

**Iowa State University  
Department of Mechanical Engineering  
Independent Study 490 Proposal Guidelines**

The Department of Mechanical Engineering requires all Mechanical Engineering students requesting to complete an independent study to complete a proposal prior to enrolling in a 490 course, regardless of whether it is with or outside the Department of Mechanical Engineering. This proposal is a study plan that the student develops with their Faculty Supervisor.

**Proposal Guideline**

1. 490 Projects must be technical in nature and require the use of knowledge gained in the ME curriculum. They cannot have significant overlapping outcomes with required ME courses. This is the baseline requirement for all technical electives.
2. Projects must have 'demonstrable' learning outcomes that can be directly assessed such as 'apply the second law of thermo to ...', 'determine the strength of ...', 'calculate the uncertainty of ...', etc. Outcomes such as 'understand how to ...', 'research the ways to ...', and 'know how to ...' are not acceptable.
3. Projects must have a clear work description with specific tasks listed.
4. Projects must have specific and tangible deliverables to demonstrate mastery of the outcomes. Weekly meetings, a powerpoint, oral presentation to a grad student, etc. are not acceptable on their own.
- 4a. A completed prototype from a design activity is not acceptable as a 490 deliverable. A final report demonstrating how the student attained the learning outcomes to complete the prototype is a great way to structure this type of work.
5. Projects must have specific and clear criteria for how the semester grade will be determined in light of the outcomes and using the deliverable(s). There needs to be some possible scenario where a student can get something other than an 'A' or 'F'.
6. The faculty member must directly supervise and assign the grade to the student. It is not acceptable to have all work and assessment performed by a grad student or post-doc.