

2021-2025



Strategic Plan
School of Industrial Engineering and
Management



School of Industrial Engineering and Management
Oklahoma State University
2021-2025

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Preamble

The School of Industrial Engineering and Management (IEM) at Oklahoma State University (OSU) has a rich history and legacy. IEM at OSU granted its first IE degree in 1926, MS degree in 1948 and first PhD in 1960.

IEM has been represented and led by giants in Industrial Engineering – winners of the *Frank and Lillian Gilbreth* award, pinnacle award of the *Institute of Industrial and Systems Engineers' (IISE)*; members of the *National Academy of Engineering, IISE* 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 *IISE, 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.

IEM graduated 48 B.S., 40 Masters (including the online Engineering Technology Management program) and 1 PhD in the academic year 2019-20. It has research active faculty who are well known by their peers for their engagement in the teaching, research and service missions of the School.

VISION

VISION

“To inspire and empower our students to become leaders in a wide variety of industries, improve the quality of life for humankind, and change the world for the better, by making societal systems diverse, effective, efficient, and sustainable.”

The School of Industrial Engineering and Management includes educators, researchers, and citizens whose work has global reach and global impact. It excels in preparing the next generation of leaders and professionals who strive to improve the efficiency and effectiveness of systems – manufacturing and service, for-profit and non-profit, public and private, national and international. IEM scholars excel at conducting cutting edge

research that strengthens organizations and impacts the lives of people served by these organizations.

IEM recognizes the vital role it plays in developing and providing

MISSION

MISSION

“Continuously and aggressively advance educational and research processes which will attract students who fulfill our vision.

OVER-ARCHING GOAL

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“IEM’s goal is to become a named and endowed school ranked among the top 20 programs and among the top 15 programs in public universities, by 2025.”

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.

The 5-year strategic plan is a roadmap that will guide IEM as it continues on its ambitious goal to be a named, endowed department ranked among the top twenty programs in the country.

Goals and Objectives

The goals of the School of Industrial Engineering and Management at Oklahoma State University are developed to help the faculty, staff and administration achieve IEM's mission. Each is a specific, measurable, achievable, realistic and time-oriented (SMART) goal that will guide IEM in its educational, research, and service activities.

“Education is the most powerful weapon which you can use to change the world.”

NELSON MANDELA

There are four major goals for IEM in this strategic plan

- I. Educational Goal
- II. Research Goal
- III. Outreach Goal
- IV. Diversity Goal

Educational Goal: Continue to improve, monitor, and enhance the student recruitment, learning, graduation, and placement processes to produce leaders proficient in theoretical, applied, and technology relevant concepts and practices that have a global reach and global impact.

In order to sustain a growth in the faculty, which itself helps increase our research activities and therefore our ranking, IEM must graduate 65 BS students per year. Sustaining increased enrollment and the number of undergraduate degrees granted, will allow us to develop a critical mass of students and offer an enriching curriculum, e.g., more technical electives, options to pursue co-op, internship, and study abroad opportunities and broaden the scope of education for our students. This in turn, 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, managers and leaders in IE.

Strategies for Educational Goal

- Review and revise IEM curriculum at the B.S. and M.S. levels – on-campus and online to make them current, relevant, engaging and challenging.
- Recruit a diverse group of students into the IEM program.
- Provide scholarships to allow students to pursue study-abroad opportunities, engage in co-op and internship activities and offer courses at sufficient frequency and breadth so a vast majority of our students can graduate in fewer than 5 years.
- Produce industrial engineers well versed in the ability to collect, process, analyze, 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 to help them navigate through student services, avail campus resources and secure study-abroad, co-op, internship or career placements. Closely monitor students for superior performance.

Metrics for Educational Goals

- Graduate 65 BS students by 2025 and place them in a wide variety of industries spanning from manufacturing to service, for profit and non-profit, public and private, national and international.
- Graduate 50 MS IEM and 50 MS ETM graduates by 2025.
- Review and revise IEM curriculum at the BS and MS levels by 2022.
- Seek and secure ABET reaccreditation for BS programs by 2022.

Research Goal: Engage in cutting edge research of global importance to produce innovators and next generation engineering, 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. These students in turn can produce strong theses or dissertations under superior guidance, publish archival quality work, and be placed in academic and industrial organizations, thus bringing national and international visibility to the IEM program and its faculty. External research resources are critical in sustaining a robust doctoral program with advanced curricula that further 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 PhD students and interacting with stakeholders.
- Invest in physical and cyber infrastructure to allow IEM faculty and graduate students to develop and expand research.

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- 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 \$2 million by 2025.
- Increase faculty size to 20 by 2025 to undertake leading-edge research and mentor next generation educators and entrepreneurs.
- Increase the number of annual PhD graduates to 10 by 2025.

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.

Strategies for Outreach Goal

- As a land-grant institution, seek to give back immediately and visibly by ensuring the broader community we serve benefits from the principles, tools and techniques of industrial engineering.
- Build top-notch educational and research programs to ensure IEM is always on the radar of upper 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 a diverse group of top-notch faculty by offering endowed Chairs and faculty Professorships at the Assistant, Associate, and Professor levels.

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- Recruit and retain a diverse group of 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.
 - Celebrate accolades and publicize successes in appropriate publications and public announcements.

Metrics for Outreach Goals

- Increase IEM endowment (current gifts and pledges) from \$8 million to \$20 million by 2025.
- Be ranked among the top twenty programs in Industrial and Systems Engineering by 2025.

Diversity Goal: Ensure that all School activities promote a diverse, achievement driven and gifted student experience. Administer programs to recognize the diverse challenges of each identity group and improve the retention rate from admission to graduation.

A diverse student body allows for and promotes the sharing of ideas, approaches and solutions among students, leading to global perspective of issues and problems to be solved. Also, achievement is a staple of the human spirit which recognizes that each person seeks to improve their station in life. Each achieves according to their circumstances, motivation and according to their relative abilities. Furthermore, the association with gifted students raises the aspirations of all of those who are exposed and participate. IEM strives to enrich the student, staff, and faculty experience. Accordingly, IEM leadership and faculty will continue to recruit a student body diverse in national origin, race, and sexual orientation.

Metrics for Diversity Goals

- Increase the IEM female student and minority student populations to 40% and 35% respectively, by 2025.
- Increase female and minority faculty to 40% and 35% respectively, by 2025.

Strategic Plan approved by: IEM Faculty on November 11, 2020; CEAT Executive Council on November 12, 2020