Strategic Plan for the
School of Engineering and Computer Science
Oakland University
Approved by the SECS Faculty Assembly: December 4, 2009

MISSION

The overall mission of the School of Engineering and Computer Science is threefold:

- To provide high-quality undergraduate and graduate programs of instruction in engineering and computer science to prepare graduates for careers to support the progress of society.
- To advance knowledge through basic and applied research in relevant branches of engineering and computer science to sustain the momentum of engineering knowledge, and
- To provide service to the engineering profession, industry, and the public in the State of Michigan and the nation to help provide a solid foundation of prosperity.

VISION

- High demand for Oakland University Engineering and Computer Science graduates at all levels
- Highly respected for research in applied engineering and computer science and focus research areas
- Significant response to the outreach and engagement needs of the engineering profession and the Southeast Michigan community.

INSTITUTIONAL BENCHMARKING

Peer comparison group:

Wright State University
Western Michigan University
University of Michigan-Dearborn
University of Akron

Goal group:

Wayne State University
Michigan Technological University
Clemson University
University of Cincinnati
University of Illinois at Chicago

MAJOR GOAL

Be nationally recognized by 2015 as one of the premier Engineering Programs in the nation.

A fully engaged faculty with research, publication, and student achievement as measured in dollars awarded, publications written, and higher student enrollment with graduation at all levels of study.

STRATEGIC PLAN

Faculty

Tactics

1. Increase the school research funding level from $**3** million to $**10** million dollars per year by **2015**.

2. Increase the number of peer-reviewed journal publications per faculty member from a yearly average of **1** to a yearly average of **3 papers by 2015**.

3. Increase the number of endowed professorships and chairs from **1** to **5** by obtaining support for a chair and professorship in each of the focus areas by **2015**.

4. Increase the number of faculty recognized by the grade of Fellow in their respective professional societies from **5** to **10 by 2015**.

5. Increase the number of external recognition awards received by the faculty to **5** per year.

6. Establish a new-faculty mentoring program.

7. Increase the recognition of faculty involvement in student group activities and graduate student supervision.

8. Increase the recognition of faculty involvement in national/international professional societies such as serving as conference organizers and being a member of journal editorial boards

Needs

1. Increase the number of full-time faculty members from **47** tenure-track to **70** (**60** tenure-track, **5** instructors, **5** research faculty) resulting in **$200,000**/tenure-track-faculty-member/year of research.

2. Pay salaries competitive with the peer comparison group.

Undergraduate Program

Tactics

1. Encourage and reward faculty involvement in the undergraduate program.

2. Increase the percentage of women from **13**% to **23**%.

3. Increase the percentage of under-represented minorities from **9%** to **15**%.

4. Emphasize and sustain high quality instruction.

5. Increase undergraduate enrollment to help the university achieve goal for 2020 (enrollment increase by **32**% from current level)

6. Increase recruiting activities for undergraduate students and focus on retention

7. Establish selective use of qualified PhD candidates as instructors.

8. Support participation in student professional societies regional and national activities.

9. Increase undergraduate student participation in research.

10. Establish a Summer Research Program for High School Students.

11. Establish and encourage participation in the School of Engineering Certificate Programs.

12. Maintain and utilize an effective assessment program.

13. Establish and support a study abroad program for a duration of one semester or more.

14. Establish an undergraduate strategic steering committee to :

   a) Develop plans for frequent curriculum updates in response to public/industrial/governmental needs.

   b) Develop plans for emerging programs (biomedical engineering, civil engineering, …).

   c) Develop a strategic plan for recruiting from area high schools.

   d) Investigate the feasibility of fully- fledge co-op programs with local and national industries.

Graduate Program

Tactics

1. Increase the number of full-time Ph.D. students from current **35** to **120** and the number of Master's students from **138** to **200** for ratios of **2** full-time Ph.D. and **4** full-time Master's students per faculty member.

2. Pay competitive assistantship stipend to qualified graduate students.

3. Establish a Ph.D. fellowship program to recruit more US citizens.

4. Establish a graduate seminar program to include **3** nationally prominent speakers per year.

5. Establish a Five-Year BS/MS Integrated Program.

6. Increase recruiting activities for Ph.D. students.

   a. Target universities with relevant undergraduate and MS programs as the highest degree (*e.g. Kettering University, Bucknell University) for possible strategic alliance and smooth transition to PhD.

b. Build relations with international universities that can feed us with SPONSORED PhD students.

c. Build programs with local industry (with courses taught at their facilities, and possibly having external thesis advisors for research from industry).

d. Promote interdisciplinary research.

e. Admit a limited number of highly qualified students directly to Ph.D. program.

Need

1. Increase the number of University funded graduate teaching assistants from **28 (16 Masters, 12 PhD)** to **60 (40 PhD, 20 Masters).**

Facilities and Operation

Tactics

1. Establish technology support staff.

2. Increase lab space for externally funded programs in SECS.

3. Investigate fast evolving engineering disciplines (nano technology, Electric vehicles, alternative fuels, …) for possible NSF engineering research centers.

4. Establish a research guidance and oversight team.

Needs

1. Work for the consolidation of the Engineering and Computer Science space.

2. Initiate a capital campaign for an SECS technology building in coordination with university administration.

3. Increase the University funded operating budget for SECS from **$1.648M (for 2010)** to **$3.0M per year**.

Alumni and Regional University Relations

Tactics

1.   Expand the Advisory Board to include community, industry, and academic representatives.

2.   Establish a quarterly newsletter and an annual newsletter for alumni, industry, and university colleagues.

3.   Expand linkages with the companies that are major recruiters and potential employers of our graduates.

4.   Develop and execute a marketing and public relations plan.

5.   Develop and execute a plan to engage alumni in school activities.

6.   Engage the Advisory Board as "thinkers and advisors" for inter-relations with the students and the community.

Corporate and Outreach Programs

Tactics

1. Encourage participation in OU "Smart Zone" by establishing new start up initiatives led by SECS faculty.

2. Establish extension Ph.D. programs (TARDEC, GM, Ford, and others).

3. Assist regional industries through outreach and engagement activities.

4. Develop research and educational partnerships with regional universities to foster educational enhancement, research growth, and graduate student recruiting.

5. Develop courses and programs that are delivered through distance learning.

6. Develop courses that can be used for professional development of engineers in the community and industry.