

ESG 21W.732 PROJECT III OVERVIEW  
FALL 2010

CONCEIVE, DESIGN, PROTOTYPE, AND EVALUATE A DEVICE TO REDUCE ENERGY FOOTPRINT

Now that you have practice with the design cycle and its communication deliverables, practice working in a team, and further structure for thinking about writing, graphics, teamwork, meetings, and collaboration, project III provides the opportunity to solidify your skills in the context of designing a product from scratch. In executing this project, adhere closely to processes. Document the entirety of your project work. Your notebook must brim with brainstorm ideas, FRDPARRC tables, notes on literature searches, preliminary experiments, back of the envelope calculations, experiment results, and the responses of your team members to your contributions. Meetings must be documented via agendas, minutes, and deliverables. Keep track of proposal and report drafts to indicate how the writing effort is spread out over time. Collect all the project images, both those that are used in documents and presentations and those that are not.

Project III starts with individual work to familiarize team members with products and how customers interact with products. Then, each individual will brainstorm concepts and ideas, select the better concepts, and execute a preliminary FRDPARRC on these individual concepts. These ideas are vetted by the team, which selects three concepts to pursue further. From these three concepts, one is chosen. Product ideas are brainstormed, preliminarily FRDPARRCed, & evaluated. The best product idea is then selected for design, implementation, and evaluation. Detailed FRDPARRC, prototyping, and testing ensue. Each individual is responsible for an individual testing proposal and report. The individual testing reports are expected to be melded into the final team report. The materials for the (single) prototype and its testing must cost less than 150\$. The schedule of deliverables is listed in Table 1.

**Table 1** project III workflow, roughly in order of occurrence

activity	deliverables	due dates
self & team assessment	assessment e-mail to Elizabeth	before Monday, Nov. 1
product investigations (individual)	5 ~1 page reviews of existing products: 3 good, 1 bad, and 1 "other" One of these essays will be expanded into a roughly 5 page product review. The Pogue camera reading is a good example of a product review. Expect to informally present the products you reviewed and what you thought of them in class.	for class on Tuesday, Nov 2
brainstorming (individual)	sketches and scrawlings in your notebook that identify: <ul style="list-style-type: none"> <li>• 3 (or more) concepts for energy saving devices</li> <li>• 3 design spaces for each concept (9 total spaces)</li> </ul> Sketch each space on a separate piece of 8.5"x11" piece of paper	for class on Thursday, Nov 4
FRDPARRC & selection (individual)	rough FRDPARRC table for each design space (in notebook) selection criteria table (in notebook) at least one back of the envelope calculation (in notebook) informal presentation of spaces and designs (in notebook)	
product concept selection (team)	PREP of individual concepts & spaces (evidence in notebooks) further brainstorming (evidence in notebook) selection of concept (evidence in notebook, formally part of proposal)	
product space brainstorming and selection	PREP of individual concepts & spaces (evidence in notebooks) further brainstorming (evidence in notebook) selection of concept (evidence in notebook, formally part of proposal)	
reading	assorted Petrosky & excerpts from <i>The Existential Pleasures of Engineering</i>	For Nov. 9
propose design	extensive FRDPARRC of design (team) formal, written proposal (team) proposal/design review (semi-formal presentation, team)	Nov. 9
individual test proposal		Nov. 16
reading	<i>Who's a Nerd</i> Boston Globe on Nerds at MIT	For Nov. 18
implement prototype	product prototype demo prototype documentation of the construction (photos and notebook)	
testing	test results in notebooks photo documentation of results	Nov. 23 (in class)
reading	assorted myths & parachute excerpts	for class, Nov. 23
myth		Nov. 30
individual testing report		Nov. 30
presentation dry runs	practice oral presentations	Nov. 30/Dec. 1
product report	oral presentation (team) written report (team) graphics package (team)	Dec. 2
reflection	assessment memo to Elizabeth additional reflection built into myth and parachute essays and end-of-term reflection on Dec. 9	before Dec. 6
parachute stories		Dec. 6
reading	<i>The Onion &amp; In a Station at the Metro</i>	for Dec. 7
reading	<i>Industry Communication Requirements</i>	for Dec. 9

Not included on this listing are meetings with Dave and Elizabeth or further drafting of the movie and product essays.

THINKING AHEAD TO LATE NOVEMBER:

At the end of project III, expect two more reflection assignments:

- Write a myth about yourself (over the Thanksgiving day holiday weekend)
- Write three (~1 page each) parachute essays that explain how you work.

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