iteration, and recursion. Real functions and floating-point computations for engineering analysis. Introduction to data structures. Representative examples are drawn from mathematics, science, and engineering. The course uses the MATLAB programming language.

Introduction to Computer Programming for Scientists and Engineers: Read More [+]

Rules & Requirements

Prerequisites: Mathematics 1B (may be taken concurrently)

Credit Restrictions: Students will receive no credit for Engineering W7 after completing Engineering 7 or 77. A deficient grade in Engineering 7 or 77 may be removed by taking Engineering W7.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of web-based lecture, 4 hours of laboratory, and 1 hour of web-based discussion per week

Summer: 10 weeks - 6 hours of web-based lecture, 0 hours of laboratory, and 7.5 hours of web-based discussion per week

Online: This is an online course.

Additional Details

Subject/Course Level: Engineering/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Papadopoulos

Introduction to Computer Programming for Scientists and Engineers: Read Less [-]
ENGIN 10 Engineering Design and Analysis 3 Units
Terms offered: Fall 2014, Spring 2014, Fall 2013
This is a is an introduction to the profession of engineering and its different disciplines through a variety of individual design and analysis projects. Hands on creativity, teamwork, and effective communication are emphasized. Common lecture sessions address the essence of engineering design, the practice of engineering analysis, the societal context for engineering projects and the ethics of the engineering profession. Students develop design and analysis skills, and practice applying these skills to illustrative problems drawn from various mechanical engineering topics such as material testing, aerodynamics, controls and design. 

Engineering Design and Analysis: Read More [+]

Objectives Outcomes

Course Objectives:
- Develop teamwork skills.
- Emphasize communication skills, both written and oral.
- Enhance students critical thinking and design skills.
- Introduce students to a broad view of engineering analysis and design.
- Introduce students to professional ethics and the societal context of engineering practice.
- Offer experience in hands on, creative engineering projects.
- Provide an introduction to different fields of engineering.
- Reinforce the importance of mathematics and science in engineering design and analysis.

Student Learning Outcomes:
- Appreciate the importance of professional and ethical responsibility in engineering.
- Begin to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- Begin to use the techniques, skills, and engineering tools necessary for contemporary and future engineering practice.
- Develop early abilities identifying, formulating, and solving engineering problems.
- Gain experience in working in multidisciplinary teams.
- Obtain experience in effective communication.
- Recognize the role of mathematics and science in engineering.
- Understand the design of systems, components, and processes to meet desired needs within realistic constraints.

Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture and 3 hours of laboratory per week

Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: Letter grade. Final exam not required.

ENGIN 15 Design Methodology 2 Units
Terms offered: Fall 2015, Spring 2015
Introduction to design methodology, problem definition, and the search for creative solutions. Social, political, legal, and ethical aspects of design solutions. Topics and discussions include the structure of engineering organizations, the product development cycle, mechanical dissection, reverse engineering, patents, failure case studies, product liability, and engineering ethics.

Design Methodology: Read More [+]

Objectives Outcomes

Course Objectives:
- To introduce the engineering design process, its scope, and its limitations. To have students understand the responsibilities of an engineer for designs that are created.

Student Learning Outcomes:
- The ability to use methodical techniques to identify engineering problems and develop practical solutions.
- The ability to work effectively in a team environment.

Hours & Format
Fall and/or spring: 15 weeks - 1 hour of lecture and 2 hours of laboratory per week

Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: Letter grade. Final exam required.
Instructor: Lieu

Design Methodology: Read Less [-]

ENGIN 24 Freshman Seminar 1 Unit
Terms offered: Spring 2012, Fall 2011, Fall 2008
The Berkeley Seminar Program is designed to provide students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Berkeley Seminars are offered in all college departments, and topics vary from department to department and semester to semester.

Freshman Seminar: Read More [+]

Rules & Requirements

Repeat rules: Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes.

Hours & Format
Fall and/or spring: 15 weeks - 1 hour of lecture per week

Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: The grading option will be decided by the instructor when the class is offered. Final exam required.

Freshman Seminar: Read Less [-]
**ENGIN 25 Visualization for Design 2 Units**
Terms offered: Fall 2017, Spring 2017, Fall 2016
Development of 3-dimensional visualization skills for engineering design. Sketching as a tool for design communication. Presentation of 3-dimensional geometry with 2-dimensional engineering drawings. This course will introduce the use of 2-dimensional CAD on computer workstations as a major graphical analysis and design tool. A group design project is required. Teamwork and effective communication are emphasized.

**Objectives Outcomes**

**Course Objectives:** Improve 3-dimensional visualization skills; enable a student to create and understand engineering drawings; introduce 2-dimensional computer-aided geometry modeling as a visualization, design, and analysis tool; enhance critical thinking and design skills; emphasize communication skills, both written and oral; develop teamwork skills; offer experience in hands-on engineering projects; develop early abilities in identifying, formulating, and solving engineering problems; introduce students to the societal context of engineering practice.

**Student Learning Outcomes:** Upon completion of the course, students shall be able to communicate 3-dimensional geometry effectively using sketches; operate 2-dimensional CAD software with a high degree of skill and confidence; understand and create engineering drawings; visualize 3-dimensional geometry from a series of 2-dimensional drawings.

**Hours & Format**
Fall and/or spring: 15 weeks - 1 hour of lecture and 2 hours of laboratory per week

**Additional Details**

Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: Letter grade. Final exam required.
Instructors: Lieu, McMains

Visualization for Design: Read Less [-]

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**ENGIN 26 Three-Dimensional Modeling for Design 2 Units**
Terms offered: Fall 2017, Spring 2017, Fall 2016
Three-dimensional modeling for engineering design. This course will emphasize the use of CAD on computer workstations as a major graphical analysis and design tool. Students develop design skills, and practice applying these skills. A group design project is required. Hands-on creativity, teamwork, and effective communication are emphasized.

