MSU College of Engineering Strategic Plan
2009-2014

Introduction

The following represents an updated version of a plan initially developed and adopted by faculty, students and external constituents in 2002. Originally conceived to be a 5 year plan, the previous version certainly reflected elements which could be considered core values to all those associated with our College. As we reflected upon the many accomplishments resulting from the previous plan, we were particularly challenged by loyal industry leaders to reinvigorate our strategic planning for the next 5 year period with a focus on fewer goals, while simultaneously enhancing our recognized strengths (reflected in the previous plan).

Thus, a key group of faculty came together and crafted the proposed strategic plan contained herein. It also reflects restatements of our mission, vision, and core values. This newly revised plan will serve as a guidepost as faculty and administration consider the strategic use of our valuable resources as well as the direction of new initiatives. It will also serve as the focal point for all those associated with the College in understanding our mission, vision and core values.

MSU COE Mission

The College of Engineering at Montana State University will serve the state of Montana and the nation by

- Fostering lifelong learning
- Integrating learning and discovery
- Developing and sharing technical expertise
- Empowering students to be tomorrow's leaders

MSU COE Vision

The College of Engineering at Montana State University will be an outstanding collaborative community that achieves excellence in learning, innovation, discovery, and knowledge transfer. To realize this vision, the college will

- Leverage shared interests and talents among faculty and students in order to create knowledge across disciplinary lines.
- Effectively and efficiently balance breadth with depth in undergraduate education in order to prepare students for the global workforce.
- Be a leader in innovation and discovery in our identified focus areas.
- Successfully integrate research and innovation into the learning experience of both undergraduate and graduate students.
- Be recognized for the level of knowledge transfer to industry, governments, and citizens in the state of Montana.

MSU COE Core Values

Members of the MSU College of Engineering community approach all of their work with the following deeply held core values**:**

- *Life-long learning.* The college is a community that believes in and fosters life-long learning in all of its members—undergraduate students, graduate students, faculty, and staff. Life-long learning also extends beyond the college community to state and national constituencies.
- *Knowledge Discovery.* At the heart of the college community's activities are knowledge discovery and dissemination and the creativity that accompanies these activities. We believe that knowledge discovery informs and enriches the life-long learning of the entire college community.
- *Collaboration.* We believe that collaboration and collegiality both inside and outside of our college community enrich all college activities.
- *Inclusiveness.* The college is a community that welcomes and encourages diverse points of view and backgrounds, believing that this inclusiveness enriches our creative learning environment.
- *Professionalism.* The College of Engineering community approaches all activities with a high degree of professionalism, working with integrity, honesty, and commitment to excellence.

COE Strategic Goals, Objectives, and Proposed Strategies for 2009-2014

By achieving these goals, we will be moving forward in educating the "engineer of 2020."

We define "goal" as a broad description of a state the college hopes to attain. "Objectives" are defined as the way we will operationalize these goals. "Objectives" are measurable ways to assess our progress toward goals. "Strategies" are specific courses of action that we plan to take to meet objectives and, ultimately, our goals.

Goal 1: *Prepare the MSU COE community to engage effectively with the global community.*

Objectives:
1. Increase the number of courses that include discussion/lectures/activities from a global context.
2. Increase support for members of the COE community to engage in global activities. Examples of support: funds for travel, funds for international speakers, a college-level short-term professional leave grant directed toward global collaborations/conferences.
3. Increase the opportunities for faculty and students to interact with the global community. Examples of opportunities: International seminar speakers, faculty and student exchanges, study abroad, international internships/co-ops.
4. Increase faculty hires related to global engineering issues.

5. Increase graduate student support related to global engineering issues.

Strategies
- Create a "Global Engineering" Advisory Board of engineering faculty (and others—for example, someone from International Programs) with significant international expertise. This Advisory Board could serve as a resource for students; they could also interact with faculty from other colleges interested in global issues. (Objectives 1, 2, 3, 4, 5)
- Invite an NSF Program Manager to come to MSU to talk about international opportunities for students and faculty (suggested as a fall kickoff activity). (Objectives 2, 3, 5)
- Research and develop a study abroad program for undergraduate engineering students. Initially, this would involve strengthening existing and developing new ties with International Programs, possibly creating a brochure to hand out to interested students via advisors, and taking advantage of EWB activities. (Objectives 1, 2, 3)
- Encourage COE PIs to apply for supplements to existing grants—for example the IREE. Work with OSP to identify these opportunities and to communicate them to PIs. (Objective 5)
- Recruit more international students, particularly through dual degree programs. (Objective 3)

