

Senior Design

Last Updated: Tue, 01/20/2026

Course prefix: ISYE

Course number: 4106

Section: T01

CRN (you may add up to five):
TBD

Instructor First Name: Dima

Instructor Last Name: Nazzal

Semester: Fall

Academic year: 2026

Course description:

Senior design project requiring student team working with an off-campus enterprise to define a system design or operational problem, propose a solution and assess the solution's impact.

Course learning outcomes:

In Senior Design, you seek opportunities for improvement in a setting appropriate for Industrial Engineering professional practice and learn how Industrial Engineering methods and tools can impact the bigger organizational picture. You will learn:

(1) how to properly define and scope a problem;

(2) to identify and analyze relevant factors;

(3) To apply methodologies studied in the curriculum in a cumulative and comprehensive manner to model and solve engineering design problems quantitatively and computationally to produce solutions that incorporate **appropriate engineering standards under multiple constraints** with consideration for public health, safety, and welfare, as well as ethical, professional, global, cultural, social, environmental, and economic factors.

(4) to improve your skills and knowledge in important related areas:

- writing and presenting engineering reports in technical and non-technical settings,
- working within a team and an organization,
- project and time management,

- workplace professionalism, and
- legal issues, confidentiality, and intellectual property.

The vehicle for this learning is an intensive, semester-long, team-based engineering design project.

Required course materials:

“Senior Design Manual”, by Blake, Hackman, McGinnis, Nazzal, Sokol, and Zhou. Available on Canvas. You are responsible to know the contents in the manual. Before you ask, please check.

Grading policy:

The Senior Design examiners are responsible for determining final grades for all teams and team members. The faculty advisor, other faculty, and client will provide input. The exact grading scale and descriptions of the evaluation guidelines are available in the Senior Design manual. At a high level, the four categories judge the quality of your team’s work in four areas: work product, written report, oral presentation, and professionalism. Quality is based on output, not input (i.e., you earn credit for what you accomplish, not for your effort – but lack of effort may lower your grade, as described below).

- **Work product** includes the team’s identification, scoping, modeling, and analysis of the problem, and the team’s recommendations to the client. More credit is given for difficult projects, creative solutions, comprehensive analyses, and high value, and a narrowly- scoped or “safe” project will receive less credit than a more ambitious project. The Senior Design examiner will also consider any factors outside the control of the team that might have influenced the project’s outcome.
- **Written report** includes how well the report covers the project and how easy it is to read and understand. This includes completeness, conciseness, flow, and writing quality. Correctness of spelling, grammar, word usage, etc. is also important. Hint: use simple language and include quantitative content whenever possible.
- **Oral report** includes how well the presentation covers the project, how easy it is to understand, and how interesting and engaging the speakers are. It includes speaker quality and slide quality.
- **Professionalism** includes the team’s attitude, initiative, responsiveness, reliability, work ethic, preparation, independence, honesty, ethics, and integrity (including intellectual integrity).

In addition to the categories above, teams are responsible for meeting all deadlines (including those set by the advisor and/or client, even if they do not appear in the syllabus), submitting all deliverables exactly as requested, maintaining adequate progress throughout the semester, and behaving professionally toward the client, faculty, and fellow students. Failure to do any of these, or any other unprofessional team behavior, will result in penalties to the team’s grade.

In general, the ideal is for all team members to receive the same grade. **However, based on their relative overall contributions to the project, as determined by the advisor and Senior Design examiner, team members can receive a different grade (higher or lower) than the team grade.** Grading is not zero-sum; an increase or decrease to one student's grade will not necessarily affect their team members' grades. *It is clear from the grading system (posted on the course web site) that everyone must contribute significantly to the engineering solution in order to pass this capstone engineering design course.*

In addition, individual grades can be adjusted downward for professionalism issues like missing mandatory meetings (or coming late or leaving early) without prior approval; missing a presentation to the faculty and/or class (even for an interview; companies understand that you need to schedule your interviews around immovable academic commitments); unprofessional behavior, attitude, or dress during a formal or informal meeting; violating course rules; failing to respond in a timely manner to a request from the client, faculty advisor, or Senior Design examiners; other unprofessional behavior; etc.

Modifications to teams' and individuals' grades will be assessed by the Senior Design examiners depending on severity of the situation. They may be assessed relative to the team's grade (e.g., 1/3 letter- grade higher, 2 letter grades lower, etc.) or on an absolute scale (e.g., an F in the course irrespective of your team's grade), or even include termination from the course midway through the semester.

Since Georgia Tech does not currently use plus or minus grades on transcripts, the difference in the grades of team members may not coincide exactly with the grade adjustments; for example, if a team's project grade is C- and one team member received a one-third-letter grade reduction to D+, then that team member's transcript will show a grade of D and all other team members' transcripts will show a C.

Attendance policy:

Required for meetings with faculty, teammates, clients within the senior design block hours.

Academic honesty/integrity statement:

Students are expected to maintain the highest standards of academic integrity. All work submitted must be original and properly cited. Plagiarism, cheating, or any form of academic dishonesty will result in immediate consequences as outlined in the university's academic integrity policy.