Engineering (ENGIN)

Courses

ENGIN 7 Introduction to Computer Programming for Scientists and Engineers 4 Units
Terms offered: Fall 2019, Summer 2019 10 Week Session, Spring 2019
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 removed 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 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 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 2019, Spring 2019, Fall 2018
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 More [+]

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**ENGIN 26 Three-Dimensional Modeling for Design** 2 Units
Terms offered: Fall 2019, Spring 2019, Fall 2018
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 2019, Spring 2019, Fall 2018
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 [+]
Rules & Requirements
Repeat rules: Course may be repeated for credit without restriction.
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 [+]
Rules & Requirements
Repeat rules: Course may be repeated for credit without restriction.
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 [+]

**Rules & Requirements**

**Repeat rules:** Course may be repeated for credit without restriction.

**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 2019, Fall 2018, 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.

Engineering Thermodynamics: Read More [+]

**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 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 Outcomes**

**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.

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 [-]

ENGIN 47 Supplementary Work in Lower Division Engineering 1 - 3 Units
Terms offered: Fall 2016, Fall 2012, Spring 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 without restriction.

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 [-]

ENGIN 92 Perspectives in Engineering 1 Unit
Terms offered: Fall 2019, Fall 2018, Fall 2017
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 without restriction.

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 2019, Fall 2018, Fall 2017
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

ENGIN 98 Directed Group Studies for Lower Division Undergraduates 1 - 4 Units
Terms offered: Fall 2019, Spring 2019, Fall 2018
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 without restriction.

Hours & Format
Fall and/or spring: 15 weeks - 1-4 hours of directed group study per week
Summer:
6 weeks - 2.5-10 hours of directed group study per week
8 weeks - 1.5-7.5 hours of directed group study per week
10 weeks - 1.5-6 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.

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.
Instructors: Bolind, Persson

ENGIN 117 Methods of Engineering Analysis 3 Units
Terms offered: Fall 2019, Fall 2017, Fall 2015
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 2019, Spring 2019, Fall 2018

Principles of Engineering Economics: Read More [+]

Rules & Requirements

Prerequisites: Completion of 60 units of an approved engineering curriculum

Credit Restrictions: Students will receive no credit for Engineering 120 after taking Industrial Engineering 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 125 Ethics, Engineering, and Society 3 Units
Terms offered: Spring 2014, Fall 2013, Spring 2013
How should engineers analyze and resolve the ethical issues inherent in engineering? This seminar-style course provides an introduction to how theories, concepts, and methods from the humanities and social science can be applied to ethical problems in engineering. Assignments incorporate group and independent research designed to provide students an opportunity to contribute novel findings to the emerging field of engineering ethics while building their analytical and communication skills. This course cannot be used to fulfill any engineering technical requirements (units or courses).

Ethics, Engineering, and Society: Read More [+]

Hours & Format

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

Summer: 6 weeks - 5 hours of lecture and 3 hours of discussion per week

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 not required.

Instructor: Adler

Ethics, Engineering, and Society: Read Less [-]

ENGIN 128 Advanced Engineering Design Graphics 3 Units
Terms offered: Fall 2019, Fall 2018, Fall 2017

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: 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 not required.

Instructor: Lieu

Advanced Engineering Design Graphics: Read Less [-]

ENGIN 147 Supplementary Work in Upper Division Engineering 1 - 3 Units
Terms offered: Fall 2016, Fall 2015, Spring 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 without restriction.

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 150 Basic Modeling and Simulation Tools for Industrial Research Applications 3 Units
Terms offered: Fall 2019, Fall 1997, Fall 1996
The course emphasizes elementary modeling, numerical methods & their implementation on physical problems motivated by phenomena that students are likely to encounter in their careers, involving biomechanics, heat-transfer, structural analysis, control theory, fluid-flow, electrical conduction, diffusion, etc. This will help students develop intuition about the strengths and weaknesses of a variety of modeling & numerical methods, as well as develop intuition about modeling physical systems & strengths and weaknesses of a variety of numerical methods, including: Discretization of differential equations, Methods for solving nonlinear systems, Gradient-based methods and machine learning algorithms for optimization, stats & quantification
Basic Modeling and Simulation Tools for Industrial Research Applications: Read More [+]

Rules & Requirements
Prerequisites: ENGIN 7 (http://guide.berkeley.edu/search/?P=ENGIN%207) or COMPSCI 61A (http://guide.berkeley.edu/search/?P=COMPSCI%2061A), PHYSICS 7A (http://guide.berkeley.edu/search/?P=PHYSICS%207A), MATH 53 (http://guide.berkeley.edu/search/?P=MATH%2053), MATH 54 (http://guide.berkeley.edu/search/?P=MATH%2054)

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.

