ENGINEERING LEadership AND INNOVATION PROGRAM
GUIDE for MENTORS

KANSAS STATE UNIVERSITY
Carl R. Ice
College of Engineering
Program description

The Kansas State University Carl R. Ice College of Engineering program, Engineering Leadership and Innovation, or ELI, was developed in response to alumni feedback, corporate discussions, government initiatives and opinions of professional societies that a need exists for technical leaders with a broad understanding of how engineering is practiced in a rapidly changing business environment. The complexity of problems facing today's industries requires leaders with both technical and team management skills to solve complex problems that require careful assembly of the social, ethical, political, economic, business and engineering pieces.

The ELI program will prepare engineering students for potential leadership roles in these types of dynamic environments. Participants enter the four-semester program in their junior year, and will receive a scholarship to take leadership and business courses, learn from an industry mentor, meet with industry leaders and practice hands-on leadership within a creative inquiry team.
Vision
The Engineering Leadership and Innovation, or ELI, program will prepare exceptional engineering students for potential leadership roles in organizations that will flourish in a dynamic business environment operating under complex social, ethical, political, economic, business and engineering factors.

Mission
The ELI program will —

- equip students with the skills and confidence needed to lead real-world engineering projects;
- strengthen students’ classroom learning through a leadership practicum on a creative inquiry team;
- help students build a realistic career plan directed toward engineering management; and
- build students’ appreciation of nontechnical factors that affect technical decisions.

Approach
Participants learn business and leadership theory through coursework, and define a personal leadership development path through engagement with mentors. Participants will then create and implement innovative solutions on creative inquiry teams. They will document their leadership journey using standard measurement tools interpreted in collaboration with the mentors.
Primary program elements are as follows:

- Coursework in leadership and business
- Leadership practice
- Engagement with industry mentor
- Corporate partner interactions
  - On-site facility tours
  - On-campus corporate events
- Leadership portfolio
  - Leadership development plan
  - Leadership essay (senior year)
  - Reflections, photos and plans
- Evaluation of skills development
- Scholarship of $3,000 per year
Role of a mentor

Scholars will be assigned to a mentor group comprised of an industry mentor from one of the K-State Carl R. Ice College of Engineering’s corporate partners and ELI scholars. The group will serve as the connection point of mentors and mentees. The goal of this component of the program is to help ELI scholars learn the tacit aspects of engineering practice. Mentors will devote six hours per semester (two hours per month) to interacting with the mentees in their mentor group via email, phone, video chat or face-to-face meetings.

Each mentor will guide and organize her or his mentor group (mentor + ELI scholars). Primary responsibilities are as follows:

- Organize regular contact with the group, at least monthly.
- Guide leadership exploration exercises.
- Coach mentees as they respond to the leadership assessment reports. The role of the mentor is to help mentees face candid evaluation while challenging them to undertake constructive personal reflection.

Leadership development plan

Scholars will document their career goals and plan leadership activities throughout the program. During the first semester, scholars prepare a set of goals and planned activities such as running for office on a creative inquiry team or student organization. At the start of each subsequent semester, scholars will highlight successes and respond to challenges during the previous semester. Scholars’ leadership development plans will then be updated for the coming semester. This activity affords the opportunity for the mentor to actively help the mentee set realistic goals and evaluate progress towards these goals. Feedback from the mentor will be especially helpful in setting realistic career goals.

Action Items

- Provide direction and feedback on the creation of the leadership development plans – (fall semester, junior year).
- Provide direction and feedback on revised leadership development plans (spring semester junior year, fall and spring semester senior year).
The Student Leadership Practices Inventory, or Student LPI, is a commercial tool sold by Wiley under the Leadership Challenge brand. “Applying the proven principles of Kouzes and Posner’s acclaimed Practices of Exemplary Leadership® model, the Student LPI enables individuals and organizations to measure their leadership competencies and act on their discoveries. Leaders will gain deep insight into how they see themselves as leaders, how others view them, and what actions they can take to improve their effectiveness” [LPI Overview]. This helps students determine actions that will improve their leadership skills. Measurement is made against the Five Practices leadership model, which says leaders will —

- Model the Way
- Inspire a Shared Vision
- Challenge the Process
- Enable Others to Act
- Encourage the Heart

Students will use the Student LPI in two ways —

- Self-assessment in which the ELI scholar answers a set of questions about her or his own interests and attitudes.
- 360° assessment in which the ELI scholar answers a set of questions about his or her own interests and attitudes, and can select team members, mentors, instructors, etc. to answer the same questions. The survey consists of self and observer questionnaires and can be used by unlimited observers, in order to get rich and useful feedback on the frequency of one’s leadership behaviors.

Each ELI scholar will take the self-assessment at the start of the program and at the start of the second year. After taking each self-assessment, the scholar will write a response to the assessment and share both the report and response with their mentor. Mentors will provide feedback and coach the scholars as they respond to the leadership assessment reports. The role of the mentor will be to help mentees face candid evaluation while challenging them to undertake constructive personal reflection.

Scholars will take the full 360° assessment in the last semester of the program. Mentors (and mentor group members) will receive an email with a link to each scholar’s 360° assessment. Mentors will then answer the 30 question assessment for each scholar in their mentor group. Once all of the assessments have been submitted, the Program Administrator will provide a copy of the 360° individual feedback report and a reassessment report that compares the scholar’s most recent 360° scores with the scores from their previous self-assessments.

**Action Items**

- Provide feedback on mentee’s response to the self-assessment report (fall semester, junior and senior year).
- Submit observer assessment of mentee (spring semester, senior year).
- Provide feedback on 360° individual feedback report and reassessment report.
Leadership essay
The culmination of the program is the leadership essay. Scholars will work with their mentor groups to summarize and interpret their leadership activities throughout the ELI program to develop a five-page leadership essay. As one component, scholars will respond to leadership evaluations performed within their creative inquiry teams or student organizations.

Action Item
☐ Provide direction and feedback on the leadership essay (spring semester, senior year).

ePortfolio
Students will use the ePortfolio module in K-State Canvas to document their leadership journey. Students will post their leadership development plan, leadership essay, Student LPI reports, reflections, photos and plans throughout the ELI program into their ePortfolio. Mentors will have access to each scholar's ePortfolio and will be able to provide comments directly onto the ePortfolio website.

eID
All ELI program mentors are required to have an eID. The eID serves as the K-State user name, becomes part of the user's K-State email and is used to access K-State Canvas. Mentors will receive an email with instructions on how to register for an eID at the start of the program.

Action Item
☐ Register for eID (start of program).

Fall
- Register for an eID.
- Provide direction and feedback on Student LPI self-assessments (juniors and seniors).
- Provide direction and feedback on leadership development plan (juniors and seniors).

Spring
- Provide direction and feedback on leadership development plan (juniors and seniors).
- Submit observer assessment for the 360° assessment (seniors).
- Provide feedback on 360° feedback report and reassessment report (seniors).
- Provide direction and feedback on leadership essay (seniors).

Questions or comments
If you have questions or comments concerning the Engineering Leadership and Innovation program, please contact Lane Swanson at 785-532-5472 or eliprogram@k-state.edu.
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Revised Aug. 29, 2017.