**Objectives Outcomes**

**Course Objectives:** Introduce computer-based solid, parametric, and assembly modeling as a tool for engineering design; enhance critical thinking and design skills; emphasize communication skills, both written and oral; develop teamwork skills; offer experience in hands-on, creative engineering projects; reinforce the societal context of engineering practice; develop early abilities in identifying, formulating, and solving engineering problems.

**Student Learning Outcomes:** Upon completion of the course, students shall be able to operate 3-dimensional solid modeling software tools with a high degree of skill and confidence; specify dimensions for parts and assemblies such that they can be fabricated, and fit such that they function with the desired result; produce rapid-prototype models of parts and assemblies to demonstrate their desired functionality; understand the design of systems, components, and processes to meet desired needs within realistic constraints.

**Hours & Format**
Fall and/or spring: 15 weeks - 1 hour of lecture and 2 hours of laboratory per week

**Additional Details**

Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: Letter grade. Final exam required.
Instructors: Lieu, McMains, Youssefi

Three-Dimensional Modeling for Design: Read Less [-]
ENGIN 27 Introduction to Manufacturing and Tolerancing 2 Units
Terms offered: Fall 2017, Spring 2017, Fall 2016
Geometric dimensioning and tolerancing (GD&T), tolerance analysis for fabrication, fundamentals of manufacturing processes (metal cutting, welding, joining, casting, molding, and layered manufacturing).
Introduction to Manufacturing and Tolerancing: Read More [+]

Objectives Outcomes

Course Objectives: Enable a student to create and understand tolerances in engineering drawings; enhance critical thinking and design skills; emphasize communication skills, both written and oral; offer hands-on experience in manufacturing; develop abilities in identifying, formulating, and solving engineering problems; introduce students to the context of engineering practice.

Student Learning Outcomes: Upon completion of the course, students shall be able to fabricate basic parts in the machine shop; understand and communicate tolerance requirements in engineering drawings using industry standard GD&T; use metrology tools to evaluate if physical parts are within specified tolerances; demonstrate familiarity with manufacturing processes; and design parts that can be fabricated realistically and economically using these processes.

Rules & Requirements

Prerequisites: Engineering 25 (can be taken concurrently)

Hours & Format
Fall and/or spring: 15 weeks - 1 hour of lecture and 3 hours of laboratory per week

Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: Letter grade. Final exam required.
Instructors: McMains, Lieu, Domfeld, Taylor
Introduction to Manufacturing and Tolerancing: Read Less [-]

ENGIN 39B Freshman/Sophomore Seminar 1.5 - 4 Units
Terms offered: Spring 2010, Spring 2009, Spring 2008
Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.
Freshman/Sophomore Seminar: Read More [+]

Hours & Format
Fall and/or spring: 15 weeks - 1.5-4 hours of seminar per week

Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: The grading option will be decided by the instructor when the class is offered. Final exam required.
Freshman/Sophomore Seminar: Read Less [-]

ENGIN 39E Freshman/Sophomore Seminar 1.5 - 4 Units
Terms offered: Spring 2010, Spring 2009, Spring 2008
Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.
Freshman/Sophomore Seminar: Read More [+]

Hours & Format
Fall and/or spring: 15 weeks - 1.5-4 hours of seminar per week

Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: The grading option will be decided by the instructor when the class is offered. Final exam required.
Freshman/Sophomore Seminar: Read Less [-]

ENGIN 39F Freshman/Sophomore Seminar 1.5 - 4 Units
Terms offered: Fall 2010
Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.
Freshman/Sophomore Seminar: Read More [+]

Hours & Format
Fall and/or spring: 15 weeks - 1.5-4 hours of seminar per week

Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: The grading option will be decided by the instructor when the class is offered. Final exam required.
Freshman/Sophomore Seminar: Read Less [-]
ENGIN 40 Engineering Thermodynamics 4 Units

Terms offered: Fall 2017
Fundamental laws of thermodynamics for simple substances; application to flow processes and to nonreacting mixtures; statistical thermodynamics of ideal gases and crystalline solids; chemical and materials thermodynamics; multiphase and multicomponent equilibria in reacting systems; electrochemistry. Sponsoring Departments: Materials Science and Engineering and Nuclear Engineering.

Rules & Requirements

Prerequisites: Physics 7B, Mathematics 54; Chemistry 1B recommended

Credit Restrictions: Students will receive no credit for Engineering 40 after taking Engineering 115, Chemical Engineering 141 or Mechanical Engineering 40.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Engineering/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Bolind, Persson

Engineering Thermodynamics: Read Less [-]

ENGIN 45 Properties of Materials 3 Units

Terms offered: Spring 2017, Fall 2016, Spring 2016
Application of basic principles of physics and chemistry to the engineering properties of materials. Special emphasis devoted to relation between microstructure and the mechanical properties of metals, concrete, polymers, and ceramics, and the electrical properties of semiconducting materials. Sponsoring Department: Materials Science and Engineering

Properties of Materials: Read More [+]

Objectives

Course Objectives: To introduce students to the Materials Science and Engineering Discipline.
To introduce students to the concept of choosing proper materials for specific applications.
To introduce students to the relationships between the structure, processing, properties and performance of materials.

