The Strategic Plan: 5-Yr Priorities (2017-2022)

Committee Members:

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Preface:

In Fall 2008 the department developed "Vision 2025: A Strategic Plan" to guide the department activities towards a set of agreed upon goals to fulfill the department's mission. Since the release of Vision 2025 the department has experienced unprecedented growth in students, faculty, and staff. While this successful and exuberant growth is a point of pride for the department, it has also created significant challenges. In parallel, significant changes have taken place outside the university; world socio-economic conditions have changed, and new and qualitatively different scientific and technological challenges and approaches have emerged. To better meet our long-term strategic goals given the new economic climate and conditions, we have created a medium-range 5-year strategic plan which augments and refines the objectives of Vision 2025 to keep the department moving toward our long-term vision.

Process:

The committee adopted the following process:
Step 1: Develop a process roadmap with tasks and deadlines.
Step 2: **Collect data**: The most important step in the process was to solicit and collect input from a wide range of constituents. In addition to existing information, the committee solicited additional input through various channels. The existing information that the committee had access to was synopsis of past three industry advisory board reports, feedback from last faculty retreat breakout session discussions, input from department chair, and President Leath's vision statement. In addition, the committee conducted student surveys, one-on-one meetings with faculty, and meetings with college administrators. A list of all sources used includes: surveys from undergraduate and graduate students, synopses of the prior three Mechanical Engineering Industrial Advisory Board reports, faculty responses gathered at the Mechanical Engineering retreat, staff responses gathered at a staff meeting, input from the Director of Graduate Education and the Undergraduate Associate Chair, input from the college Associate Deans, President Leath's vision (annual report speech), and meetings with the Mechanical Engineering Chair.
Step 3: Analyze data to identify important observations and needs relevant to the department's 5-year priorities.
Step 4: Develop key priorities, and specific objectives under each of those priorities.

Priorities: Our overarching priority is excellence.

1. **Research excellence:**

   While we take pride in the growth of our program, it is critical that we maintain the quality of our research program second to none. Towards that goal, we embrace the following objectives to continue to promote excellence in our research:
   - Advance research programs in departments' renewed focus areas: **Health**: Bioengineering and Translational Health); **Energy**: Energy Sciences and Sustainability; **Fluids**: Multiphase Flow and Complex Fluids; **Multi-Scale Engineering**: Design, Manufacturing, Nanoscale Sciences; **Systems**: Dynamic Systems, Sensors, and Controls; **Computational Sciences**: Big data, and Visualization.
   - Encourage and lead interdisciplinary research across the university community.
   - Enhance the visibility of our research.
   - Assure that our faculty have the staff support to manage their research projects.
   - Enhance our high-quality research and scholarship.

2. **Graduate Student Experience:**

   A thriving and successful graduate program is the cornerstone of our department. The success and visibility of the department's research enterprise is largely dependent on a graduate program that emphasizes rigor, innovation, diversity, and scholarship. Towards these efforts our focus will be to:

   - Provide personalized experiences and promote creativity and innovation.
   - Maintain and increase quality of graduate education.
   - Improve the climate for women and URMs in our graduate program.
   - Prepare our graduate students to excel in meeting expectations of prospective employers and to take on challenges at workplace in a global economy.

3. Undergraduate Student Experience:

We are committed to educating mechanical engineers for professional careers in Iowa, the nation, and the world by offering a quality well-rounded education that will prepare them for 21st century. We will encourage students to be life-long learners and creative thinkers who can adapt and advance rapidly. Our key objectives are to:

- Provide personalized experiences within the large university environment.
- Promote creativity and innovation in the design, laboratory, and hands-on experiences.
- Maintain and increase educational quality through scalable approaches.
- Foster a sense of pride in our students.
- Improve the climate for women and URMs in the undergraduate program.
- Prepare graduate students for industry, government and academic jobs in a global economy.

4. Build a diverse and vibrant community

Continuing professional development is key to our future. We will continue to promote professional growth of our faculty and staff to achieve excellence by creating a supportive and collaborative environment within the department. We commit to:

- Provide a supportive and welcoming environment for a diverse community.
- Encourage collaboration between junior and senior faculty.
- Support the continued development of professional and leadership skills in our students, faculty and staff.
- Promote a culture that is dynamic, respectful, collegial, collaborative, and supportive of work-life circumstances.

5. Economic Development and Industry engagement

Collaboration between universities and industry has existed for over a century but the rise of a global knowledge economy has intensified the need for strategic partnerships between industry and academia. The discovery-driven culture of the university needs to merge with the innovation-driven environment of the industry. We will foster industry engagement and entrepreneurship culture within our student and faculty communities through concerted efforts in collaboration with college and university. Our efforts will be to:

- Enhance industry engagement and entrepreneurship in undergraduate and graduate programs.
- Develop a culture and reward structure that encourages interdisciplinary work, innovation, entrepreneurship, and industry engagement.
- Work with organizations across campus to develop culture and required infrastructure to promote industry engagement and economic development of the region.

6. Infrastructure Enablers

We will continue to foster a sense of pride and a collegial environment in which faculty, staff, and students can thrive. We will strive to:

- Support networking and collaboration between all members of our community.
- Utilize and manage our physical space and assets effectively.
- Seek resources to grow support infrastructure for students and faculty to maintain a healthy and growing quality education and research programs.