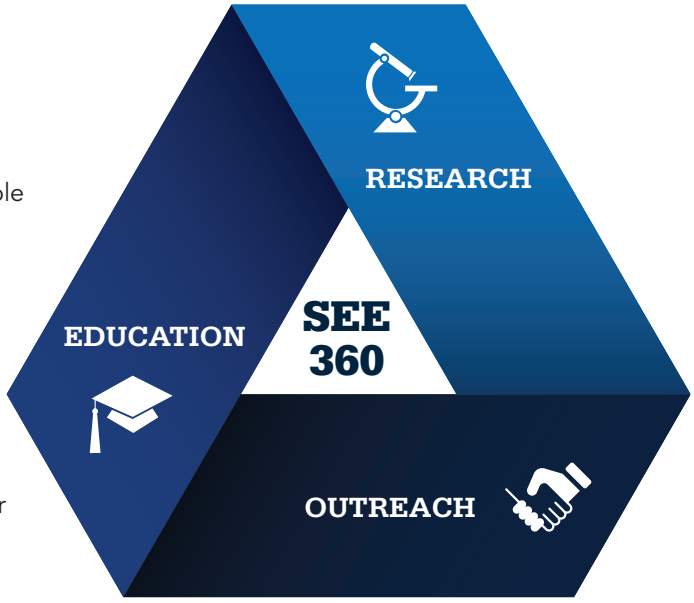
Service Enterprise Engineering

Service Enterprise Engineering 360's mission is to contribute to the strategic goals of the College of Engineering and the Harold and Inge Marcus Department of Industrial and Manufacturing Engineering (IME). We strive to enhance our students' fundamental educational experience; raise awareness of the societal challenge in the U.S., where 80 percent of the workforce is employed in the service sector; increase access to the entrepreneurial opportunities of the sector; and stimulate collaboration with industry and alumni partners to improve the productivity and quality of the service sector.

Goals of SEE 360

The mission of the SEE 360 can be broken into three main goals:

1. Introduce students to the opportunities for engineering in labor-intensive service industries by providing students multiple learning opportunities about SEE and offering a minor to recognize students' competency while increasing industry awareness in hiring.
2. Develop applications of classical engineering techniques to improve service process productivity through case studies and books that build capacity and create a repository of applications.
3. Create new engineering solutions to respond primarily to service industry needs by collaborating with the service sector and disseminating results.



MILESTONES

2003 — SEE Board established

2004 — Graduate course "OR in Supply Chains" offered

2006 — Capstone Design becomes required for undergrads

2008 — Courses "Service Engineering" and "Retail Engineering" offered

2010 — Graduate courses "Health Systems Engineering" and "Financial Services" offered

2012 — Service Engineering defined as part of a Ph.D. area

2013 — Charles and Enid Schneider gift received

2014 — SEE 360 Initiative conceptualized

2015 — SEE 360 mission and metrics defined

2016 — SEE Fellows and Scholars develop case studies

2017 — SEE Student Competition held; SEE Minor established

Service Engineering Academy for Learning (SEAL) Teams

SEAL Teams are made up of IE master's degree students who work together on SEE projects and learn from one another. Since the program was piloted in 2015, students have worked on projects such as simulation modeling of restaurants, snow removal, transportation services, and distribution operations, as well as drone-enabled services.

Annual Student Competition in SEE

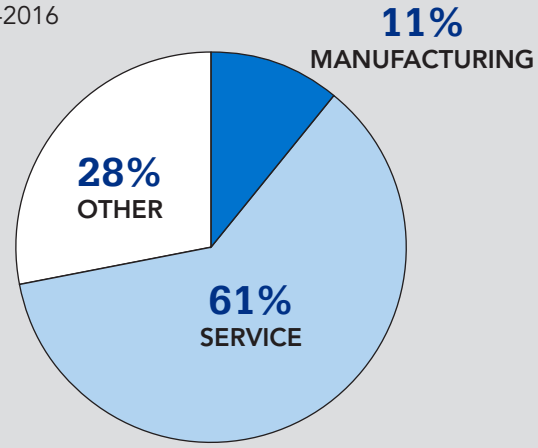
Each year, SEE 360 runs a student competition with bachelor's, master's, and doctoral categories with cash prizes for the winners of each. Topics can range from course projects, industry projects, research projects, entrepreneurial ideas, and application of engineering techniques to improve service process productivity.

Capstone Design Project Program

Penn State's Capstone Design Project program serves as an intricate part of reaching the goals of SEE 360. The program provides numerous opportunities for engineers to work with service companies to improve their processes and operations. Recent service industry related capstone projects include volunteer staffing issues at a film festival, process improvement at a local hospital, ergonomic and safety improvements at a retail factory, and optimization of logistics in transportation. These projects save service enterprise companies thousands of dollars through real-life applications.

IME STUDENT EMPLOYMENT UPON GRADUATION

2010-2016



Response rate out of all graduating seniors: 22%

Case Studies and Teaching Materials

SEE 360 collaborates with businesses to collect data and create case studies for IE students to practice solving real world engineering problems. The businesses benefit from gaining recommendations for optimizing their processes, while students benefit from countless realistic examples being incorporated into the IE curriculum, better preparing our students for the workforce. Some industries in which case studies have been developed and implemented into courses include health care, call centers, electric utility and hospitality.

For More Information

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