



COLLEGE OF ENGINEERING

THE UNIVERSITY OF TOLEDO

The University of Toledo
College of Engineering

Strategic Directions

2005-2015

November 9, 2005

**The University of Toledo
College of Engineering**

Strategic Directions

2005-2015

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2005-2015 -- STRATEGIC DIRECTIONS

EXECUTIVE SUMMARY

We are heading into a new era with a vision of becoming a nationally prominent College of Engineering. Over the past decade, we have developed Nitschke Hall and the new engineering complex, created a semester-based curriculum, started a mandatory undergraduate co-op program, emphasized outcome-based assessments, focused research efforts, tripled sponsored research, and engaged in significant outreach efforts in support of our mission. These changes have had a significant positive impact on our college, our university, and our community and support future growth.

Mission

In our unique role as the comprehensive engineering school in Northwest Ohio, the University of Toledo College of Engineering provides outstanding undergraduate and graduate programs to educate the leaders of tomorrow. We are committed to leadership in the creation and transfer of new knowledge and technologies through the efforts of a diverse faculty, staff and student body.



Ohio's Engineering Colleges

Vision

Our vision is to achieve national prominence by providing a diverse, student-centered, stimulating learning environment that actively engages undergraduate and graduate students in engineering education and research while benefiting society through the creation of new knowledge and technologies. We are committed to being a source of outstanding engineering graduates, knowledge and expertise as we strive to serve our region, the State of Ohio, and beyond.

Desired Outcomes

Over the next decade, the College of Engineering will:

- become a top choice for increasing numbers of outstanding students; thus, attracting and retaining a critical mass of highly qualified and talented students in all programs;
- have an expanded employer base for our students and graduates with recognition as a key school by leading employers;
- seek to create at least two named doctoral programs;
- enhance our advanced materials research focus with a goal of national recognition during the next five years, well poised for international reputation;
- establish a School of Engineering Technology;
- ensure an educational experience for our students which goes beyond technical competency and prepares them for leadership roles in society;
- be valued for our civic engagement and known as a strong and willing contributor to the development of the region; and
- share an environment where quality, commitment to diversity, and collegiality are clearly visible core values.

Focus Areas and Strategic Objectives

	<p>Focus on Being Student Centered</p> <ol style="list-style-type: none"> 1. Deliver high-quality, state-of-the-art, accredited undergraduate and graduate programs that incorporate cooperative education or other experiential learning. 2. Actively engage students in the educational process by providing high quality instruction, the latest in technology, hands-on experience, and a rich student life. 3. Ensure faculty, staff, and administration are responsive to students' needs and concerns.
	<p>Focus on Innovation</p> <ol style="list-style-type: none"> 1. Capitalize on the latest educational technology innovations and research to enhance student learning and career growth. 2. Maintain and enhance leading-edge research efforts of benefit to society and the economy. 3. Improve practices to encourage collaboration and contribute to the economic development of the region.
	<p>Focus on Building Connections</p> <ol style="list-style-type: none"> 1. Increase and improve partnerships with a diverse group of alumni, donors, businesses, and government contacts. 2. Improve supportive and collaborative relationships with students, faculty, staff, and administration. 3. Enhance engagement with diverse groups of students and teachers at all levels.



**Strategic Directions
The University of Toledo
College of Engineering
2005-2015**

COLLEGE MISSION STATEMENT

In our unique role as the comprehensive engineering school in Northwest Ohio, the University of Toledo College of Engineering provides outstanding undergraduate and graduate programs to educate the leaders of tomorrow. We are committed to leadership in the creation and transfer of new knowledge and technologies through the efforts of a diverse faculty, staff and student body.

COLLEGE VISION STATEMENT

Our vision is to achieve national prominence by providing a diverse, student-centered, stimulating learning environment that actively engages undergraduate and graduate students in engineering education and research while benefiting society through the creation of new knowledge and technologies. We are committed to being a source of outstanding engineering graduates, knowledge and expertise as we strive to serve our region, the State of Ohio, and beyond.