Basic Modeling and Simulation Tools for Industrial Research Applications: Read Less [-]

ENGIN 157AC Engineering, The Environment, and Society 4 Units
Terms offered: Spring 2019, Spring 2018, Spring 2017
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 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 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.
Instructors: Frenklach, Packard
Advanced Programming with MATLAB: Read Less [-]
ENGIN 180 Preparing for the Fields and Jobs of the Future 3 Units
Terms offered: Fall 2019, Spring 2018
The course is concerned with giving students the tools to prepare for the fields and jobs of the future.
Across all university departments and majors, the numbers of students who do not work in the fields in which they've received their degrees is not only significant, but growing. For example, anywhere from 20-40% of STEM graduates do not work in the fields in which they received their degrees.
This does not mean that students shouldn’t major in STEM, but that one of the primary purposes of higher education is learning how to learn. Accordingly, this course presents a number of frameworks that are critical for thinking about that which has not yet been invented.
Preparing for the Fields and Jobs of the Future: Read More [+]

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. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

Instructor: Ian I. Mitroff
Preparing for the Fields and Jobs of the Future: Read Less [-]

ENGIN 185 The Art of STEM Communication 3 Units
Terms offered: Fall 2019, Spring 2019
This course provides engineering majors with the fundamental skills for effective technical communication. During the course of the semester, students will develop communications for public dissemination, covering a project or initiative within UC Berkeley’s College of Engineering. This work will call on students to: (a) cultivate interest in a broad range of topics related to Engineering; (b) become an engaged and critical reader of academic and general-interest science publications; (c) learn how to assess, plan for, and respond to a variety of communicative situations; (d) produce focused, and at the same time, narratively-rich, accounts of Engineering research.
The Art of STEM Communication: Read More [+]

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. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

The Art of STEM Communication: Read Less [-]

ENGIN 187 Global Engineering: The Challenges of Globalization and Disruptive Innovation 1 or 2 Units
Terms offered: Not yet offered
The course examines the challenges of innovation beyond new technology development: from the challenges of global expansion, to the issues of unintended consequences of technology and the ability of technology to support or hinder social justice. The course will provide examples in a variety of global locations (e.g., Latin America, Southeast Asia, Africa, China, and India), utilizing case examples (written and presented by speakers) that illustrate the challenges faced in a range of fields of engineering and technology, from water and transportation to information and communications technology, and from start-ups to major corporations, government entities, and policy makers.

Global Engineering: The Challenges of Globalization and Disruptive Innovation: Read More [+]

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

Hours & Format
Fall and/or spring: 8 weeks - 2-4 hours of lecture per week

Additional Details
Subject/Course Level: Engineering/Undergraduate

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

Global Engineering: The Challenges of Globalization and Disruptive Innovation: Read Less [-]

ENGIN 194 Undergraduate Research 3 Units
Terms offered: Spring 2019, Spring 2018, Fall 2017
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 without restriction.

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.

Undergraduate Research: Read Less [-]
ENGIN 198 Directed Group Studies for Advanced Undergraduates 1 - 4 Units
Terms offered: Fall 2019, Spring 2019, Fall 2018
Group study of selected topics.
Direct 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 without restriction.
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.

ENGIN 201 Graduate Ocean Engineering Seminar 2 Units
Terms offered: Spring 2019, Spring 2018, Spring 2017
Lectures on new developments in ocean, offshore, and arctic engineering.
Graduate Ocean Engineering Seminar: Read More [+]
Objectives Outcomes
Course Objectives: To provide exposure of the field of ocean engineering, arctic engineering and related subject areas to students at graduate level with intention to show the broad and interdisciplinary nature of this field, particularly recent or new developments.
Student Learning Outcomes: Students will learn of new developments in ocean, offshore, and arctic engineering, connecting much of what is learned in other courses to practical applications and active research topics.
Rules & Requirements
Repeat rules: Course may be repeated for credit with instructor consent.
Hours & Format
Fall and/or spring: 15 weeks - 2 hours of seminar per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Offered for satisfactory/unsatisfactory grade only.
Instructors: Makiharju, Alam

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: Steigmann

ENGIN 231 Mathematical Methods in Engineering 3 Units
Terms offered: Fall 2019, Fall 2018, Fall 2017
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 2019, Spring 2018, Spring 2017
Applications of Parallel Computers: Read More [+]
Rules & Requirements
Repeat rules: Course may be repeated for credit without restriction.

