# Introduction

The ECE VIP Senior Capstone Design Pathway allows students to fulfill their Senior Capstone Design requirement through VIP. The pathway is intended for students already involved with VIP teams, who have participated in VIP for at least one semester prior to their Senior Design year. VIP Senior Design students will continue to work with their teams and will complete Senior Design reports in addition to standard team documentation.

**Senior Design Pathway Options**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ECE Pathway | Additional Req | Part I | Part II | Total |
| Traditional Senior Design | **2 hours**Choose 1:* ECE 3872 (Jr Des)
* ECE research
* ECE 4xxx elective
 | **1 hour**Senior Design Part I (ECE 4871) | **2 hours**Senior Design Part II(ECE 4872) | **5 credit hours** |
| Flexible Senior Design |   | **2 hours**Junior Design (ECE 3872) | **3 hours**Choose 1 ECE 4723 option:* Single-semester ECE project
* Multidisciplinary design project
* CREATE-X
 | **5 credit hours** |
| VIP Senior Design |  **2 or more hours of VIP**Meet with Chris Malbrue before beginning Senior Design Part I  | **3-6 hours of VIP** Same team, 2 semesters minimum, Senior-Design-Appropriate projectECE 4871 | **2 hours of VIP\***(ECE 4872) | **5-8 credit hours**  |

\* The new policy differs from the previous ECE policy for VIP Senior Design.  Students who need 3 credits instead of 2 can still take VIP for 3 credits, as under the old model.

**VIP Pathway Timelines**

| Timeframe | Meetings\* | Forms &Deliverables | Details |
| --- | --- | --- | --- |
| 2 Semesters before Senior Design Part II | Chris Malbrue (VIP) |  None | Meet with Chris Malbrue to review VIP Senior Design process/requirements. |
| Senior Design Part I | If the VIP Instructor is not from ECE, meet with Secondary Project Advisor | ProposalForm | The form requires project advisor signatures: * If the student's VIP Instructor is not in ECE, the student will need to find a secondary advisor in ECE.
* Professor Aaron Lanterman volunteered to review projects, and to either serve as secondary advisor or recommend one.

Due by the end of the 4th week of the semester.Submit to Chris Malbrue. |
| Senior Design Part II | 3 meetings with Secondary Project Advisor | Midterm & Final Reports | Submit midterm and final reports to Chris Malbrue and your project advisor(s). |
| Final Presentation | * Presentation requirements are set by your VIP instructor(s).
* Notify Chris Malbrue of the presentation in advance.
* If you have a Secondary Project Advisor, coordinate the presentation with him/her as well.
 |
| VIP Notebook, Other Deliverables | PDFs of your VIP Notebook & instructor-defined deliverables (write-ups, etc.) are to be submitted to Chris Malbrue |

\* Meetings beyond regular VIP team meetings

# Instructions

**Deadline for this form:** First semester of Senior Design, by the Withdraw with a W date.

Step 1: Determine if your project is suitable for ECE Senior Design. This is addressed in section 1 of this form.

Step 2: If you have not already done so, let your VIP instructor know that you want to use your VIP project for Senior Design. He/she will need to agree, even if you have a Secondary Advisor.

If your VIP instructor is not from ECE, you will need to find a Secondary Advisor from ECE.

Step 3: Complete sections 1-5 of this form.

Step 4: Get signatures from your Advisor (and Secondary Advisor if you have one),
and return the form to Chris Malbrue (cmalbrue3@gatech.edu)

# Section 1: Confirm Project Suitability

Not every VIP team is suitable for Senior Design. Students should use the following checklist to ensure a potential project is suitable.