Student Learning Outcomes: The student should be able to read, interpret, and utilize binary equilibrium phase diagrams to control phases and microstructure.
The student should be able to relate materials properties to chemical bonding.
The student should be able to select appropriate classes of materials (i.e., metals, ceramics, polymers, glasses, etc.) for specific engineering applications.
The student should understand and describe crystalline and non-crystalline structures including concepts of lattices, points, directions, planes, Miller Indices, etc.
The student should understand defects and their influence on the performance of materials.
The student should understand electronic properties and how those properties vary in different classes of materials.
The student should understand how thermal, mechanical, chemical, etc. processing can be applied to control phase transformation kinetics in engineering material systems.
The student should understand mechanical behavior of materials including stress – strain curves, strengthening, failure, etc.
The student should understand the relationships between materials processing, structure, properties, and performance.

Rules & Requirements

Prerequisites: Physics 7A (may be taken concurrently)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Engineering/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Martin, Messersmith

Properties of Materials: Read Less [-]
ENGIN 45L Properties of Materials Laboratory
1 Unit
Terms offered: Spring 2017, Fall 2016
This course presents laboratory applications of the basic principles introduced in the lecture-based course E45 – Properties of Materials. Properties of Materials Laboratory: Read More [+] Objectives Outcomes

Course Objectives: The long term objectives of this course are to provide undergraduate materials science and engineering and other engineering and science students hands-on experiences in foundational materials science topics and to serve as a practical extension to the lecture-based course E45 – Properties of Materials. To introduce the students to engineering ethics and safe laboratory procedures.

Student Learning Outcomes: The student should be able to illustrate the basic properties of strength and toughness of a material, including the stress vs. strain curve, and the microstructure of a fracture surface. The student should understand how phase diagrams are constructed from cooling curves and should be able to compare as-solidified microstructures of different binary alloys. The student should understand how thermal treatments in restorative processing of materials that have been mechanically deformed. The student should understand the effect of thermal processing on the properties of steel, and understand how to apply TTT diagrams to ferrous metallurgy. The student should understand the nature of electrical conductivity in materials, and be able to investigate the changes in electrical resistivity of metals, semiconductors and insulators, and to be able to understand the influence of impurities on the resistivity of these materials. The students should be able to understand what is meant by the mechanical behavior of materials. The students should be introduced to concepts of professional engineering ethics and best practices approaches to laboratory work.

Rules & Requirements

Prerequisites: E45 should be taken concurrently

Hours & Format

Fall and/or spring: 15 weeks - 1.5 hours of laboratory per week

Additional Details

Subject/Course Level: Engineering/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructors: Martin, Messersmith

Properties of Materials Laboratory: Read Less [-]

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ENGIN 47 Supplementary Work in Lower Division Engineering 1 - 3 Units
Terms offered: Fall 2017, Fall 2016, Fall 2012
May be taken only with permission of the Dean of the College of Engineering. Students with partial credit in a lower division engineering course may complete the work under this heading. Supplementary Work in Lower Division Engineering: Read More [+] Rules & Requirements

Prerequisites: Limited to students who must make up a fraction of a required lower division course

Repeat rules: Course may be repeated for credit.

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Summer: 8 weeks - 1.5-5.5 hours of independent study per week

Additional Details

Subject/Course Level: Engineering/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Supplementary Work in Lower Division Engineering: Read Less [-]

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ENGIN 92 Perspectives in Engineering 1 Unit
Terms offered: Fall 2017, Fall 2016, Fall 2015
This series of lectures provides students, especially undeclared Engineering students, with information on the various engineering disciplines to guide them toward choice of major. Lecturers describe research activities, how they made their own career choices, and indicate future opportunities. Recommended for all Engineering Science students and required for Engineering undeclared students. Perspectives in Engineering: Read More [+]

Rules & Requirements

Repeat rules: Course may be repeated for credit.

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of lecture per week

Additional Details

Subject/Course Level: Engineering/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Perspectives in Engineering: Read Less [-]
ENGIN 93 Energy Engineering Seminar 1 Unit
Terms offered: Fall 2017, Fall 2016, Fall 2015
Weekly seminar with different speakers on energy-related topics. The goal is to expose students to a broad range of energy issues.
Energy Engineering Seminar: Read More [+]

Hours & Format
Fall and/or spring: 15 weeks - 1 hour of seminar per week

Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.
Instructor: Zohdi

Energy Engineering Seminar: Read Less [-]

ENGIN 98 Directed Group Studies for Lower Division Undergraduates 1 - 4 Units
Terms offered: Fall 2017, Spring 2017, Fall 2016
Seminars for group study of selected topics, which will vary from year to year. Intended for students in the lower division.
Directed Group Studies for Lower Division Undergraduates: Read More [+]

Rules & Requirements
Prerequisites: Consent of instructor
Repeat rules: Course may be repeated for credit.

Hours & Format
Fall and/or spring: 15 weeks - 1-4 hours of directed group study per week

Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.
Instructors: Bolind, Persson
Directed Group Studies for Lower Division Undergraduates: Read Less [-]

ENGIN 115 Engineering Thermodynamics 4 Units
Terms offered: Fall 2016, Fall 2015, Spring 2015
Fundamental laws of thermodynamics for simple substances; application to flow processes and to nonreacting mixtures; statistical thermodynamics of ideal gases and crystalline solids; chemical and materials thermodynamics; multiphase and multicomponent equilibria in reacting systems; electrochemistry. Sponsoring Departments: Materials Science and Engineering and Nuclear Engineering.
Engineering Thermodynamics: Read More [+]

Rules & Requirements
Prerequisites: Physics 7B, Math 54; Chemistry 1B recommended
Credit Restrictions: Students will receive no credit for Engineering 115 after taking Chemical Engineering 141 or Mechanical Engineering 40

Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: Letter grade. Final exam required.

