

Engineering Independent Study Proposal

This form must be completed by all undergraduates intending to register for one of the following:

ENGN 1970 **Fall** Independent Study in Engineering

ENGN 1972 **Fall** Independent Study in Engineering Design

ENGN 1971 **Spring** Independent Study in Engineering

ENGN 1973 **Spring** Independent Study in Engineering Design

You may not register for more than one Independent Study in the same semester.

Once the project proposal is received and approved, students will be notified by the Engineering Student Affairs Office and provided with an override code. Each concentration in the school has their own section for students seeking concentration or capstone credit. Students from non-engineering concentrations or who are not seeking concentration or capstone credit will register for ENGN 1970 S11. Project proposals are due by 5:00pm on the Friday prior to the add/drop deadline date to allow time for review.

Preparations Before Submitting Your Proposal

Before you complete this form, you should have identified a faculty supervisor and discussed the overall scope of your Independent Study (IS), e.g., its goals,

approach, and basis for evaluation. If you intend to use the IS for Engineering Concentration credit, you must explain in detail how this IS will meet your concentration requirements. *You must review and select all three statements below.*

- I have identified a faculty supervisor for this IS project.
- I have discussed the scope of my project, goals, approach, and evaluation with my IS faculty supervisor.
- I confirm that this faculty supervisor has consented to supervise this Independent Study.

I have fully read and understood the above preparatory guidelines. *You must review and select both statements below.*

- I confirm that the following proposal and project description represents my own independent work.
- I understand that credit will only be granted based upon evaluation of my individually prepared final work product, which must include an analytic or reflective component.

This proposal is for (choose only one)

- ENGN 1970 Fall Engineering Independent Study
- ENGN 1972 Fall Engineering Design Independent Study
- ENGN 1971 Spring Engineering Independent Study
- ENGN 1973 Spring Engineering Design Independent Study

Independent Study Guidelines

Independent Study Guidelines

An Engineering Independent Study must begin with an independent project

proposed by a student. It must also culminate in a significant final work product that will be used as the basis for evaluation. This may include a written paper (e.g., a project report or thesis) or an examination (e.g., a written final exam).

Although collaboration on an Independent Study is allowed, both the description of the project submitted in this proposal and the final work product used as the basis for evaluation must be the product of your own independent work. You cannot submit a final work done jointly with another student, that would be a [Group Independent Study Project](#) (GISP), which is a completely different process.

Multiple students may not submit the same project description for a collaborative project. The overarching project topic can be similar, but each team member must be responsible for a different aspect of the project and be evaluated independently. Also, joint work projects (such as business plans) may not be used as the basis for final evaluation. In the case of joint projects, each student must prepare an independent report about their IS project.

Credit will only be granted based upon an individually prepared analytic or reflective component. Verbatim copies of jointly authored work are not acceptable for the proposal or for the final assessment, regardless of the collaborative work arrangements during the project.

Curricular Practical Training

If you are an international student intending to request Curricular Practical Training (CPT) status for your Independent Study, you must be a declared concentrator in Engineering. If you are not an Engineering concentrator, then you must seek CPT status for your Independent Study through your home department. Please consult with the CPT advisor in the office of the Dean of the College.

Are you an international student seeking Curricular Practical Training (CPT) status for this Independent Study?

- Yes, I am an international student seeking CPT, and I confirm that I am an Engineering concentrator
- No, I am NOT seeking CPT

Student Information

Full Name (First Last)

Brown Email Address

Banner ID Number (begins with B followed by 8 digits)

Concentration (or related focus area for Engineering A.B. concentrators)

- Biomedical Engineering
- Chemical Engineering
- Computer Engineering
- Design Engineering
- Electrical Engineering
- Engineering-Physics
- Environmental Engineering
- Materials Engineering

- Mechanical Engineering
- Other

Expected Year of Graduation

- 2024
- 2025
- 2026
- 2027
- 2028

Project Information

Brown University Email Address of Engineering Faculty Supervisor for this IS

Provide the Brown email address of the primary faculty who will supervise this project (reference the list of Engineering faculty [here](#))

Independent Study Title

This is a tentative title; you may change it at any time.

Proposed Academic Term

- Fall
- Spring

Describe the project, e.g., the subject matter and your goals
(approximately 200 words)

Optional: Additional information you would like us to know about this project

How will this Independent Study be evaluated?

At the end of the semester, your efforts will be evaluated by your faculty supervisor. Please tell us what you and your supervisor have agreed upon as the basis for this evaluation: 1) A written report or thesis; specify how many reports and page length, OR 2) Exam/s - midterm and final or final, OR 3) Other [specify in thorough detail]

Independent Study Learning Objectives.

Identify 3-5 learning objectives for your IS. You may choose from the list below, and add up to 2 learning objectives specific to your project.

