

COLLEGE OF ENGINEERING, ARCHITECTURE & TECHNOLOGY

INDUSTRIAL ENGINEERING & MANAGEMENT

STRATEGIC PLAN 2014-2018



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INDUSTRIAL ENGINEERING AND MANAGEMENT AT OKLAHOMA STATE

UNIVERSITY has a rich history and legacy. IEM at OSU granted its first IE degree in 1926, MS degree in 1948 and first Ph.D. in 1960.

This School has been represented and led by giants in Industrial Engineering – winners of the Institute of Industrial Engineers (IIE) highest award - Frank and Lillian Gilbreth award, members of the National Academy of Engineering, IIE Presidents, American Society for Quality (ASQ) and Association of Energy Engineers (AEE) Presidents, senior member of the Malcolm Baldrige National Quality award as well as IIE, AEE, American Production and Inventory Control Society (APICS) and ASQ Fellows. One of the first School Heads, H.G. Thuesen, co-invented the parking meter, the first of which was installed in Oklahoma City in 1935.

Today, IEM typically graduates about 25 B.S., 100 Masters (including the college-wide Engineering Technology Management program) and 2 Ph.D.s per year. The School has very active faculty who are well known by their peers for their engagement in the teaching, research and service missions of the School.

The School of Industrial Engineering and Management includes educators, researchers and citizens whose work has global reach and impact. It excels in preparing the next generation of leaders and professionals whose daily focus is on improving the efficiency and effectiveness of systems – manufacturing and service, for-profit and non-profit, public and private, national and international. IEM scholars excel at proposing and executing cutting edge research that strengthens organizations and impacts the lives of people served by these organizations. The School recognizes the vital role it plays in developing and providing opportunities today for individuals from diverse backgrounds with a keen interest in science, engineering and management to become successful leaders, entrepreneurs and professionals of tomorrow's organizations. To provide each graduate with the exciting and endless opportunities the industrial engineering discipline has to offer, IEM will develop ethical and professional engineers who use mathematics, science and engineering principles, have the ability to lead multi-disciplinary teams, can model and solve complex problems to design environmentally friendly and sustainable systems that have an economic impact and touch the lives of citizens throughout the world.

MISSION

To develop professionals and leaders in industrial engineering and management by being a leader in education, research, and outreach.

VISION

To place industrial engineers in a wide variety of industries including manufacturing, service, energy, healthcare, humanitarian and others, so that our society at large can benefit from systems that produce goods or services efficiently, use an optimal set of resources - physical and virtual, natural and man-made, effectively, and enrich the quality of life for all.

OVER-ARCHING GOAL

The School's goal is to become a named and endowed school ranked among the top twenty programs by 2020.



ACADEMIC GOAL: Educate and produce a new generation of IEM students proficient in theoretical, applied and technology relevant concepts and practices which will have a global reach and global impact while continuing to improve, monitor and enhance the student learning, recruiting, retention, advising, mentoring, internship and placement process.

In order to sustain a growth in the faculty, which itself helps increase our research activities and therefore our ranking, IEM must graduate an average of 40-60 B.S. students per year. An increase in the number of undergraduate degrees granted and in enrollment will allow us to develop a critical mass of students and offer an enriching curriculum, more technical electives, options to pursue co-op, internship and study abroad opportunities and broaden the scope of education for our students. This will facilitate the placement and growth of our graduates in for-profit and non-profit industries so that IEM graduates will be at the forefront of solving societal problems in manufacturing, service, energy, environment, entrepreneurship, new product and service development, logistics and the management of natural resources, helping them become successful professionals and leaders in IEM.

STRATEGIES FOR ACADEMIC GOAL

- Review and revise IEM curriculum at the B.S., M.S. and Ph.D. levels on-campus and online to make them current, relevant, engaging and challenging.
- Provide scholarships to allow students to pursue study-abroad opportunities, engage in co-op and internship activities (within or outside the US) and offer courses in sufficient frequency and breadth so a vast majority of our students can graduate in 5 years or less.
- Produce industrial engineers well versed in the ability to collect, process and utilize big data for real-time decision support.
- Produce industrial engineers who can develop or utilize new technologies, apply them in new areas and possess entrepreneurship skills and a sharp business acumen.
- Establish a one-stop shop for students that not only helps them navigate through student services, available campus resources and secure study-abroad, co-op, internship or career placements, but also allows IEM to closely monitor students for superior performance.

