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According to
Cindy Amor, TECO
Chair of IMSE
Advisory Board

"Joining the icIMSE is an excellent way for businesses to tap into skilled resources that can help to solve real business challenges. The Consortium is truly a win-win engagement for all. It allows students to gain invaluable real world experiences, faculty to develop long-term business relationships and companies to advance the skills of current IMSE students while achieving business goals and objectives."

USF
UNIVERSITY OF
SOUTH FLORIDA
COLLEGE OF ENGINEERING

**Industry Consortium
for Industrial and
Management Systems
Engineering**

icIMSE

**We invite you to become a
partner in the Industry
Consortium for Industrial
and Management Systems
Engineering (icIMSE)**



Benefits of participating in the consortium (icIMSE):

Each year, industry partners submit project proposals to the IMSE department. Selected projects are undertaken by our student teams as part of their coursework in classes like: Advanced Lean Six Sigma, Design of Experiments, Simulation, Operations Research, Manufacturing Processes, Quality Control, and Human Factors/ Work Analysis, among others. Many of these classes are attended jointly by undergraduate and graduate students from diverse degree programs. Hence, teams are often diverse in composition.

- > Partner companies are asked to make a donation of \$10,000 per year to the consortium foundation (tax deductible). The funds are used to support and maintain a superior experiential learning environment. This helps students to grow as professionals and build close ties with partner companies.
- > The consortium provides partner companies with a significant added avenue for networking with USF and gaining access to its resources.
- > Partner companies are invited to an annual conference of the consortium each spring where the project results are presented by the teams, followed by lunch, a keynote speech and open dialogue among consortium partners.
- > Projects offer opportunities for the partner companies and the IMSE students to build professional relationships.
- > Partner companies are provided access to the pool of resumes of the participating students for hiring as co-ops, interns, and full time positions.
- > Project cycles are synchronized with the academic year of August through May. However, a partnership year may coincide with the fiscal year of the partner companies.

icIMSE Mission and Guidelines:

The mission of the icIMSE is to invigorate networking and experiential learning opportunities for industrial engineering students via interactions with industry in all sectors of the economy, especially those with significant presence in the Tampa Bay area and the Southeastern U.S.

- > Partner companies are asked to make a donation of \$10,000 per year to the consortium foundation (tax deductible). The funds are used to support and maintain a superior experiential learning environment. This helps students to grow as professionals and build close ties with partner companies.
- > Partners are informed prior to every academic year of the classes offered and project submission timelines. IMSE faculty members lend their expertise to help partner companies select projects and define appropriate scope and timeline, as needed, before submitting them for consideration.
- > One project per academic year from each partner is considered. Projects are generally scoped for one semester in duration (August - December, January - May).
- > Project cycles are synchronized with the academic year of August through May. However, a partnership year may coincide with the fiscal year of the partner companies.

About Industrial Engineering

Industrial engineers strive to find innovative ways to improve the design and function of products, processes, and integrated systems. IEs differ from other engineering disciplines by their systems view of the world, as well as their broad understanding of the business impact of engineering decisions. They draw upon knowledge of not only the mathematical, statistical, and physical sciences, but also of the social sciences, and management in particular. One of the strengths of IEs is that their skills are in demand in all sectors of the economy including financial services, communications, defense, healthcare, entertainment, and manufacturing. Thus our IMSE programs attract students with diverse backgrounds and with broad career goals. Our department hosts over 180 undergraduates, 150 masters and more than 30 full-time PhD students, and maintains a vibrant and collaborative learning environment.

IMSE Areas of expertise:

- Process Optimization
- Engineering Analytics
- Health Systems Analytics
- Supply Chain and Risk Analysis
- Rapid Prototyping
- Product and Process Flow Analysis
- Waste Reduction in Manufacturing
- Healthcare Systems Design
- Simulation Modeling
- Defect Reduction
- Quality and Reliability Improvements
- Efficiency /Loss Issues
- Lean Six Sigma
- Cost Analysis
- Transportation Modeling
- Work Analysis & Human Factors

Sample projects completed by IMSE student teams:

Impact of Materials and Process Parameters on the Seal Strength

Project Type:
Design of Experiments



Industry:
Healthcare Manufacturing

Product Realization Process Mapping at Pilgrim Software



Project Type:Lean Six Sigma
Industry: Software Development



Battery Formation VSM Project

Project Type: Lean Six Sigma
Industry: Automotive Manufacturing

Labor Force Optimization

Project Type: Optimization
Industry: Utility/Energy



Barge Transportation Optimization

Project Type: Optimization
Industry: Continuous Manufacturing/Mining

RAYMOND JAMES®

Remote Capture Deposit Project

Project Type: Lean Six Sigma
Industry: Financial Services

Raytheon

Vendor Lead Time Estimation using Material Master Data

Project Type: Predictive Analytics
Industry: Electronics Manufacturing/Defense

New partners for 2015-2016

- **NDH Medical**
- **PEMCO World Air Services**
- **BayCare**

Recent icIMSE Project Highlights

- The **Mosaic** project team developed a mathematical optimization model to schedule barge shipments up the Mississippi River based on customer orders, product availability, and carrier availability and rates in order to minimize annual transportation costs. The resulting model produced an estimated \$3 million in annual savings.
- **Raymond James** employed a project team to create an extensive value stream map to identify the numerous current methods by which customer checks were deposited across the organization. The team then identified best practices and opportunities for improvement to create a vision for an improved future state.
- IMSE students worked with the Continuous Improvement group at **Johnson Controls, Inc.** to improve the efficiency of the formation process within a local automotive battery manufacturing plant. The opportunities identified by the students represented a potential savings of approximately \$30K annually. Recommendations by the students became subsequent projects for the JCI Continuous Improvement group.
- A project team working with **Raytheon** developed a predictive analytics model to aid in the estimation of vendor lead times using a large and complex material master database.
- A team of students at **MTS Medication Technologies** used the design of experiments (DOE) methodology to systematically identify the impact of material and process parameters on product seal strength to improve the manufacturing process to more consistently meet customer requirements.
- **TECO Energy** engaged a student group to develop a tool for labor force optimization. The project team developed an integer programming model to minimize the total cost of labor, overtime, and delays. Personnel from TECO were trained to use the model in the future.