Does your company have potential BE Capstone Design Projects?

Do you want to support the BE Capstone Design Program?

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Real world design projects:
- Solved by student teams
- Advised by faculty
- Supported by industry

Support BE Capstone Design Projects for:
- Solutions to industry challenges
- Future employees with experience

Specialty areas:
- Bioenergy Engineering
- Biomedical Engineering
- Ecosystems Engineering
- Food Engineering
### A Capstone Design Project:
- Requires engineering design
- Combines biology and engineering
- Solves a real problem
- Uses a holistic and systems approach
- Interprets data and statistics
- Interprets social and environmental impacts
- Evaluates economic feasibility
- Delivers a comprehensive, professional design report
- Requires team presentations to industry, faculty, general community, and peers

### Recent Project Examples:

#### Bioenergy Engineering
- **Torrefaction Process Improvement**
  
  *Increase product yield of torrefaction process.*
  *Sponsor: Heat Transfer International*

- **Wastewater Treatment Using Anaerobic Digester**
  
  *Design and develop a novel, efficient pilot-scale (0.45 m³) up flow and fixed film anaerobic digester.*
  *Sponsor: Technova*

#### Biomedical Engineering
- **Dried Blood Storage Device**
  
  *Filter paper to efficiently dry and store blood samples.*
  *Sponsor: Pfizer, Inc.*

- **Design of a LED/Fiber Optic Treatment for Infant Jaundice**
  
  *Design a portable, wearable, cost-efficient treatment for infant jaundice.*
  *Sponsor: Sygiene*

#### Ecosystems Engineering
- **Site Evaluation and Design Plan for a Created Forested Wetland Student**
  
  *Designed wetland for US 27 road construction site.*
  *Sponsor: Michigan Department of Transportation*

- **Water Quality Best Management Practices Design for a City of Lansing Re-Development Project**
  
  *Design of an efficient stormwater runoff treatment system for a parking lot re-development.*
  *Sponsor: Tetra Tech*

#### Food Engineering
- **Hydroponic Processing Optimization for Mung Bean Sprouts**
  
  *Optimization of hydroponic system for mung bean sprouts.*
  *Sponsor: ConAgra*

- **Redesign of ProMix Batter Mixer Cooling Mechanisms**
  
  *Redesign batter coolant system.*
  *Sponsor: JBT FoodTech*

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### Faculty:

- Bahar Aliakbarian, PhD
- Evangelyn Alocilja, PhD
- Narendra Das, PhD
- Dawn Dechand, PhD
- Kirk Dolan, PhD
- Ehsan Ghane, PhD
- Tim Harrigan, PhD
- Sanghyup Jeong, PhD, PE
- Wei Liao, PhD, PE
- Yan “Susie” Liu, PhD
- Yuzhen Lu, PhD
- Bradley Marks, PhD, PE
- Iice Medina Meza, PhD
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- Luke Reese, PhD
- Steven Safferman, PhD, PE
- Chris Saffron, PhD
- Ajit Srivastava, PhD, PE
- Truman Surbrook, PhD
- Daniel Uyah, PhD
- Jiyoon Yi, PhD

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Since 1906, the Department of Biosystems & Agricultural Engineering has responded to the changing needs of society by integrating and applying principles of engineering and biology in a systems context. Today, biosystems engineers at MSU solve complex, rapidly-changing problems related to food production, quality and safety, ecosystems protection, homeland security and health protection, biomass utilization, and renewable energy development.