COLLEGE CORE VALUES

The Strategic Plan for the College of Engineering is guided by a number of core values that govern the College's daily activities. Specifically, the College faculty, staff and students

- actively pursue and value academic excellence,
- show courtesy and respect for all individuals,
- exhibit honesty and integrity in all interactions,
- promote diversity in faculty, staff and student body,
- exercise open communications at all levels,
- provide a quality learning environment incorporating the latest technology,
- perform cutting-edge research that benefits society,
- value a spirit of entrepreneurship,
- engage in collaborative and interdisciplinary research,
- foster close ties with alumni, industry and government agencies,
- strive for excellence in serving all constituencies, and
- embrace change as an opportunity for advancement.

INTRODUCTION

The College of Engineering began work on the creation of a new Strategic Plan in spring 2004 with a number of preparatory meetings, presentations and a two-day retreat. During the retreat an outline of the plan was developed, and over the past academic year faculty, staff and student input was gathered and incorporated.

CONTEXT FOR THE PLAN

We are heading into a new era with a vision of becoming a nationally prominent College of Engineering. Over the past decade, we have developed Nitschke Hall and the new engineering complex, created a semester-based curriculum, started a mandatory undergraduate co-op program, emphasized outcome-based assessments, focused research efforts, tripled sponsored research, and engaged in significant outreach efforts in support of our mission. These changes have had a significant positive impact on the college and support future growth.

DESIRED OUTCOMES

The overarching goal of the new strategic plan is to move the College from regional excellence to national prominence. The Strategic Plan defines three focus areas. Taken together they will accomplish our goal through several specific outcomes. Over the next decade, the College of Engineering will:

- become a top choice for increasing numbers of outstanding students; thus, attracting and retaining a critical mass of highly qualified and talented students in all programs;
- have an expanded employer base for our students and graduates with recognition as a key school by leading employers;
- seek to create at least two named doctoral programs;
- enhance our advanced materials research focus with a goal of national recognition during the next five years and be well-poised for international reputation;
- establish a School of Engineering Technology;
- ensure an educational experience for our students which goes beyond technical competency and prepares them for leadership roles in society;
- be valued for our civic engagement and known as a strong and willing contributor to the development of the region; and
- share an environment where quality, commitment to diversity, and collegiality are clearly visible core values.

STRUCTURE OF THE PLAN

The plan is comprised of three major *Focus Areas* to guide the college's efforts. The three major focus areas are:

- Focus on Being Student Centered
- Focus on Innovation
- Focus on Building Connections.

Progress in each focus area will be accomplished through a series of *Strategic Objectives* and *Action Items*.

FOCUS AREAS AND STRATEGIC OBJECTIVES

The following is a listing of the Strategic Plan's Focus Areas and suggested Strategic Objectives. On subsequent pages, potential action items to accomplish the objectives are presented. It is anticipated that these action items will evolve as the implementation committee begins its work.

Focus Area: Being Student Centered

Strategic Objectives

1. Deliver high-quality, state-of-the-art, accredited undergraduate and graduate programs that incorporate cooperative education or other experiential learning.
2. Actively engage students in the educational process by providing high quality instruction, the latest in technology, hands-on experience, and a rich student life.
3. Ensure faculty, staff, and administration are responsive to students' needs and concerns.

Focus Area: Innovation

Strategic Objectives

1. Capitalize on the latest educational technology innovations and research to enhance student learning and career growth.
2. Maintain and enhance leading-edge research efforts of benefit to society and the economy.
3. Improve practices to encourage collaboration and contribute to the economic development of the region.

Focus Area: Building Connections

Strategic Objectives

1. Increase and improve partnerships with a diverse group of alumni, donors, businesses, and government contacts.
2. Improve supportive and collaborative relationships with students, faculty, staff, and administration.
3. Enhance engagement with diverse groups of students and teachers at all levels.

Focus Area: Being Student Centered**Strategic Objective 1**

Deliver state-of-the-art accredited, high-quality undergraduate and graduate programs that incorporate cooperative education or other experiential learning.

Potential Action Items for Implementation Strategy**1. Improve and enhance the co-op experience for students**

- Institute an improved assessment process for the cooperative experience program to guarantee that the co-op experience is a valuable educational avenue for our students.
- Achieve “key-school” status with 10 leading engineering employers

2. Institute new and/or improved programs

- Create two named doctoral programs.
- Develop graduate programs in Computer Science and Engineering.
- Create a Bachelor of Science in Information Technology degree program.
- Form the School of Engineering Technology
- Create a Master of Engineering program for our Engineering Technology graduates.
- Create avenues to promote a culture of entrepreneurship among our students and develop them to be future leaders in society.
- Promote interdisciplinary areas such as environmental sustainability, bioinformatics, and nanotechnology.