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

ENGIN 266B Spectral Methods for Fluid Dynamics 4 Units
Terms offered: Spring 2018, Fall 2015, Spring 2014
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

ENGIN 270A Organizational Behavior for Engineers 1 Unit
Terms offered: Fall 2018, 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
ENGIN 270B R&D Technology Management & Ethics 1 Unit
Terms offered: Fall 2018, 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.
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 Teaming & Project Management 1 Unit
Terms offered: Fall 2019, Fall 2018, Spring 2018
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
Repeat rules: Course may be repeated for credit up to a total of 1 time.
Hours & Format
Fall and/or spring: 12 weeks - 1 hour of lecture per week
Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Teaming & Project Management: Read Less [-]

ENGIN 270D Entrepreneurship for Engineers 1 Unit
Terms offered: Spring 2019, Spring 2018, 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.
Entrepreneurship for Engineers: Read Less [-]

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.
Technology Strategy & Industry Analysis: Read Less [-]

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.
Data Analytics: Read Less [-]
ENGIN 270G Marketing & Product Management 1 Unit
Terms offered: Spring 2019, Spring 2018, Spring 2017
Designed for professionally-oriented engineering graduate students, this course explores key topics in marketing and product management.
Marketing & Product Management: 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.
Marketing & Product Management: Read Less [-]

ENGIN 270H Accounting & Finance for Engineers 1 Unit
Terms offered: Spring 2019, Fall 2017, 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: Enrollment in MEng or MTM programs
Hours & Format
Fall and/or spring: 2 weeks - 6-8 hours of lecture per week
7 weeks - 2 hours of lecture per week
10 weeks - 1.5 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: Spring 2019, Spring 2018
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: Spring 2019, Spring 2018
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 W270K Coaching for High Performance Teams 1 Unit
Terms offered: Spring 2019
Designed for professionally-oriented engineering graduate students, this course applies key topics in project management and team dynamics to students concurrent capstone projects.
Coaching for High Performance Teams: Read More [+]

Rules & Requirements

Prerequisites: Open to MEng or MTM students only

Hours & Format
Fall and/or spring: 8 weeks - 0.5 hours of workshop and 0.5 hours of web-based lecture per week
Online: This is an online course.

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

Coaching for High Performance Teams: Read Less [-]

ENGIN 271 Engineering Leadership I 3 Units
Terms offered: Fall 2015, Fall 2014, Fall 2013
Designed for professionally-oriented engineering graduate level 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.
Instructors: Flemming, Lee

Engineering Leadership II: Read Less [-]

ENGIN C282 Charged Particle Sources and Beam Technology 3 Units
Terms offered: Spring 2018, Fall 2015, Fall 2013
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 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.
Rules & Requirements
Prerequisites: Graduate standing
Repeat rules: 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.

Introduction to Management of Technology: Read More [+]

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 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 its 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

Biotechnology: Industry Perspectives and Business Development: Read Less [-]
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.
International Trade and Competition in High Technology: Read More [+]

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

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: Wu
International Trade and Competition in High Technology: Read Less [-]
**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.

Management of Technology - Doing Business in China: Read More [+]

**Rules & Requirements**

Credit Restrictions: Students will receive no credit for 290H after taking Master of Business Administration 290H.

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: Sanderson

Management of Technology - Doing Business in China: Read Less [-]

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**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-sciences entrepreneurs, case studies of recent companies, and hands-on work developing entrepreneurial endeavors will all be utilized.

Entrepreneurship in Biotechnology: 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: Lasky

Entrepreneurship in Biotechnology: Read Less [-]

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**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 [-]

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**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.

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: Spring 2019, Fall 2018, Spring 2018
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.

Communications for Engineering Leaders: Read More [+]

Rules & Requirements

Prerequisites: Admission to MEng program or College of Engineering PhD program
Repeat rules: Course may be repeated for credit up to a total of 2 times.