ENGIN 117 Methods of Engineering Analysis 3 Units
Terms offered: Fall 2017, Fall 2015, Fall 2014
Methods of theoretical engineering analysis; techniques for analyzing partial differential equations and the use of special functions related to engineering systems. Sponsoring Department: Mechanical Engineering.
Methods of Engineering Analysis: Read More [+]

Rules & Requirements
Prerequisites: Mathematics 53, 54

Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: Letter grade. Final exam required.
ENGIN 120 Principles of Engineering Economics 3 Units
Terms offered: Fall 2017, Spring 2017, Fall 2016
Principles of Engineering Economics: Read More [+]
Rules & Requirements
Prerequisites: Completion of 60 units of an approved engineering curriculum
Credit Restrictions: Students will receive 2 units for 120 after taking Civil Engineering 167. Students will receive no credit for 120 after taking Ind Eng 120.
Hours & Format
Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week
Summer: 8 weeks - 4 hours of lecture and 2 hours of discussion per week
Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: Letter grade. Final exam required.
Instructor: Adler
Principles of Engineering Economics: Read Less [-]

ENGIN 128 Advanced Engineering Design Graphics 3 Units
Terms offered: Fall 2017, Fall 2016, Fall 2015
Advanced Engineering Design Graphics: Read More [+]
Rules & Requirements
Prerequisites: Engineering 26
Hours & Format
Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week
Summer: 6 weeks - 5 hours of lecture and 3 hours of discussion per week
Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: Letter grade. Final exam not required.
Instructor: Lieu
Advanced Engineering Design Graphics: Read Less [-]

ENGIN 147 Supplementary Work in Upper Division Engineering 1 - 3 Units
Terms offered: Fall 2017, Fall 2016, Fall 2015
May be taken only with permission of the Dean of the College of Engineering. Students with partial credit in an upper division engineering course may complete the work under this heading.
Supplementary Work in Upper Division Engineering: Read More [+]
Rules & Requirements
Prerequisites: Limited to students who must make up a fraction of a required upper division course
Repeat rules: Course may be repeated for credit.
Hours & Format
Fall and/or spring: 15 weeks - 0 hours of independent study per week
Additional Details
Subject/Course Level: Engineering/Undergraduate
Grading/Final exam status: Letter grade. Final exam required.
Supplementary Work in Upper Division Engineering: Read Less [-]
ENGIN 157AC Engineering, The Environment, and Society 4 Units  
Terms offered: Spring 2017, Spring 2016, Spring 2015  
This course engages students at the intersection of environmental justice, social justice, and engineering to explore how problems that are commonly defined in technical terms are at their roots deeply socially embedded. Through partnerships with community-based organizations, students are trained to recognize the socio-political nature of technical problems so that they may approach solutions in ways that prioritize social justice. Topics covered include environmental engineering as it relates to air, water, and soil contamination; race, class, and privilege; expertise; ethics; and engaged citizenship. This course cannot be used to complete any engineering technical or unit requirements.  
Engineering, The Environment, and Society: Read More [+]

Hours & Format  
Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details  
Subject/Course Level: Engineering/Undergraduate  
Grading/Final exam status: Letter grade. Alternative to final exam.  
Also listed as: IAS 157AC  
Engineering, The Environment, and Society: Read Less [-]

ENGIN 177 Advanced Programming with MATLAB 3 Units  
Terms offered: Spring 2017, Spring 2015, Spring 2014  
The course builds an understanding, demonstrates engineering uses, and provides hand-on experience for object-oriented programming as well as exposes a practical knowledge of advanced features available in MATLAB. The course will begin with a brief review of basic MATLAB features and quickly move to class organization and functionality. The introduced concepts are reinforced by examining the advanced graphical features of MATLAB. The material will also include the effective use of programs written in C and FORTRAN, and will cover SIMULINK, a MATLAB toolbox providing for an effective ways of model simulations. Throughout the course, the emphasis will be placed on examples and homework assignments from engineering disciplines.  
Advanced Programming with MATLAB: Read More [+]

Rules & Requirements  
Prerequisites: 7 or 77; Mathematics 53 and 54 (one of these may be taken concurrently)

Hours & Format  
Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details  
Subject/Course Level: Engineering/Undergraduate  
Grading/Final exam status: Letter grade. Final exam required.

ENGIN 194 Undergraduate Research 3 Units  
Terms offered: Fall 2017, Spring 2017, Fall 2016  
Students who have completed a satisfactory number of advanced courses may pursue original research under the direction of one of the members of the staff. Final report and presentation required.  
Undergraduate Research: Read More [+]

Rules & Requirements  
Prerequisites: Consent of instructor and adviser, junior or senior standing  
Repeat rules: Course may be repeated for credit, but only three units may be used to satisfy a technical elective.

Hours & Format  
Fall and/or spring: 15 weeks - 0 hours of independent study per week

Additional Details  
Subject/Course Level: Engineering/Undergraduate  
Grading/Final exam status: Letter grade. Final exam required.

ENGIN 198 Directed Group Studies for Advanced Undergraduates 1 - 4 Units  
Terms offered: Fall 2017, Summer 2017 8 Week Session, Spring 2017  
Group study of selected topics.  
Directed Group Studies for Advanced Undergraduates: Read More [+]

Rules & Requirements  
Prerequisites: Upper division standing, plus particular courses to be specified by instructor  
Repeat rules: Course may be repeated for credit.