The Proposed Senior Design Project:

* Provides a culminating design experience. The project:
* Relates to academic major
* Is based on the knowledge and skills acquired from earlier coursework
* Requires acquisition of new knowledge and skills as necessary for project
* For Computer Engineering Students: Involves both hardware and software solutions.
* Incorporates engineering standards and multiple constraints:
* Requires attention to appropriate engineering technical standards that refer to technical criteria, methods, processes, analysis and practices
* Requires consideration of multiple constraints and the related design tradeoffs
* Requires consideration of the potential influence of multiple factors (listed below.)
* Requires consideration of the impact of the project on public health, safety and welfare (identification and control/reduction of conditions and situations that are at risk of causing hazards, physical harm or illness.)
* Other factors influencing the engineering design specifications:
* Global (refers to world-wide or societal issues rather than local ones.)
* Cultural (refers to the set of beliefs, values, traditions, language that are distinguishing characteristics of a society or other defined group. The group may be defined by interests, preferences historical commonalities, etc.)
* Social (related to social groups with distinctive cultural, social, political and/or economic organizations)
* Environmental (refers to the natural world and relationships among living organisms, natural resources and natural environment)
	+ Economic (related to money supply, distribution, tax rates, interest rates, unemployment, types and quantities of distribution of goods and services, outsourcing practices, manufacturing costs, advanced process technology, etc.)
	+ Requires you to work with at least two other students on the project (typically your VIP subteam). They can be from any major or academic rank, including graduate students

# Section 2: Senior Design Advisor(s)

|  |  |
| --- | --- |
| VIP Team Name |  |
| VIP Instructor |  |
| Instructor Department |  |

If your VIP Instructor is not from ECE, you will need to find a Secondary Advisor.

|  |  |
| --- | --- |
| Secondary Advisor |  |
| Advisor’s Department | Electrical and Computer Engineering |

# Section 3: Student & Team Information

|  |  |
| --- | --- |
| Name |  |
| Major |  |
| Email |  |
| GTID |  |

**VIP Coursework**

Students using VIP for Senior Design are expected to earn at least 5 credits of VIP. Please list your semesters of past, current and future VIP enrollment.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| VIP Courses | Semester & Year | Team Name (short) | Credit Hours |  |
| VIP XXXX | Fall/Spring 20xx |  | 1-2 |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  | Total Hours (5 min): |  |  |

|  |  |  |
| --- | --- | --- |
|  | Name | Major |
| Please list the members of your VIP subteam (i.e. the students you expect to work with on the project). Add rows as needed. |  |  |
|  |  |
|  |  |

# Section 4: Project Details

|  |  |
| --- | --- |
| Proposed Project Name |  |

## Instructions

In completing this portion of the proposal, remember that the senior design project must be a significant culminating design experience, based upon knowledge and skills acquired in the major from earlier coursework, particularly from advanced course electives. Students must be capable of acquiring any new knowledge and skills necessary for successful completion of the project. The senior design project must demonstrate abilities, skills and knowledge acquired throughout the student’s academic career.

**Proposal Item 1: (3/4 of page)**

Provide a brief description of the proposed project explaining the product to be delivered.

**Proposal Item 2: (3/4 page)**

For whom is the product intended and what are the benefits?

**Proposal Item 3: (1/2 page)**

Explain in what ways the proposed project relates to your major and academic background.

**Proposal Item 4: (1/2 page)**

List any ECE advanced elective courses and other relevant courses that are related to the proposed project.

# Section 5: Student Responsibilities

Please initial each line to confirm you understand/accept the given responsibility.

It is the student’s responsibility to do the following:

|  |
| --- |
| ↓Please initial below |
|  | Complete the online final report form through ECE by their posted deadline.  |
|  | If there is a Secondary Advisor, to meet with him/her three times during your final semester of Senior Design. |
|  |
|  | Make a final presentation at the end of the semester. |
|  | If the main instructor is not from ECE, to find a Secondary Advisor in ECE. |
|  | Upload the following documents to the VIP peer-evaluation/grading system by the last instructional day (before finals) of 4983 or 4982: |
|  |
|  | * PDF copies of your VIP Notebook (we recommend using Lab Archives).
 |
|  | * Final report/deliverables specified by VIP instructor.
 |

# Section 6: VIP Instructor Approval/Confirmation

|  |  |
| --- | --- |
| Instructor Name |  |
| Department |  |

Dear Instructor(s),

The student named in this Senior Design Proposal form would like to complete the ECE Senior Design sequence through your VIP team. To move forward with his/her project, the student needs approval/confirmation from you in the two areas below.

