

# BASIC ENGINEERING COURSES

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The following courses in basic engineering are of a general nature and are used by students in all of the Division of Engineering disciplines.

## **BE 1001 Engineering Bridge Mentorship Program Participant I Cr. 1**

Required peer mentorship program for Engineering Bridge students.

Offered Every Term.

**Corequisite:** BE 1060

**Restriction(s):** Enrollment is limited to students with a major in Engineering.

## **BE 1002 Engineering Bridge Mentorship Program Participant II Cr. 0**

Required peer mentorship program for Engineering Bridge students.

Offered Winter.

**Corequisite:** BE 1060

## **BE 1050 Introduction to the Engineering Profession Cr. 2**

This course introduces new engineering students to the profession and practice of engineering, the history of engineering, and its various disciplines. The importance of teams to the practice of engineering is demonstrated. Offered Fall.

## **BE 1060 Introduction to Engineering Practice and Design Cr. 1**

Teamwork and communication development based on exploration of professional opportunities for engineers. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Engineering.

## **BE 1101 Introduction to Officership Cr. 1**

Classroom introduction to leadership, and the experiential examination of leadership, followership, decision-making, and group accomplishment of tasks. Offered Every Other Year.

## **BE 1102 Introduction to Leadership Cr. 1**

Continuation of B E 1101; focus on communications, leadership, and problem-solving. The light infantry platoon and the troop leading process. Offered Every Other Year.

**Prerequisite:** BE 1101 with a minimum grade of C-

## **BE 1200 Basic Engineering I: Design in Engineering Cr. 3**

Core principles of engineering practice: design, teamwork, professional ethics. Offered Fall, Winter.

**Prerequisite:** MAT 1800 (may be taken concurrently) with a minimum grade of C or MAT 2020 (may be taken concurrently) with a minimum grade of C- or MAT 2030 (may be taken concurrently) with a minimum grade of C- or MAT 2010 (may be taken concurrently) with a minimum grade of C-

**Course Material Fees:** \$50

## **BE 1300 Basic Engineering II: Materials Science for Engineering Applications Cr. 3**

Fundamentals of materials science; emphasis on how material properties and behavior affect engineering applications. Offered Every Term.

**Prerequisites:** CHM 1225 with a minimum grade of C- or CHM 1220 with a minimum grade of C- and CHM 1230 with a minimum grade of C- and May be taken concurrently; BE 1200 with a minimum grade of C- and May be taken concurrently; PHY 2170 with a minimum grade of C- or PHY 2175 with a minimum grade of C- and May be taken concurrently; MAT 2020 with a minimum grade of C-

**Corequisite:** BE 1310

## **BE 1310 Materials Science for Engineering: Laboratory Cr. 1**

Laboratory component of B E 1300. Offered Every Term.

**Corequisite:** BE 1300

**Course Material Fees:** \$35

## **BE 1500 Introduction to Programming and Computation for Engineers Cr. 3**

Use of computational tools, such as Excel and MATLAB, to solve engineering problems. Topics include general engineering problem solving, algorithm development, programming, and computational analysis. Offered Fall, Winter.

**Prerequisites:** MAT 2010 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

## **BE 2100 Basic Engineering III: Probability and Statistics in Engineering Cr. 3**

An introduction to application of probability theory and statistical methods in engineering, including design and manufacturing. Offered Every Term.

**Prerequisite:** MAT 2020 (may be taken concurrently) with a minimum grade of C-

## **BE 2201 Innovative Tactical Leadership Cr. 1**

Military organizational leadership with focus on leadership development and interpersonal group dynamics. Offered Every Other Year.

**Prerequisite:** BE 1102 with a minimum grade of C-

## **BE 2202 Leadership in Changing Environments Cr. 2**

Challenges of leading in complex contemporary operational environments. Cross-cultural challenges of leadership applied to practical Army leadership tasks and situations. Offered Every Other Year.

**Prerequisite:** BE 1102 with a minimum grade of C-

## **BE 3000 Engineering Bridge Mentorship Program Leader Cr. 0**

Documentation of mentor participation in Engineering Bridge Program. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Engineering; enrollment limited to students in the following programs: BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Industrial Engineering, BS in Mechanical Engineering.

## **BE 3301 Leading Small Organizations I Cr. 2**

Leadership development and interpersonal and group dynamics. Methods of visualizing, planning and leading organizations to achieve set goals. Offered Every Other Year.

## **BE 3302 Leading Small Organizations II Cr. 2**

Offered Every Other Year.

**Prerequisite:** BE 3301 with a minimum grade of C-

## **BE 3500 Co-Op Record Cr. 0**

Engineering practice under supervision in cooperative education program. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Engineering; enrollment limited to students in the following programs: BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Industrial Engineering, BS in Mechanical Engineering.

## **BE 3510 Co-Op Experience Cr. 1**

Engineering practice under supervision in cooperative education program. Written report required. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Engineering; enrollment limited to students in the following programs: BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Industrial Engineering, BS in Mechanical Engineering.

**Repeatable for 4 Credits**

## **BE 3900 National Design Competition Participant Cr. 0**

For engineering undergraduates who are active team members in national engineering design competition projects. Satisfactory completion of this course will document active participation throughout the semester. Offered Every Term.

**BE 4401 Leadership and Management Cr. 3**

Multiple styles and theories of leadership; ethical decision making, especially as relating to changing organizational and individual behavior; accomplishing goals in resource-constrained environments. Offered Every Other Year.

**Prerequisite:** BE 3302 with a minimum grade of D-

**BE 4402 Military Professionalism and Professional Ethics Cr. 3**

Evaluation and assessment of needs of subordinate units and individuals; near-term and short-term plans to address these needs. Analysis of a historical battle as well as analysis of moral and leadership dilemmas in history. Offered Every Other Year.

**Prerequisite:** BE 4401 with a minimum grade of C-

**BE 5900 National Design Competition Projects Cr. 1-4**

Primarily for engineering undergraduates who are dedicating a substantial amount of effort towards college-sponsored national design competition projects. Offered Every Term.

**Repeatable for 99 Credits**

**BE 5995 Special Topics in Engineering Cr. 4**

Special topics not covered in other courses; topics announced in Schedule of Classes. Offered Every Term.

**Repeatable for 99 Credits**

**BE 5998 Engineering Honors Thesis Cr. 1-4**

Completion of required Honors Thesis. Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering; enrollment limited to students in the following programs: BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Industrial Engineering, BS in Mechanical Engineering.

**Repeatable for 99 Credits**