ENGR 0600. Preparation for Professional and Academic Engineering Success in the United States. 0 Hours.
Designed for international engineering graduate students who are learning about living, working, and studying in the United States. The goal is to create experiences that assist the student toward biculturalism. Offers students an opportunity to obtain an in-depth understanding of the American people, the university culture, and the professional engineering environments they experience both during their program at Northeastern and after graduation. Examines the importance of critical thinking skills, creativity, and individualism as core values of the American spirit. At the same time, introduces language skills necessary for successful communication at the university, in engineering settings, and in the wider culture.

ENGR 5050. Advanced Engineering Calculus with Applications. 4 Hours.
Introduces methods of vector analysis. Expects students to master over thirty predefined types of problems. Topics include analytic geometry in three dimensions, geometric vectors and vector algebra, curves in three-space, linear approximations, the gradient, the chain rule, the Lagrange multiplier, iterated integrals, integrals in curvilinear coordinates, change of variables, vector fields, line integrals, conservative fields, surfaces and surface integrals, the flux and the circulation of a vector field, Green's theorem, the divergence theorem, and Stokes' theorem. Illustrates the material by real-world science and engineering applications using the above techniques. Requires familiarity with single-variable calculus.

ENGR 5670. Sustainable Energy: Materials, Conversion, Storage, and Usage. 4 Hours.
Examines, in this interdisciplinary course, modern energy usage, consequences, and options to support sustainable energy development from a variety of fundamental and applied perspectives. Emphasizes both (1) physical and chemical processes in materials for the conversion of energy and (2) how to design a system with renewable energy for applications such as electricity generation and transmission. Takes a systems analysis point of view. Topics may include energy conservation; fossil fuels; and energy conversion methods for solar, geothermal, wind, hydro, bioenergy, electrochemical, and similar methods.

ENGR 6150. Nanotechnology in Engineering. 4 Hours.
Explores a wide range of new technologies based on, or influenced by, breakthroughs in nanoscience. Nanotechnology, the refinement of functional properties of materials, devices, or systems at least one dimension smaller than 100 nm with a general goal of engineering new or enhanced macroscopic properties from nanoscale materials and components, has revolutionized science and its impact on society. Nanotechnologies include, but are not limited to, spintronics, quantum computing, carbon nanotube electronics, nanoparticle cancer remediation strategies, biomolecular electronics, and nanomachines. Through review of the scientific literature, classroom lecture, seminars by international leaders of nanotechnology, and student team and individual projects, the student has an opportunity to develop an in-depth understanding of one area of interest in this field.

ENGR 6600. Early-Stage Technology—Commercialization Opportunity Assessment. 4 Hours.
Focuses on real-world product development and commercialization in engineering. Organized with several interdisciplinary teams consisting of business students and engineering students, supported by technical and commercial mentors from industry and academia. Through their engagement with industry, offers students an opportunity to work on confidential intellectual property and early concept/product-idea generation.

ENGR 6962. Elective. 1-4 Hours.
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

ENGR 7978. Independent Study. 1-4 Hours.
Offers theoretical or experimental work under individual faculty supervision. May be repeated without limit.

ENGR 7990. Thesis. 1-8 Hours.
Offers analytical and/or experimental work conducted under the direction of the faculty in fulfillment of the requirements for the degree. Requires first-year students to attend a graduate seminar program that introduces the students to the methods of choosing a research topic, conducting research, and preparing a thesis. Requires successful completion of the seminar program. May be repeated without limit.

ENGR 7996. Thesis Continuation. 0 Hours.
Offers continuing master's thesis supervision under individual faculty supervision.

ENGR 8986. Research Fieldwork. 0 Hours.
Offers students an opportunity to conduct research under faculty supervision. May be repeated up to 21 times.

ENGR 9700. Doctoral Fieldwork. 0 Hours.
Offers students an opportunity to pursue experiential research outside the classroom and outside the university. Engineering PhD students only. May be repeated up to two times.

ENGR 9701. Engineering Teaching Practicum. 0 Hours.
Offers continuing master's thesis supervision under individual faculty supervision.

ENGR 9702. Teaching Practicum. 0 Hours.
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

ENGR 9706. Research Fieldwork. 0 Hours.
Offers students an opportunity to conduct research under faculty supervision. May be repeated up to 21 times.

ENGR 9707. Doctoral Fieldwork. 0 Hours.
Offers students an opportunity to pursue experiential research outside the classroom and outside the university. Engineering PhD students only. May be repeated up to two times.

ENGR 9708. Independent Study. 1-4 Hours.
May be repeated without limit.

ENGR 9969. Graduation Technical Paper. 1-8 Hours.
Supervised by a specific faculty member. Requires successful completion of the research project and satisfactory performance to move forward to the final stage of the project. Requires approval of the student’s advisor. May be repeated without limit.

ENGR 9976. Graduate Seminar. 0 Hours.
Seminar program. May be repeated without limit.

ENGR 9978. Independent Study. 1-4 Hours.
May be repeated without limit.

ENGR 9982. Elective. 0 Hours.
Offers intermediate or terminal-level doctoral candidates a teaching assignment under the guidance of a faculty member. Typical activities include preparing and teaching recitations; preparing and teaching laboratory sessions; holding office hours; preparing and grading quizzes, problem sets, and other assignments; and assisting the instructor with other activities associated with teaching a course. All nonnative English speakers should conform to the university language requirements for teaching assistants. May be repeated up to five times.