Hours & Format  
Fall and/or spring: 15 weeks - 1-4 hours of directed group study per week  
Summer: 8 weeks - 1.5-7.5 hours of directed group study per week

Additional Details  
Subject/Course Level: Engineering/Undergraduate  
Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Directed Group Studies for Advanced Undergraduates: Read Less [-]
ENGIN 201 Ocean Engineering Seminar 2 or 3 Units
Terms offered: Spring 2017, Spring 2016, Spring 2015
Lectures on new developments in ocean, arctic engineering. The optional third unit covers the analysis and design of arctic structures for ice structure interaction. The additional unit will require that students meet with the instructor one extra hour per week to work on an individual project. Topics covered: ice mechanics, determination of global and local forces, and other ice actions on structures. Term paper required.
Sponsoring department: Engineering Interdisciplinary Studies.
Ocean Engineering Seminar: Read More [+]

Rules & Requirements
Prerequisites: Enrollment in Ocean Engineering Master of Engineering Program or consent of instructor

Hours & Format
Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Ocean Engineering Seminar: Read Less [-]

ENGIN 230 Methods of Applied Mathematics 3 Units
Terms offered: Fall 2015, Fall 2014, Fall 2013
Topics include complex variable methods, contour integration, solution of Laplace's equation via analytic function theory; asymptotic methods for evaluating integrals and solving differential equations; introduction to calculus of variations with applications; introductory integral equations.
The course is intended to expose students in engineering and physical sciences to a range of methods for solving equations associated with mathematical models of physical processes.
Methods of Applied Mathematics: Read More [+]

Rules & Requirements
Prerequisites: Mathematics 54 or equivalent. Engineering 117 or equivalent is desirable but not mandatory

Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructor: Packard, Poolla
Methods of Applied Mathematics: Read Less [-]

ENGIN 231 Mathematical Methods in Engineering 3 Units
Terms offered: Fall 2017, Fall 2016, Fall 2015
This course offers an integrated treatment of three topics essential to modern engineering: linear algebra, random processes, and optimization. These topics will be covered more rapidly than in separate undergraduate courses covering the same material, and will draw on engineering examples for motivation. The stress will be on proofs and computational aspects will also be highlighted. It is intended for engineering students whose research focus has a significant mathematical component, but who have not previously had a thorough exposure to these topics.
Mathematical Methods in Engineering: Read More [+]

Rules & Requirements
Prerequisites: Math 1A-1B, 53 and 54 or equivalent

Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructors: Packard, Poolla
Mathematical Methods in Engineering: Read Less [-]

ENGIN C233 Applications of Parallel Computers 3 Units
Terms offered: Spring 2017, Spring 2016, Spring 2015
Applications of Parallel Computers: Read More [+]

Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of laboratory per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructors: Demmel, Yelick
Also listed as: COMPSCI C267
Applications of Parallel Computers: Read Less [-]
ENGIN 266A Finite Difference Methods for Fluid Dynamics 4 Units
Terms offered: Fall 2012, Fall 2010, Spring 2007
Application of finite difference methods to current problems of fluid
dynamics, including compressible and incompressible flow. Sponsoring
department: Mechanical Engineering.
Finite Difference Methods for Fluid Dynamics: Read More [+]
Rules & Requirements
Prerequisites: A graduate-level course in fluid dynamics or numerical
methods for differential equations, or consent of instructor
Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture, 1 hour of discussion,
and 3 hours of laboratory per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructor: Marcus
Formerly known as: 266
Finite Difference Methods for Fluid Dynamics: Read Less [-]

ENGIN 266B Spectral Methods for Fluid Dynamics 4 Units
Terms offered: Fall 2015, Spring 2014, Spring 2012
Application of spectral methods to current problems of fluid dynamics,
including compressible and incompressible flow. Sponsoring department:
Mechanical Engineering.
Spectral Methods for Fluid Dynamics: Read More [+]
Rules & Requirements
Prerequisites: A graduate-level course in fluid dynamics or numerical
methods for differential equations, or consent of instructor
Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture, 1 hour of discussion,
and 3 hours of laboratory per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructor: Marcus
Formerly known as: 266
Spectral Methods for Fluid Dynamics: Read Less [-]

ENGIN 270A Organizational Behavior for Engineers 1 Unit
Terms offered: Fall 2017, Fall 2016
Designed for professionally-oriented engineering graduate students,
this course explores key topics in organizational behavior, including
negotiations, power and conflict.
Organizational Behavior for Engineers: Read More [+]
Rules & Requirements
Prerequisites: Admission to MEng or MTM program
Hours & Format
Fall and/or spring: 2 weeks - 6-8 hours of lecture per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Organizational Behavior for Engineers: Read Less [-]

ENGIN 270B R&D Technology Management & Ethics 1 Unit
Terms offered: Fall 2017, Fall 2016
Designed for professionally-oriented engineering graduate students, this
course explores key topics in R&D technology management and ethics
through faculty-led case analysis and discussion.
R&D Technology Management & Ethics: Read More [+]
Rules & Requirements
Prerequisites: Admission to MEng or MTM program
Hours & Format
Fall and/or spring: 2 weeks - 6-8 hours of lecture per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
R&D Technology Management & Ethics: Read Less [-]
ENGIN 270C Project Management & Teaming
1 Unit
Terms offered: Fall 2017, Fall 2016
Designed for professionally-oriented engineering graduate students, this course applies key topics in project management and team dynamics to students concurrent capstone projects.
Rules & Requirements
Prerequisites: Admission to MEng or MTM program
Hours & Format
Fall and/or spring: 15 weeks - 1 hour of lecture per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
ENGIN 270D Entrepreneurship for Engineers
1 Unit
Terms offered: Spring 2017
Designed for professionally-oriented engineering graduate students, this course explores key topics in entrepreneurship and entrepreneurial finance.
Rules & Requirements
Prerequisites: Admission to MEng or MTM program
Hours & Format
Fall and/or spring: 2 weeks - 6-8 hours of lecture per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
ENGIN 270E Technology Strategy & Industry Analysis
1 Unit
Terms offered: Spring 2017
Designed for professionally-oriented engineering graduate students, this course explores key topics in technology strategy and industry analysis.
Rules & Requirements
Prerequisites: Admission to MEng or MTM program
Hours & Format
Fall and/or spring: 2 weeks - 6-8 hours of lecture per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
ENGIN 270F Data Analytics
1 Unit
Terms offered: Spring 2017
Designed for professionally-oriented engineering graduate students, this course explores key topics in data analytics.
Rules & Requirements
Prerequisites: Admission to MEng or MTM program
Hours & Format
Fall and/or spring: 2 weeks - 6-8 hours of lecture per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
ENGIN 270G Marketing & Product Management
1 Unit
Terms offered: Spring 2017
Designed for professionally-oriented engineering graduate students, this course explores key topics in marketing and product management.
Rules & Requirements
Prerequisites: Admission to MEng or MTM program
Hours & Format
Fall and/or spring: 2 weeks - 6-8 hours of lecture per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
ENGIN 270H Accounting & Finance for Engineers 1 Unit
Terms offered: Spring 2017
Designed for professionally-oriented engineering graduate students, this course explores key topics in accounting and finance. Accounting & Finance for Engineers: Read More [+]

