# Engineering Leadership
# Course Summary

**Course Description:**

Engineering Leadership is designed to introduce engineering students to the concepts, theory and practice of engineering leadership; effective written and oral communications and presentations; engineering leadership characteristics, individual differences and self-awareness; developing and building teams; managing change, conflicts, and crises; and understanding real-world ethics and core values.

**Course Overview:**

Our pressing societal problems, global in nature, have increased the need for, and the role of, engineers to help address the complex challenges of the 21st century. There is growing recognition that the engineering curricula at research universities must evolve in order to equip graduates with the appropriate background, multidisciplinary knowledge, and skills as well as successfully leverage growth of overseas engineering talent and the general trend for outsourcing of engineering services. One part of the evolution involves integration of key non-technical skills like leadership, ethics, effective communications, and adaptation to a changing and diverse work environment, into the traditional engineering curriculum to produce "holistic" engineers that can provide higher value and more effective performance to successfully address the critical issues of the 21st century.

Engineering students are typically well-prepared with technical knowledge and skills that are prerequisite to solving problems. However, it is now widely-accepted that student's success and advancement in their professional careers will depend on their proficiency in key non-technical skill sets, to complement their technical prowess. The goal of this course is to provide students with leadership education, experiences, and opportunities in an engineering context.

The course will be taught and facilitated by a person with demonstrated engineering leadership success, supported by industrial, academic and government engineering leaders recruited to conduct individual seminars, lectures and workshop elements of the course.

**Instructor:**

Bill McElroy, P.E., CH2M HILL
Vice-President and Gainesville Area Manager
Email: bill.mcelroy@ch2m.com
Phone: 352-384-7126

**Office Hours:**

By appointment

**Course Delivery Time and Venue:**

The course will typically be delivered weekly through a 1 hour lecture overview by the instructor and a 2hour lecture/seminar/workshop administered by the instructor and supported by guest presenters taken from the leadership ranks of engineering companies, academia, public service, non-profit organizations, and other relevant areas.

**Credit Hours:**

3

**Prerequisites:**

None

**Required Texts:**

The Leadership Challenge, 4th Edition. Kouzes, J.M. and Barry Z. Posner. ISBN: 978-0-7879-8492-2. Jossey-Bass Publishers; August 2008.

Leadership and the One Minute Manager. Blanchard, Kenneth, Zigarmi, Patricia, and Drea Zigarmi. ISBN: 0007103417.

Lincoln on Leadership. Donald T. Phillips. Warner Books, N.Y. ISBN: 0-446-394459-9. 1992.

Students should expect to have additional reading assignments that will be posted in the course schedule.

**Web Site:**

A specific course website will be available to all students through the UF Sakai system. The website will contain the course schedule and assignments, instructor contact information, and lecture/seminar notes and other presentation and reading materials. Students should check this often throughout the course as information may be updated frequently.

**Course Objectives:**

Prepare students to assume leadership roles in their professional careers – whether in the private, academic, public, or non-profit sectors.

Help students understand the foundations of leadership and linkages to vision, high ethical standards and professionalism.

Assist students in improving their effective communications and presentation skills.

Provide students with a background in collaborative team dynamics, driving change, and managing conflicts and crises.

**Course Outline:**

Engineering Leadership is designed to introduce engineering students to the concepts, theory and practice of engineering leadership; effective written and oral communications and presentations; engineering leadership characteristics, individual differences and self-awareness; developing and building teams; managing change, conflicts, and crises; and understanding real-world ethics and core values. Students will obtain a strong individual and team-based, hands-on, learning experience through a course curriculum consisting of lectures; supporting seminars and workshops; case studies; and team-based activities. The course will be delivered along the following outline:

I. Foundations of Engineering Leadership – Leadership defined; characteristics of great engineering leaders; overview of leadership theory; concepts of situational leadership and strategic leadership; leadership vs. management; vision and mission statements; delivering on the vision through effective oral & written communication and presentation skills.

II. Leadership and Organizations – Overview of motivational theory and applications; attitudes, perceptions, judgment; personalities and their effects; individual differences and relationships; self-awareness and developing interpersonal skills; building and leading groups and teams; team behaviors, effectiveness and performance; managing conflicts and managing change

III. Leading in the 21st Century – Real-world engineering ethics; strategic leadership; effects of a global environment; leading change and change management; leadership and crisis management; leadership in retrospective

**Assignments and Grading:**

The base learning framework will be similar for both graduate and undergraduate students in that they will have the same course schedule, receive the same lecture materials, receive some of the same reading assignments, and receive some of the same homework assignments.

Class requirements for graduate students will differ in several ways. They will use a different, more advanced version of the course textbook containing more in-depth treatment of the base subject matter; will receive supplemental, more in-depth reading assignments as well as relevant case-study evaluations; and receive more challenging homework assignments corresponding to the assigned reading and case-study materials.

Testing formats and content will be similar for all students, although the test content may differ for the graduate student group to match higher level course requirements.

Final grades for the course will be determined as follows:

- Course participation - 15%

- Course assignments - 20%
- Quizzes - 25%
- Group presentation - 15%
- Final Exam - 25%

Additionally, the course is offered through distance education (UF EDGE). EDGE students will not be graded on class participation and the weighting of grades for other assignments will be increased accordingly.

The Grade Scale for the course is:

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| A = 90 or above | C = 70 - 73 |
| A- = 87 – 89 | C- = 67 - 69 |
| B+ = 84 – 86 | D+ = 64 - 66 |
| B = 80 – 83 | D = 60 - 63 |
| B- = 77 – 79 | D- = 57 - 59 |
| C+ = 74 – 76 | E = 56 or below |

It is expected that the quizzes and final exam will be administered electronically through the Sakai course website. The quiz and final exam dates will be contained in the course schedule and announced well in advance of the test date, with clarification on materials to be covered.

**Attendance and Expectations:**

Attendance is mandatory at all sessions, and more than one unexcused absence may adversely affect the student's grade, subject to the UF attendance policies (http://www.registrar.ufl.edu/catalogarchive/03-04-catalog/student-information/academic-regulations/attendance-policies.html).

Students may be evaluated on their participation in classroom discussions, whether about the case under consideration or about the topic of the lecture.

All assigned readings are to be completed before the session - see the Course Outline for a complete list. Each required reading will be specifically chosen to provide a certain insight or skill; thus, every assignment is mandatory.

Unless stated otherwise, assignments are to be submitted to the instructor by hardcopy at the beginning of the session when the assignment is due or by E-mail beforehand. Late submissions will typically not be accepted.

**Honesty Policy:**

All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and

understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligations as a UF student and to be honest in all work submitted and exams taken in this course and all others.

**Accommodation for students with disabilities:**

Students requesting classroom accommodations must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting the accommodation.

**UF Counseling Services:**

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. These resources include:

- University Counseling Center, 301 Peabody Hall, 391-1575, personal and career counseling

- SHCC Mental Health, Student Health Care Center, 392-1171, personal counseling

- Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling

- Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling

**Software Use:**

All faculty, staff and students of the University are required and expected to obey the laws and legal agreements regarding software use. Failure to do so can lead to monetary damages and/ore criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

**IMPORTANT NOTE TO STUDENTS ON THIS COURSE SUMMARY:**

This document is provided as a general summary of the course and is not meant to be substituted for the course syllabus in any way. The course structure, grading, outline, etc. may be modified from time to time and this document may or may not reflect the latest course information. In case of any conflict between this document and the course syllabus, students should rely on the course syllabus.