Strategic Objective 2

Actively engage students in the educational process by providing high quality instruction, the latest in technology, hands-on experience, and a rich student life.

Potential Action Items for Implementation Strategy

- 1. Provide continuing faculty development opportunities to enhance the quality of instruction in the college**
 - Promote faculty participation in teaching improvement activities by hosting teaching improvement seminars each year.
 - Institute a Master Teacher program in the College
- 2. Enhance the Honors Program in the college**
 - Encourage and facilitate more student involvement in the Honors Program through effective recruiting of incoming students and information programs at the freshman level.
 - Provide more standalone Honor sections of classes
 - Develop broader participation by faculty as Honors thesis advisors
- 3. Increase efforts in the college to increase student diversity**
 - Focus on recruiting a more diverse population of students
 - Institute program to enhance retention and minimize attrition of under-represented groups.
- 4. Provide state of the art facilities in computer laboratories and departmental instructional laboratories.**
 - Broaden the use of technology fee in conjunction with external funds to develop and maintain high quality laboratory facilities.
- 5. Create and develop Engineering Library**
 - Enhance the impact of the new engineering library through coordinated activities in the freshmen orientation and professional development classes.
 - Incorporate the utilization of the engineering library in upper division and graduate courses.
 - Seek development funds to enhance library resources.

Strategic Objective 3

Ensure faculty, staff, and administration are responsive to students' needs and concerns.

Potential Action Items for Implementation Strategy

- 1. Gather student feedback and act on it expeditiously for program improvement.**
 - Review and assess EBI surveys, exit interviews, and perhaps a junior year customized survey to gather student feedback and concerns
 - Make effective use of student organizations (such as UTEC, EGSA, and FYRE) as vehicles for gathering feedback
 - Make Student Advisory Committees (college and department) an integral part of the assessment process.
 - Make prompt response time to student related matters a top priority.
- 2. Enhance college's recruitment and retention activities.**
 - Institute summer camps and design contests for targeted groups of future college students.
 - Enhance the effectiveness of the college recruitment team through active linkages with high school math and science teachers and counselors in Ohio and neighboring states.
 - Integrate college recruitment strategies with university enrollment management plans to enhance recruiting effectiveness.
- 3. Support staff development through training**
 - Encourage and support staff in attending at least one on-site or external development seminar/course annually.

Focus Area: Innovation**Strategic Objective 1**

Capitalize on the latest educational technology innovation and research to enhance student learning and career growth.

Potential Action Items for Implementation Strategy**1. Encourage educational research activities in the college**

- Support faculty sponsored project initiatives in improving student learning through cost sharing and other incentives.
- Organize seminars related to educational innovations.

2. Maintain and use the latest technology for instruction and communication

- Provide technology, such as messaging, web, and soon interactive video services, to facilitate communication among all college members for instructional and administrative support.
- Develop coordinated strategies to enhance involvement of faculty in e-learning and web-assisted courses

3. Promote student involvement in undergraduate research

- Provide faculty incentives for undergraduate research, such as a competitive small grant program for undergraduate research supplies, etc.
- Make undergraduate student research more visible in our recruiting efforts.
- Promote undergraduate research in the departments through graduate funding incentives.
- Develop instructional materials through Engineering Library to provide students with necessary tools to accomplish effective library research.

Strategic Objective 2

Maintain and enhance leading-edge research efforts of benefit to society and the economy.