Rules & Requirements
Prerequisites: Admission to MEng or MTM program

Hours & Format
Fall and/or spring: 7 weeks - 2 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Accounting & Finance for Engineers: Read Less [-]

ENGIN 270I Technology Strategy for Engineering Leaders 1 Unit
Terms offered: Not yet offered
Designed for professionally-oriented engineering graduate students, this course explores key topics in technology strategy using the case discussion method. Technology Strategy for Engineering Leaders: Read More [+]

Rules & Requirements
Prerequisites: Enrollment in the MEng or MTM programs

Hours & Format
Fall and/or spring: 2 weeks - 7 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Technology Strategy for Engineering Leaders: Read Less [-]

ENGIN 270J Industry Analysis for Engineering Leaders 1 Unit
Terms offered: Not yet offered
Designed for professionally-oriented engineering graduate students, this course explores key topics in industry analysis. Industry Analysis for Engineering Leaders: Read More [+]

Rules & Requirements
Prerequisites: Enrollment in the MEng or MTM programs

Hours & Format
Fall and/or spring: 2 weeks - 7 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Industry Analysis for Engineering Leaders: Read Less [-]

ENGIN 271 Engineering Leadership I 3 Units
Terms offered: Fall 2015, Fall 2014, Fall 2013
Designed for professionally-oriented engineering graduate students, this course explores key management and leadership concepts relevant to technology-dependent enterprises. Topics include opportunity recognition, strategies for effective R and D, marketing innovation, disruption, cognitive inertia, product management, market selection, standards wars, two-sided markets, attracting stakeholders, business models, pricing strategies. Engineering Leadership I: Read More [+]

Rules & Requirements
Prerequisites: Admission to the MEng Program

Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructors: Flemming, Lee
Engineering Leadership I: Read Less [-]

ENGIN 272 Engineering Leadership II 3 Units
Terms offered: Spring 2016, Spring 2015, Spring 2014
Designed for professionally-oriented engineering graduate level students, this course explores key operational, leadership, and financial concepts relevant to technology-dependent enterprises. Topics include methods to go to market, direct and indirect sales, logistics, talent management, managing creativity, project management, leadership styles, CFO-style interpretation of financial statements, funding sources, budgeting, and valuation methods. Engineering Leadership II: Read More [+]

Rules & Requirements
Prerequisites: Admission to MEng Program and 271

Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Engineering Leadership II: Read Less [-]
ENGIN C282 Charged Particle Sources and Beam Technology 3 Units
Terms offered: Fall 2017, Fall 2015, Fall 2013, Fall 2011
Topics in this course will include the latest technology of various types of ion and electron sources, extraction and formation of charge particle beams, computer simulation of beam propagation, diagnostics of ion sources and beams, and the applications of beams in fusion, synchrotron light source, neutron generation, microelectronics, lithography, and medical therapy. This is a general accelerator technology and engineering course that will be of interest to graduate students in physics, electrical engineering, and nuclear engineering.
Charged Particle Sources and Beam Technology: Read More [+]
Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructors: Leung, Steier
Also listed as: NUC ENG C282
Charged Particle Sources and Beam Technology: Read Less [-]

ENGIN 290A Introduction to Management of Technology 3 Units
Terms offered: Spring 2012, Spring 2011, Spring 2010
This course is designed to give students a broad overview of the main topics encompassed by management of technology. It includes the full chain of innovative activities beginning with research and development and extending through production and marketing. Why do many existing firms fail to incorporate new technology in a timely manner? At each stage of innovation, we examine key factors determining successful management of technology. What constitutes a successful technology strategy? The integrating course focus will be on the emergence of the knowledge economy and technology as a key knowledge asset and will involve both general readings and cases. The course also introduces students to Haas and COE faculty working in the relevant areas.
Introduction to Management of Technology: Read More [+]
Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructor: Proctor
Introduction to Management of Technology: Read Less [-]