Hours & Format

Fall and/or spring:
2 weeks - 8 hours of lecture per week
8 weeks - 2 hours of lecture per week
10 weeks - 1.5 hours of lecture per week
15 weeks - 1 hour of lecture per week

Additional Details

Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Instructors: Bauer, Fitzpatrick, Halpern, Houlihan
Communications for Engineering Leaders: Read Less [-]
ENGIN W295A Communications for Engineering Leaders 1 Unit
Terms offered: Prior to 2007
Professional communications for Master of Engineering students. The course has two objectives: to develop and/or hone your individual communication skills, as you generate content supporting your career development [fall] and to further your individual and team-based communication skills, as your team generates content for your capstone reporting deliverables [spring].

Rules & Requirements

Prerequisites: Restricted to Master of Engineering degree students

Hours & Format

Fall and/or spring: 10 weeks - 0.5 hours of web-based lecture and 0.5 hours of tutorial per week

Online: This is an online course.

Additional Details

Subject/Course Level: Engineering/Graduate

Grading: Letter grade.

Instructor: Beliaev

Communications for Engineering Leaders: Read More [+]

ENGIN W295B Communications for Engineering Leaders 1 Unit
Terms offered: Not yet offered
Professional communications for Master of Engineering students. The course has two objectives: to develop and/or hone your individual communication skills, as you generate content supporting your career development [fall] and to further your individual and team-based communication skills, as your team generates content for your capstone reporting deliverables [spring].

Rules & Requirements

Prerequisites: Restricted to Master of Engineering degree students

Hours & Format

Fall and/or spring: 10 weeks - 0.4 hours of web-based lecture and 0.7 hours of workshop per week

Online: This is an online course.

Additional Details

Subject/Course Level: Engineering/Graduate

Grading: Letter grade.

Instructor: Beliaev

Communications for Engineering Leaders: Read More [+]

ENGIN 296MA Master of Engineering Capstone Project 1 - 5 Units
Terms offered: Fall 2019, Fall 2018, Fall 2017
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 organizations.

Rules & Requirements

Prerequisites: Acceptance into the Master of Engineering program

Hours & Format

Fall and/or spring: 15 weeks - 1-5 hours of seminar per week

Additional Details

Subject/Course Level: Engineering/Graduate

Grading: The grading option will be decided by the instructor when the class is offered.

Master of Engineering Capstone Project: Read Less [-]

ENGIN 296MB Master of Engineering Capstone Project 1 - 5 Units
Terms offered: Spring 2019, Spring 2018, Spring 2017
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

Hours & Format

Fall and/or spring: 15 weeks - 1-5 hours of seminar per week

Additional Details

Subject/Course Level: Engineering/Graduate

Grading: The grading option will be decided by the instructor when the class is offered.

Master of Engineering Capstone Project: Read Less [-]
ENGIN 298 Fung Institute Engineering Leadership Speaker Series 1 Unit
Terms offered: Not yet offered
This lecture series serves as an inspirational supplement to Master of Engineering graduate curriculum in leadership and innovation. The course features insightful conversations with high-level industry speakers who share their experience with engineering leadership and innovation. Speakers draw from Silicon Valley leadership, Fung Institute capstone project partners and advisory board, MEng Alumni featured in Forbes 30 under 30 and Inc's Top 50 Young Entrepreneur's to watch.
Fung Institute Engineering Leadership Speaker Series: Read More [+]

Rules & Requirements
Prerequisites: Enrollment in the Master of Engineering program
Repeat rules: Course may be repeated for credit without restriction.

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

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Offered for satisfactory/unsatisfactory grade only.
Fung Institute Engineering Leadership Speaker Series: Read Less [-]

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.
Group Studies or Seminars: Read More [+]

Rules & Requirements
Repeat rules: Course may be repeated for credit without restriction.

Hours & Format
Fall and/or spring: 15 weeks - 1-6 hours of seminar per week

Additional Details
Subject/Course Level: Engineering/Graduate
Grading: Letter grade.
Group Studies or Seminars: Read Less [-]

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.
Group Studies or Seminars: Read More [+]

Rules & Requirements
Repeat rules: Course may be repeated for credit without restriction.

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.
Group Studies or Seminars: Read Less [-]