**Instructor Approval Item 1: Approve Project Proposal (Applies only to ECE Faculty)**

Please read through the student’s proposal on the previous pages. The proposed project should meet the expectations below. If it does not, please give the student feedback on how he/she should improve it.

The project must:

* Provide a culminating design experience. The project:
* Relates to academic major
* Is based on the knowledge and skills acquired from earlier coursework
* Requires acquisition of new knowledge and skills as necessary for project
* Incorporate engineering standards and multiple constraints:
* Requires attention to appropriate engineering technical standards that refer to technical criteria, methods, processes, analysis and practices
* Requires consideration of multiple constraints and the related design tradeoffs
* Requires consideration of the potential influence of multiple factors (listed below.)
* Requires consideration of the impact of the project on public health, safety and welfare (identification and control/reduction of conditions and situations that are at risk of causing hazards, physical harm or illness.)
* Other factors influencing the engineering design specifications:
* Global (refers to world-wide or societal issues rather than local ones.)
* Cultural (refers to the set of beliefs, values, traditions, language that are distinguishing characteristics of a society or other defined group. The group may be defined by interests, preferences historical commonalities, etc.)
* Social (related to social groups with distinctive cultural, social, political and/or economic organizations)
* Environmental (refers to the natural world and relationships among living organisms, natural resources and natural environment)
* Economic (related to money supply, distribution, tax rates, interest rates, unemployment, types and quantities of distribution of goods and services, outsourcing practices, manufacturing costs, advanced process technology, etc.)

	+ Requires the student to work with at least two other students on the project (typically his/her VIP subteam). They can be from any major or academic rank, including graduate students.

**Instructor Approval Item #2: Confirm Instructor Expectations**

Because Capstone projects are often used in ABET accreditation, it is important for projects from all Capstone pathways to meet the documentation, experience and teamwork standards of their home departments. VIP teams already have high standards in all three areas, but to ensure consistency, it is important for the VIP instructor to commit to the expectations below.

Primary Advisor responsibilities:

* Employ usual VIP instruction:
	+ Ensure the student works with at least two other team members on the project.
	+ Use the web-based VIP peer-evaluation tool.
	+ Provide students with feedback at the midterm and end of the semester through the web-based VIP grading tool.
* If you are:
	+ An ECE faculty member:
		- Ensure that the project is appropriate for Senior Design per the guidelines laid out in the Handbook for ECE Senior Capstone Design Advisors (and in the proposal form).
		- Clarify purchasing methods and deliverables to the student(s).
		- Grade the technical and teamwork aspects of the final project.
		- Complete ECE’s end of Senior Design instructor survey.
		- Have the students make a final presentation at the end of the semester. This can either be in class, to stakeholders, or a the Capstone Design Expo.
	+ Not an ECE faculty member:
		- Indicate awareness of the project through this form. A Secondary Advisor will be identified.
		- Make grading recommendations to the Secondary Advisor.
		- Complete ECE’s end of Senior Design instructor survey.

|  |  |  |
| --- | --- | --- |
| Primary Advisor |  | ⬜ In ECE⬜ Not in ECE |
|  | Signature Date |  |

### Secondary Advisor Responsibilities

* Ensure the project is appropriate for Senior Design per the guidelines laid out in the Handbook for ECE Senior Capstone Design Advisors (and in this proposal form).
* Meet with the student(s) at least 3 times in their final semester of Senior Design.
* Clarify purchasing methods and deliverables to the student(s).
* Solicit grading recommendation from VIP instructor and assign the final grade.
* Complete ECE’s end of Senior Design instructor survey.
* Have the students make a final presentation at the end of the semester. This can either be in class, to stakeholders, or at the Capstone Design Expo.

|  |  |
| --- | --- |
| Secondary Advisor |  |
|  | Signature Date |