ENGIN 290 Special Topics in Management of Technology 2 or 3 Units
Terms offered: Spring 2012, Fall 2011, Spring 2011
Specific topics, hours and units of credit will vary from section to section, year to year. Courses are related classes in the Management of Technology certificate program.
Special Topics in Management of Technology: Read More [+]
Rules & Requirements
Prerequisites: Graduate standing
Repeat rules: Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes.
Hours & Format
Fall and/or spring: 15 weeks - 2-3 hours of lecture per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Special Topics in Management of Technology: Read Less [-]
ENGIN 290B Biotechnology: Industry Perspectives and Business Development 2 Units
Terms offered: Fall 2011, Fall 2010, Fall 2009
This course is designed to examine the strategic issues that confront the management of the development stage biotech company, i.e., after its start-up via an initial capital infusion, but before it might be deemed successful (e.g., by virtue of a product launch), or otherwise has achieved "first-tier" status. Thus, the intention is to study the biotech organization during the process of it growth and maturation from an early stage existence through "adolescence" into an "adult" company. The focus of the class will be on business development, i.e., the deal making that must occur to accomplish the corporate objectives of bringing in new technologies and getting the initial products to market. We will explore the critical deal issues from both the perspective of the development stage company and the viewpoint of the larger, more mature biotech or big pharma company with which it seeks to partner.
Biotechnology: Industry Perspectives and Business Development: Read More [+]

Rules & Requirements
Credit Restrictions: Students will receive no credit for 290E after taking Master of Business Administration 290B or Evening Weekend Master of Business Administration 290B.

Hours & Format
Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructors: Hoover, Sanders

ENGIN 290E Marketing Emerging Technologies 3 Units
Terms offered: Fall 2011, Fall 2010
The primary goal of this course is to develop in the student the marketing skills needed to compete aggressively as an entrepreneur in technology fields. Upon completion of the course, the student should have developed the following skills: the ability to assess and predict customer needs in markets that may not yet exist; the ability to create and execute marketing plans that necessarily integrate sophisticated technological development with rapidly evolving customer requirements; the ability to create and grow a focused marketing organization rapidly and efficiently; and the ability to create and use marketing communications to reach prospects, customers, OEMs, and sales channels efficiently and inexpensively.
Marketing Emerging Technologies: Read More [+]

Rules & Requirements
Credit Restrictions: Students will receive no credit for 290E after taking Master of Business Administration 290E.

Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructor: Isaacs

Marketing Emerging Technologies: Read Less [-]
ENGIN 290G International Trade and Competition in High Technology 3 Units
Terms offered: Prior to 2007
This course seeks to make sense of, inter alia, the decline and prospective recovery of U.S. high-technology industries, the evolution of innovation and technology strategies and policies in Western Europe and Asia, the historic and current roles of governments in shaping markets for high-technology goods, and the impact on business strategies of recent developments in early-stage capital markets. Our general approach views technological innovation and competition as dynamic processes that reflect previous choices made by firms and governments. Modern technologies develop in markets that are international scope, often imperfectly competitive, and subject to influence by a variety of economic and political stakeholders. We will use an eclectic mix of theoretical, historical, and practical perspectives throughout the course in examining these issues, although no special familiarity with any of these is assumed. From time to time, we will be joined by venture capitalists, corporate executives, and technologists engaged in global high-technology markets for discussion of these issues.

ENGIN 290H Management of Technology - Doing Business in China 2 Units
Terms offered: Fall 2009
This course prepares students to found a startup business in China or to work with an MNC in China, develops their critical analysis and strategic decision tools and skills needed to compete in the world's most dynamic emerging market, and provides access and useful introductions/Guanxi to aid future business development in China.

ENGIN 290J Entrepreneurship in Biotechnology 2 Units
Terms offered: Spring 2012, Spring 2011, Spring 2010
This course will provide students an introduction to the complexities and unique problems of starting a life sciences company. It is designed for both entrepreneurs and students who may someday work in a biotechnology or medical device startup. Students will be exposed to the topics most critical for successfully founding, financing, and operating a life science company, and will be expected to perform many of the same tasks that founders would normally undertake. Discussions with life-science entrepreneurs, case studies of recent companies, and hands-on work developing entrepreneurial endeavors will all be utilized.
ENGIN 290O Opportunity Recognition: Technology and Entrepreneurship in Silicon Valley 3 Units
Terms offered: Spring 2012, Fall 2011, Spring 2011
This course is intended to provide the core skills needed for the identification of opportunities that can lead to successful, entrepreneurial high technology ventures, regardless of the individual’s "home" skill set, whether technical or managerial. We examine in depth the approaches most likely to succeed for entrepreneurial companies as a function of markets and technologies. Emphasis is placed on the special requirements for creating and executing strategy in a setting of rapid technological change and limited resources. This course is open to both MBA and Engineering students (who enroll through the College of Engineering), and is particularly suited for those who anticipate founding or operating technology companies.
Opportunity Recognition: Technology and Entrepreneurship in Silicon Valley: Read More [+]

Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.

Opportunity Recognition: Technology and Entrepreneurship in Silicon Valley: Read Less [-]

ENGIN 290P Project Management 2 Units
Terms offered: Spring 2012, Spring 2011, Spring 2010
This course will provide you with a comprehensive view of the elements of modern project management, guidelines for success, and related tools. In organizations today, successful operations keep the organization alive and successful projects move it towards strategic objectives. A project is a one-time or infrequently occurring operation with a unique goal, limited lifespan, and limited resources. The fundamental concepts come from the field of operations management, but projects present special types of operations because of their intended focus, limited lives, constraints, and uncertainties. In organizations today, projects are many, diverse, and frequently overlapping.
Project Management: Read More [+]

Hours & Format
Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructor: Angelus

Project Management: Read Less [-]

ENGIN 290S Supply Chain Management 3 Units
Terms offered: Fall 2011, Fall 2010, Fall 2009
This course involves the flows of materials and information among all of the firms that contribute value to a product, from the source of raw materials to end customers. Elements of supply chain management have been studied and practiced for some time in marketing, logistics, and operations management. We will attempt to integrate these different perspectives to develop a broad understanding of how to manage a supply change. This course will focus on effective supply chain strategies for companies that operate globally with emphasis on how to plan and integrate supply chain components into a coordinated system. You will be exposed to concepts and models important in supply chain planning with emphasis on key trade offs and phenomena. The course will introduce and utilize key tactics such as risk pooling and inventory placement, integrated planning and collaboration, and information sharing. Lectures, Internet simulations, computer exercises, and case discussions introduce various models and methods for supply chain analysis and optimization.
Supply Chain Management: Read More [+]

Rules & Requirements
Credit Restrictions: Students will receive no credit for 290S after taking Master of Business Administration 248A or Evening Weekend Master of Business Administration 248A.

Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructor: Angelus

Supply Chain Management: Read Less [-]
ENGIN 295 Communications for Engineering Leaders 1 Unit
Terms offered: Fall 2017, Spring 2017, Fall 2016
Engineering leadership principles integrated with concurrent technical capstone projects for Master of Engineering students. Students enroll in this supplementary course while they are enrolled in Engineering 296M, Capstone project, with their technical department capstone advisor. This project-based course will apply communication skills to the capstone project with a focus on presentations and writing in a professional context.

Rules & Requirements
Prerequisites: Admission to MEng program
Repeat rules: Course may be repeated a maximum of 2 times.

ENGIN 296MB Master of Engineering Capstone Project 1 - 5 Units
Terms offered: Spring 2017, Spring 2016, Spring 2015
This course is the second of a sequence of two capstone project courses for candidates of the Masters of Engineering degree. Students engage in professionally oriented independent or group research or study under the supervision of a research advisor. The research and study synthesizes the technical, environmental, economic, and social issues involved in the design and operation of complex engineering devices, systems, and organizations.

Rules & Requirements
Prerequisites: 296MA

ENGIN 296MA Master of Engineering Capstone Project 1 - 5 Units
Terms offered: Fall 2017, Fall 2016, Fall 2015
This course is the first of a sequence of two capstone project courses for candidates of the Masters of Engineering degree. Students engage in professionally oriented independent or group research or study under the supervision of a research advisor. The research and study synthesizes the technical, environmental, economic, and social issues involved in the design and operation of complex engineering devices, systems, and organization.

Rules & Requirements
Prerequisites: Acceptance into the Master of Engineering program

ENGIN 298A Group Studies or Seminars 1 - 6 Units
Terms offered: Fall 2015, Fall 2014, Fall 2013
Advanced group studies or seminars in subjects which are interdisciplinary in the various fields of engineering or other sciences associated with engineering problems. Topics which form the basis of seminars will be announced at the beginning of each semester.

Rules & Requirements
Repeat rules: Course may be repeated for credit.

ENGIN 298A Group Studies or Seminars 1 - 6 Units
Terms offered: Fall 2015, Fall 2014, Fall 2013
Advanced group studies or seminars in subjects which are interdisciplinary in the various fields of engineering or other sciences associated with engineering problems. Topics which form the basis of seminars will be announced at the beginning of each semester.

Rules & Requirements
Repeat rules: Course may be repeated for credit.

ENGIN 296MA Master of Engineering Capstone Project 1 - 5 Units
Terms offered: Spring 2017, Spring 2016, Spring 2015
This course is the second of a sequence of two capstone project courses for candidates of the Masters of Engineering degree. Students engage in professionally oriented independent or group research or study under the supervision of a research advisor. The research and study synthesizes the technical, environmental, economic, and social issues involved in the design and operation of complex engineering devices, systems, and organizations.

Rules & Requirements
Prerequisites: 296MA

ENGIN 296MB Master of Engineering Capstone Project 1 - 5 Units
Terms offered: Spring 2017, Spring 2016, Spring 2015
This course is the second of a sequence of two capstone project courses for candidates of the Masters of Engineering degree. Students engage in professionally oriented independent or group research or study under the supervision of a research advisor. The research and study synthesizes the technical, environmental, economic, and social issues involved in the design and operation of complex engineering devices, systems, and organizations.

Rules & Requirements
Prerequisites: 296MA

ENGIN 296MA Master of Engineering Capstone Project 1 - 5 Units
Terms offered: Fall 2017, Fall 2016, Fall 2015
This course is the first of a sequence of two capstone project courses for candidates of the Masters of Engineering degree. Students engage in professionally oriented independent or group research or study under the supervision of a research advisor. The research and study synthesizes the technical, environmental, economic, and social issues involved in the design and operation of complex engineering devices, systems, and organization.

Rules & Requirements
Prerequisites: Acceptance into the Master of Engineering program

ENGIN 298A Group Studies or Seminars 1 - 6 Units
Terms offered: Fall 2015, Fall 2014, Fall 2013
Advanced group studies or seminars in subjects which are interdisciplinary in the various fields of engineering or other sciences associated with engineering problems. Topics which form the basis of seminars will be announced at the beginning of each semester.

Rules & Requirements
Repeat rules: Course may be repeated for credit.

ENGIN 298A Group Studies or Seminars 1 - 6 Units
Terms offered: Fall 2015, Fall 2014, Fall 2013
Advanced group studies or seminars in subjects which are interdisciplinary in the various fields of engineering or other sciences associated with engineering problems. Topics which form the basis of seminars will be announced at the beginning of each semester.

Rules & Requirements
Repeat rules: Course may be repeated for credit.
ENGIN 298B Group Studies or Seminars 1 - 6 Units
Terms offered: Spring 2016, Fall 2015, Spring 2015
Advanced group studies or seminars in subjects which are interdisciplinary in the various fields or engineering or other sciences associated with engineering problems. Topics which form the basis of seminars will be announced at the beginning of each semester.

Rules & Requirements

Repeat rules: Course may be repeated for credit.

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of seminar per week

Additional Details

Subject/Course Level: Engineering/Graduate

Grading: Offered for satisfactory/unsatisfactory grade only.