METRICS FOR ACADEMIC GOAL

- Graduate 40 IEM undergraduates per year by 2016 and 65 by 2018 in a wide variety of industries spanning from manufacturing to service, for profit and non-profit, public and private, national and international.
- Review and revise IEM curriculum at all three levels by 2016.
- Seek and secure ABET accreditation for B.S. and M.S. programs by 2017.
- Place 20 students each year in study-abroad, co-op and internship opportunities by 2017.

RESEARCH GOAL: Engage in cutting edge research of global importance to produce innovators and next generation education and societal leaders.

Seeking and securing competitive, extramurally funded research projects is a necessary pre-requisite to recruit and retain top-notch graduate students, who in turn can produce strong theses or dissertations under superior guidance, publish high-quality archival quality work, and find placements in high-level academic and industrial positions. This brings a high-level of visibility to the IEM program and its faculty. External research resources are critical in building a robust doctoral program with advanced curricula that furthers the placement and growth of our graduates in research organizations and universities so they can be at the forefront of developing new knowledge, training other industrial engineers and having a positive impact on society through their work.

STRATEGIES FOR RESEARCH GOAL

- Develop a culture that embraces extramurally funded research activities, making this activity the norm and not the exception.
- Identify opportunities and mentor new faculty to become successful in proposal writing, mentoring Ph.D. students and interacting with stakeholders.
- Invest in physical and cyber infrastructure to allow IEM faculty and graduate students to develop and expand research.
- Be recognized by our peers as a leader in research so our faculty and students will have a better chance of winning national awards, securing research funding, occupying leadership positions in our professional societies as editors of journals, conference chairs, board members and in other areas.

METRICS FOR RESEARCH GOAL

- Increase research expenditures from competitive grants to \$1.5 million and from all grants to \$4 million by 2016.
- Increase faculty size to 20 by 2020 to undertake leading-edge research and mentor next generation educators and entrepreneurs.
- Increase the number of annual Ph.D. graduates to eight by 2018.
- The number of Ph.D. graduates, journal papers published, external awards won and research expenditures must be within 25% of the top ten industrial engineering programs in the US by 2018.



OUTREACH GOAL: Actively engage in community projects, economic development and service for the greater good. Enhance IEM's image internally within CEAT and OSU and externally – the world at large.

A typical land-grant University receives its funding from student tuition, research and the state, and gives back by educating and placing students who become the next generation professionals and leaders who keep the economic engine running at peak efficiency within that state. At IEM, our goal is not only to give back in the long-run, but also in the short-run in novel and visible ways, both locally and internationally. Our goal is also to spruce-up IEM's image physically and metaphorically.

STRATEGIES FOR OUTREACH GOAL

- As a land-grant institution, seek to give back immediately and visibly by helping the broader community we serve benefit from the principles, tools and techniques of industrial engineering.
- Build top-notch educational and research programs to ensure IEM is always on the radar screen of OSU administration and external stakeholders and is recognized as the program with the potential to have a national spotlight.
- Actively seek to increase the endowment to attract top-notch faculty by offering endowed Chairs and faculty Professorships at the Assistant, Associate and Professor levels.
- Recruit and retain graduate students from around the world by offering competitive assistantships, scholarships and travel grants.
- Stake a claim in helping society use scarce resources in an economically viable and sustainable manner during normal times and help with humanitarian logistics during emergencies.

METRICS FOR OUTREACH GOAL

- Increase the School endowment from \$2 million to \$20 million by 2020.
- Be ranked among the top twenty programs in Industrial and Systems Engineering by 2020.
- Double the involvement in community outreach and humanitarian logistics by 2020.



STRATEGIC PLAN 2014-2018

The goals of the **SCHOOL OF INDUSTRIAL ENGINEERING AND MANAGEMENT AT OKLAHOMA STATE UNIVERSITY** are developed to help the faculty, staff and administration achieve the School's mission. Each of the goals is a specific, measurable, achievable, realistic and time-oriented (SMART) goal presented with measurable objectives or benchmarks and strategies that will assist the faculty and staff reach the goals and the administration to support the goals.

The 5-year strategic plan listed on the previous pages serves as a roadmap to guide the School of Industrial Engineering and Management as it embarks on an ambitious goal to be a named, endowed department ranked among the top twenty programs in the country.