- Conduct laboratory skills (e.g., microscopy, cell culture, molecular techniques, program learning, etc.)
- Analyze data and interpret findings
- Evaluate scientific literature
- Present research findings appropriately and effectively
- Communicate effectively with a research team
- Insert 1-2 other learning objectives specific to your project here:

Evaluation Components

Indicate the criteria on how the independent study will be evaluated, keeping in mind the learning objectives indicated above. The use of multiple evaluation components provides the opportunity to highlight your contributions to the research project. If you are using this project to fulfill the capstone requirement, a substantial research paper must be part of the evaluation section described later in this form.

- Formative feedback on laboratory skills
- Lab notebook
- Lab meeting presentations
- Final presentation
- Final paper/thesis
- Other (please specify):

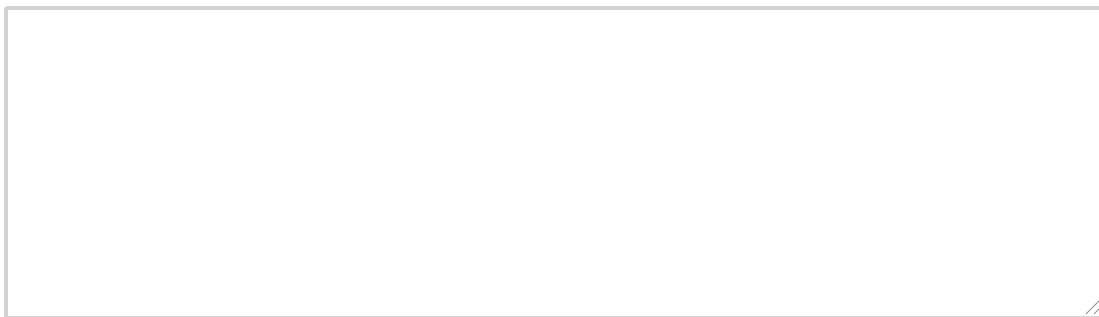
Evaluation

Explain how the selected evaluation components provide opportunities for

ongoing feedback and assessment throughout the independent study.

Mentor-Student Meetings

Please use this section to describe how guidance, oversight, and feedback will be provided to the student throughout this independent study enrollment. Please outline the expectations of how the student will progress and work toward identified goals, and what supports are available. Additionally, please enter the meeting schedule with your mentor. At minimum, communications should happen regularly in person / via Zoom weekly or bi-weekly.



Workload Summary

All Engineering IS courses are full credit courses that require a minimum of 180 hours of total work time. By clicking this box, I certify that I will complete 180 hours of work time for this Engineering IS. Describe the estimated number of hours per activity (i.e., 80 hours in lab, 40 hours primary literature, etc.) of how you will complete the required 180 hours.



The following grading option has been agreed upon: Choose one

- A,B,C/No Credit
- Satisfactory/No Credit

Are you seeking Engineering Capstone Design or Engineering Concentration Credit?

If you are seeking Capstone Design or Concentration Credit, we require additional information. If you are not, then you are almost done. You may change your mind about what you have chosen before the course add deadline, if you change your mind, you need to discuss the change with your concentration advisor, then resubmit this form.

- Yes, I am seeking Engineering Capstone Design Credit
- Yes, I am seeking Engineering Concentration Credit (but NOT Capstone Design Credit). Note that 'Concentration Credit' means that you intend to use the Independent Study to replace one of the requirements for your concentration. Check this button only if you have discussed this with your concentration advisor and have their approval.
- No, I am NOT Seeking Engineering Capstone Design or Concentration Credit

CONCENTRATION CREDIT INFORMATION

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Requesting 'Concentration Credit' means that you have already obtained your concentration advisor's approval to use the Independent Study to replace one of the requirements for your concentration. To use an Independent Study course for Concentration Credit, you must:

- Identify a specific concentration requirement that you wish to substitute
- Explain how this requirement will be fulfilled by this Independent Study

Which concentration credit do you intend to replace?

Please be specific. Include the course number and title (for example, ENGN 1570 Linear Systems Analysis)

Please describe the ways in which this IS will fulfill this course requirement.

Checklist of the ABET Outcomes

- an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- an ability to communicate effectively with a range of audiences.
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Brown University Email Address of Your Concentration Advisor

Provide the Brown email address of your concentration advisor (reference the list of Engineering faculty [here](#))

SUBMIT YOUR FORM

When you press SUBMIT, this form will be sent to Engineering Student Affairs staff who will seek your faculty supervisor's approval. If there are any concerns, you will be notified by email. This process may take a few days. To avoid a late add fee, we recommend that you complete this process at least one week prior to the end date of the shopping period. If you have any questions, please contact Student Affairs at soesa@brown.edu

Thank you for filling out the survey!

This concludes your Independent Study application.

It now enters an internal review for approvals.

You will be contacted by email when you have been approved to enroll in the specified course number.