Potential Action Items for Implementation Strategy

- 1. Facilitate research collaborations and technology transfer among faculty, students, and industry leading to innovation and technology cluster development**
 - Develop an internal organizational culture that promotes outreach and engagement to help form partnerships with industry and to incubate new enterprises.
 - Develop ongoing interactions with companies to establish and maintain active research ties.
- 2. Provide support and incentives for departments to enhance research activity**
 - Develop an incentive system to promote external funding and peer reviewed publications (TA support, travel funds, etc).
 - Insure the effectiveness of the research space utilization in the College and develop laboratory space plans consistent with long range research goals.
- 3. Identify and develop research focus areas**
 - Enhance the profile of the Advanced Materials Research in the college through targeted hiring of outstanding faculty and recruitment of bright graduate students.
 - Establish a Center for Excellence in Advanced Engineering Materials
 - Take a lead role in defining and developing several interdisciplinary research focus areas that will be recognized as strategic areas by the university.

Strategic Objective 3

Improve practices to encourage collaboration and contribute to the economic development of the region.

Potential Action Items for Implementation Strategy**1. Establish an atmosphere of strong intra-collegiate, inter-collegiate and external collaboration**

- Nurture interdisciplinary culture through regular, college-wide graduate seminars with speakers from other departments and neighboring institutions, industry practitioners and national research laboratories.
- Become more actively involved in local professional societies
- Strengthen Engineering and Engineering Technology research collaborations.
- Strengthen our linkages with MCO, BGSU and community colleges.
- Develop coordinated service projects for our students that provide a service learning component to their engineering education.

2. Increase the transfer of technology from the college to the marketplace

- Encourage faculty and students to apply for patents on the products of their scholarly research and other innovation activities.
- Actively seek technology licensing opportunities for the college
- Promote the incubation of new engineering business ventures resulting from research innovations in the college.

Focus Area: Building Connections**Strategic Objective 1**

Increase and improve partnerships with a diverse group of alumni, donors, businesses, and government contacts.

Potential Action Items for Implementation Strategy

- 1. Enhance communications with our alumni and friends**
 - Improve departmental and area web pages
 - Increase the effectiveness of our newsletters, emails, and events working in cooperation with the University Office of Marketing and Communications.
- 2. Strengthen Advisory Board Interactions**
 - Establish a national visiting board at the college level in support of college vision of national prominence.
 - Enhance the effectiveness of departmental advisory boards by holding at least one annual meeting and by being responsive to their input.
- 3. Build on the current success of the Senior Design Clinic and Exposition to attract broader industry and business participation.**
- 4. Organize short courses for alumni and industries at the college.**

Strategic Objective 2

Improve supportive and collaborative relationships with students, faculty, staff, and administration.

Potential Action Items for Implementation Strategy

- 1. Establish mechanisms to enhance intercollegiate interactions for our faculty and staff.**
- 2. Organize interdisciplinary and college-wide graduate seminars.**
- 3. Establish faculty and staff mentoring programs.**
- 4. Promote student travel to conferences with small grants.**

Strategic Objective 3

Maintain and increase engagement with diverse groups of students and teachers at all levels.

Potential Action Items for Implementation Strategy

- 1. Maintain and enhance K-12 school outreach with an emphasis on under-represented groups in engineering.**
 - Increase college's participation in such events as Technorama, JETS, MathCounts, and Destination Imagination.
 - Increase college's participation in local science and engineering days and local science fairs.
- 2. Increase interactions with high school students and teachers**
 - Develop at least 3 interdisciplinary summer camps for high school students in areas such as Alternative Energy, Advanced Materials, Bioengineering, Software Design and Computer Security.
 - Establish high school teacher focus/advisory groups
 - Offer an introduction to engineering class co-taught at a local high school in collaboration with high school teachers and administration.
- 3. Increase contact with community colleges**
 - Update and expand articulation agreements with community colleges
 - Institute open houses for community college students.

IMPLEMENTATION OF THE STRATEGIC PLAN

The Dean, in consultation with the departments, will form a college-wide Strategic Plan Implementation Committee to develop and monitor the implementation of the Strategic Plan. The committee will represent student, faculty, staff, administration and external constituencies. Ad hoc subcommittees may be formed to deal with specific issues.

MONITORING AND ASSESSMENT OF THE STRATEGIC PLAN

The Strategic Plan Implementation Committee will assess the implementation of the Strategic Plan periodically in accordance with ABET EC2000 Accreditation Guidelines and other benchmark indicators determined by the committee. The committee will also make recommendations to the Dean for needed updates and revisions to the plan. An annual report describing the status of the plan and revisions will be published by the Dean based on the committee's year end report and recommendations.■