Engineering Leadership (ENLR)

Courses

ENLR 3121. Engineering Leadership Professional Development. (0 Hours)
Studies what leadership is; why it is so powerful; and how applying leadership knowledge, skills, and abilities increase marketability, job performance, potential, and career advancement. Offers students an opportunity to learn what attributes provide the confidence and ability to influence others in the workplace and beyond to achieve personal goals and desired outcomes. After completing the experiential interaction in a classroom setting, participants work through self-directed modules during co-op to increase responsibility and credibility and enhance the overall co-op experience.Upon completion of modules, participants present to Gordon Institute cadre on their experiences.

ENLR 5121. Engineering Leadership 1. (2 Hours)
Covers elements of engineering practices such as product engineering (system design and engineering, integration, and documentation); engineering leadership (team building, communication, leadership styles, ethical behavior, and conflict resolution); market assessment (engineering economics, business plans, intellectual property, risk assessment, and mitigation); and engineering excellence (quality, reliability, serviceability, manufacturability, procurement, and problem solving). Requires work/training with a sponsoring organization or employer to improve a process or develop a project that is of significant value to the organization and demonstrates a quantifiable market impact while enhancing the student's technological and engineering depth and fostering the student's leadership development.

ENLR 5122. Engineering Leadership 2. (2 Hours)
Continues the examination of engineering practices begun in ENLR 5121. Requires work/training with a sponsoring organization or employer to improve a process or develop a project that is of significant value to the organization and demonstrates a quantifiable market impact while enhancing the student's technological and engineering depth and fostering the student's leadership development.

Prerequisite(s): ENLR 5121 with a minimum grade of C- or ENLR 5121 with a minimum grade of D-

ENLR 5131. Scientific Foundations of Engineering 1. (2 Hours)
Presents the fundamental science underlying engineering disciplines. Develops a conceptual framework to understand interdisciplinary engineering practice and to make informed, back-of-the-envelope, quantitative estimates. Covers topics such as principles of mechanics and mechanics of materials, wave physics, quantum physics, statistical and thermal physics, fluid physics, Maxwell's equations and constitutive relations, and topics in chemistry and biology.

ENLR 5132. Scientific Foundations of Engineering 2. (2 Hours)
Continues the examination of fundamental science begun in ENLR 5131.

Prerequisite(s): ENLR 5131 with a minimum grade of C- or ENLR 5131 with a minimum grade of D-

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

ENLR 7440. Engineering Leadership Challenge Project 1. (4 Hours)
Offers students an opportunity to develop and present a plan for the demonstration of a marketable technology product or prototype. This course is the first half of a thesis-scale project in technology commercialization. Requires work/training with a sponsoring organization or employer to improve a process or develop a project that is of significant value to the organization and demonstrates a quantifiable market impact while enhancing the student's technological and engineering depth and fostering the student's leadership development.

ENLR 7442. Engineering Leadership Challenge Project 2. (4 Hours)
Continues ENLR 7440, a thesis-scale project in technology commercialization. Offers students an opportunity to demonstrate their development of a marketable technology product or prototype and produce a written documentary report on the project to the satisfaction of an advising committee. Requires work/training with a sponsoring organization or employer to improve a process or develop a project that is of significant value to the organization and demonstrates a quantifiable market impact while enhancing the student's technological and engineering depth and fostering the student's leadership development.

Prerequisite(s): ENLR 7440 with a minimum grade of C-

ENLR 7444. Engineering Leadership Challenge Project Continuation. (0 Hours)
Continues ENLR 7442, a thesis-scale project in technology commercialization. Requires work/training with a sponsoring organization or employer to improve a process or develop a project that is of significant value to the organization and demonstrates a quantifiable market impact while enhancing the student's technological and engineering depth and fostering the student's leadership development.