CAPSTONE DESIGN CREDIT INFORMATION

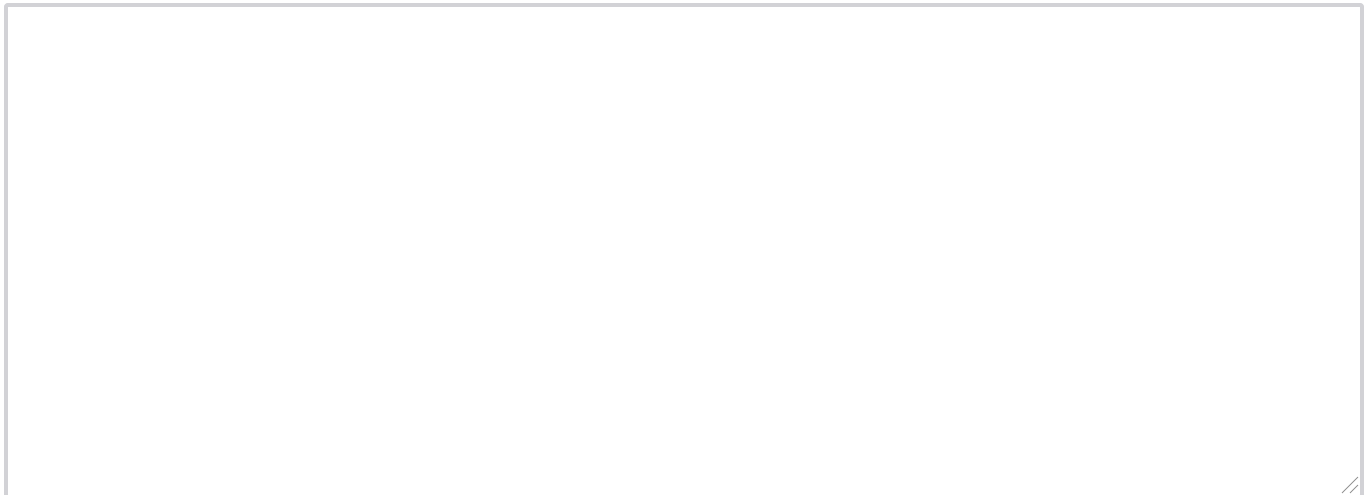
CAPSTONE DESIGN CREDIT INFORMATION

To qualify for Engineering Capstone Design credit, your Independent Study project must:

- Contain a significant and definable design component
- Be based on the knowledge and skills acquired in earlier course work
- Incorporate appropriate engineering standards
- Address multiple realistic constraints By answering the questions below, you will describe how your Independent Study will meet the requirements listed above.

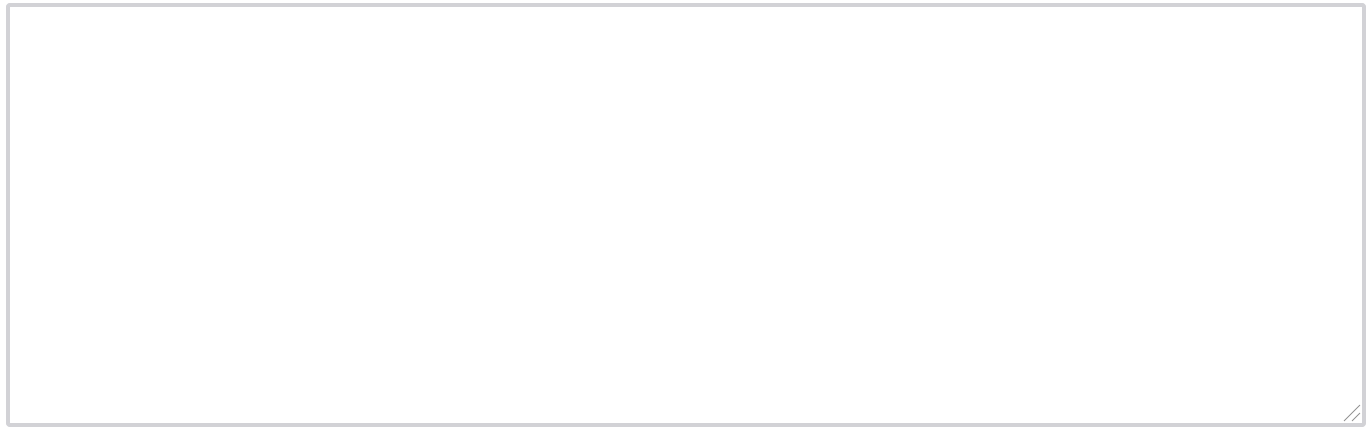
Please describe the significant and definable design components of your project.

This might include the design of a piece of hardware, software, a system, an experiment.



How will your project build upon the knowledge and skills acquired in earlier courses?

Please include references to specific course numbers.



Which appropriate engineering standards will be incorporated?

Standards may include those set by organizations such as [ASTM](#) and [IEEE](#) as well as those set by government (e.g., the [FCC](#)) and specific corporations (e.g., [UL](#)). These include communication protocols, building electrical/mechanical/plumbing codes, safety regulations, etc.

