Does your company have potential BE Capstone Design Projects?

Do you want to support the BE Capstone Design Program?

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

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

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 approach
- Interprets data
- Evaluates economic feasibility
- Delivers a comprehensive, professional design report
- Presents to industry, faculty, general community, and peers

Recent Project Examples:

- **Bioenergy Engineering**
  - **Biodiesel Production in Malawi**
    Process, economic, and safety evaluation tools to produce biodiesel in Malawi.
    Sponsor: Engineers Without Borders
  - **Turkey Litter to Energy**
    Thermal conversion system to create heat energy from turkey litter.
    Sponsor: Western Michigan Greenhouse Association

- **Biomedical Engineering**
  - **Dried Blood Storage Device**
    Filter paper to efficiently dry and store blood samples.
    Sponsor: Pfizer, Inc.
  - **Sprout Pathogen Detector**
    Disk assay E. coli detection method to detect impacted sprouts.
    Sponsor: Living Foods, Inc.

- **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
  - **Two Stage Channel Design**
    Regional curves for the design of stable stream channel cross-sections to minimize bank erosion.
    Sponsor: The Nature Conservancy

- **Food Engineering**
  - **Rapid Post Harvest Cherry Cooling**
    Pre-cooling/flushing well water systems to uniformly and economically cool cherries.
    Sponsor: Cherry Bay Orchards
  - **Developing Process Alternatives to Produce Consistent Meatless Burgers across Multiple Production Lines**
    Process line design issue.
    Sponsor: “Anonymous” International Food Company

Faculty:

Evangelyn Alocilja, Ph.D.
Kirk Dolan, Ph.D.
Daniel Guyer, Ph.D.
Tim Harrigan, Ph.D.
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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.

Biosystems Engineering (BE) is an ABET accredited B.S. degree program at MSU that prepares students to:

- Identify and solve problems at the interface of biology and engineering, using modern engineering techniques and a systems approach.
- Analyze, design, and manage systems and processes that involve critical biological components.