Goal 2:   *Build on growing college synergy and increase cross-disciplinary activities at every level of the COE community, including not only faculty research and creative activity but also the student experience.*

Objectives:

1. Increase faculty cross-disciplinary activities. Examples of strategies include: facilitating seminars, increasing attendance at seminars; providing seed money for big proposals; sharing undergraduate researchers; facilitating visiting scholars; increase support for faculty exchanges.
2. Increase undergraduate student cross-disciplinary activities, *e.g.*, the new multi-d course.
3. Increase graduate student cross-disciplinary activities. Examples: Working on cross-disciplinary research with faculty, cross disciplinary graduate courses.
4. Increase faculty hires in cross-disciplinary areas.
5. Increase graduate student support in cross-disciplinary areas.

Strategies
- Increase team taught courses, both undergraduate and graduate, by providing some funds for course development. (Objectives 1, 2, 3)
- Provide a college-level match (in funding) for undergraduate research in cross-disciplinary activities in the CBE, WTI, MMEC, and others. (Objective 2)

02-09-2010

- Develop an effective way to communicate with graduate students regarding opportunities in cross-disciplinary research, both locally and nationally. (Objectives 3 and 5)

Goal 3: *Establish the college as a leader in the state and national technological community.*

Objectives:
1. Improve/increase external partnerships with industry, national labs, other universities.   Examples of strategies: seminars, industry speakers in classes, social activities.
2. Increase entrepreneurial experiences within the COE community. Possible measures and strategies: number of patents, number of SBIR/STTR grants, collaborations with business school community (*e.g.*, entrepreneurship program and center).
3. Increase the college's role in setting state policies related to technology. Possible strategy: a MT State Academy of Technology Leadership.
4. Increase faculty hires related to leadership in the state and national technological community.
5. Increase graduate student support related to leadership in the state and national technological community.

Strategies
- Hold an "Engineering and Technology Summit," which would include state policy makers (legislators, governor or governor's Chief of Staff), Cathy Conover, people involved in MUSSTAC (Montana University System Science and Technology Advisory Council). Summit would possibly precede MAST. (Objectives 1, 2, 3)
- Create the Montana Academy of Science and Technology (MAST) to serve as a consulting body for Montana state policy makers. Include a graduate student on MAST. (Objectives 3 and 5)
- Encourage graduate students to apply to the NSF Fellows program through newly created communication system (see Goal 2) (Objective 5)
- Increase the number of nationally recognized industry leaders in the college seminar series. (Objective 1)

Appendix 1.

The Strategic Planning Process for 2009-2014 College of Engineering Strategic Plan

- Fall 2005: Strategic Planning Committee (SPC) was reactivated and began review of COE Mission and Vision statements, as well as those from other universities and industries.

- Spring 2006: SPC drafted revised Mission and Vision statements and carried out a "department characteristics" survey that included "values."

- Spring 2007: SPC performed review of the current 5 year SP, assessing whether each objective in the plan had been met or not.

- Fall 2007: SPC began development of a new SP

    o Based on lessons learned from the last SP, feedback from Engineering Advisory Council

    o Limit new SP to 2 – 3 goals

    o Need complete plan

    o SPC converged on 3 goals that map to revised COE Mission and Vision, MSU SP

    o Draft goals vetted at department faculty level

- Spring 2008: SPC continued SP development

    o Draft goals/objectives vetted to COE Engineering Advisory Council, Academic Council

    o SPC reviewed feedback on draft goals/objectives

    o SPC prepared draft core values statement

    o SPC prepared draft SP, vetted to COE Academic Council

    o SPC began work on implementation strategies

- Fall 2008: SPC continues SP development

    o Complete implementation strategies and metrics

    o Submit complete SP, with mission, vision, values, goals, objectives, and draft strategies to faculty and COE for review

    o Assess feedback and make final revisions

- Spring 2009: COE 2009-2014 Strategic Plan rollout

Appendix 2.

COE Focus Areas

- **Communications and Networks**

- **Complex Information Management**

- **Energy**

- **Environmental**

- **Human Health**

- **Imaging and Sensing Systems**

- **Materials and Structures**

- **System Design and Modeling**

- **Transportation**