

Industrial and Manufacturing Systems Engineering Capstone Design IE4410

This document outlines specific details regarding the Industrial and Manufacturing Systems Engineering Capstone Design course supplementary to the Sponsor Acknowledgement Form for Undergraduate Student Projects for the College of Engineering at Iowa State University.

Documentation and Agreements: Each Sponsor will have three documents requiring signatures for the semester course. The University provided documents must be used; no alternative forms or modifications to the provided documents will be accepted.

1. **Sponsor Acknowledgement Form:** Required from the Sponsor prior to the start of the semester outlining agreement and specifics of the project scope to be returned to Capstone instructor. Additional pages may be attached to outline scope, as necessary.
2. **Non-Disclosure Agreement:** One document per student group assigned to the project outlining Confidential Information expectations to be signed by each student in the project group, instructor, and Sponsor. Students will bring these documents with them to their initial company visit for signature to be returned to the University for additional signature by the Center for Industrial Research and Service (CIRAS).
3. **Special Intellectual Property Agreement:** One document per student assigned to the project outlining Intellectual Property expectations to be signed by student, instructor, and Sponsor. Students will bring these documents with them to their initial company visit for signature to be returned to the University.

Project Fee Per Semester: \$5000.00

Project fees support the student projects covering expenses associated with travel to and from the Sponsor location throughout the semester, in addition to administrative activities associated with the IE4410 Capstone Design course, such as poster printing, software and lab use, capstone competition, and conference fees. A member of the University will reach out to the Sponsor for additional information, as required. All expenses relating to the execution of the project, such as material to construct a deliverable or labor to modify a layout, should be provided by the Sponsor.

Visits and Communication: Student teams should be in contact with the Sponsors on a weekly basis throughout the semester through on-site visits or virtual communication. We appreciate Sponsors' support in scheduling sessions and providing necessary information timely to ensure projects progress appropriately throughout the semester. Please reach out to the course instructor listed on the Sponsor Acknowledgement Form should any concerns arise.

There are three required face-to-face visits during the semester that will take place at the Sponsor's location or the University as outlined below, and ensure these sessions are supported.

- **Initial Company Visit: Week 2**
 - o *Location:* Sponsor's location
 - o *Attendees:* All students assigned to project, key contacts at Sponsor
 - o *Agenda:* Meet groups and outline problem statement
- **Current State Analysis Presentation: Week 8**
 - o *Location:* Sponsor's location
 - o *Attendees:* All students assigned to project, key contacts at Sponsor, course instructor or teaching assistant
 - o *Agenda:* Review findings from data collection and confirm next steps for project execution (Presentation graded by Sponsor attendees and instructor)
- **Final Presentation: Week 15 (Friday)**
 - o *Location:* Iowa State University, Ames
 - o *Attendees:* All students, Sponsors, course instructor or teaching assistant
 - o *Agenda:* Review outcome of projects.
 - Final Presentation 10:00-11:00 or 1:00-2:00 (*Presentation graded by Sponsor attendees*)
NOTE: As part of the final presentation, all Sponsors must complete a Value Statement outlining the Economic Savings, Expected Up Front Investment, and Percent of Recommendations to be Implemented.
 - Sponsor Luncheon 11:00-12:00
 - Poster Session 12:00-1:00 (*Open to Public*)

Deliverables: Student teams are required to produce standard deliverables in accordance with the 15-week semester timeline in addition to project specific deliverables. Standard deliverables build throughout the semester to the Final Report; these deliverables with approximate timelines are outlined below:

- **Proposal (Week 4):** Report outlining the problem statement and specific project deliverables aligned with the Sponsor's expectation.
- **Current State Analysis (Week 8):** Report summarizing conclusions from data collection and detailing next steps. Includes oral presentation at Sponsor location.
- **Future State Design (Week 12):** Report outlining the final design to be implemented and overall economic impact of the optimal design, as selected by Sponsor.
- **Final Project (Week 15):** Report compiling all activities associated with the project and summarizing next steps for future improvements at the Sponsor. Includes oral/poster presentation, and brief summary video. For video examples, visit [Iowa State IMSE Capstone Design](#) on YouTube.
- **Final Sponsor Deliverables (Week 15):** Final deliverables will vary by project but should be agreed and modified as required with support from the Sponsor. The latest deliverables should also be outlined in each project report and presentation. These deliverables must be practically achievable within the 15-week semester timeline. Examples of prior Sponsor specific deliverables from prior projects include, but are not limited to: plant layout CAD files, analyzed options for scheduling product line shifts, physical prototypes of fixtures, shadow boards, written work instructions, visual management pilot boards, optimal plant locations for a global supply chain, ergonomic evaluations, or proposals for a new machine to be installed in a facility.