Emergent Objects

PUFY 1263
CRN: 10657
Spring 2025
Monday, 12:10pm - 2:50pm
6 East 16th St. #704
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https://newschool.zoom.us/s/99071708062?pwd=aDEydXh5UGdNWDBjRnN2T3lWMVVLdz09

Course Description

Program, fabricate, and document electronic objects and build a better future. Gain an understanding of tactile, human-computer interfaces by producing evocative and functional devices of your own design.

Design is the process of actualizing change to our current state. By imagining a potential future, we can create a context for designed objects that reflect on our current circumstances. We will develop working hardware devices that respond to user input in this hands-on, project-based class. We will begin by understanding the process of creating a compelling user experience and learn how to document and present a research-based approach to design.

We'll go through electrical engineering fundamentals, circuit design, and electronic component prototyping. Our knowledge of electricity will allow us to create sensors that interact with the human body.
We will cover the basics of coding and working with microcontrollers. By programming the brains of our object we will use the data from our sensors to create a responsive device.

User testing and documentation are a vital step in the creation of complex objects and will guide our way to a final project of personal interest.

Learning Outcomes

By the successful completion of this course, students will be able, at **an introductory level,** to:

1. Students will be able to critically reflect on how the design and function of their electronic object contribute to or challenge societal values, ecological sustainability, and/or personal responsibility.
2. Students will be able to generate and visually communicate innovative ideas through sketches that illustrate both the appearance and functionality of a designed object.

3. Students will be able to write and debug basic Python code to create a functional application, demonstrating an understanding of core programming concepts such as variables, conditionals, and loops.
4. Students will be able to create an electronic circuit and program a microprocessor.
5. Students will be able to explore and experiment with electronic design and functionality, using speculative scenarios to inspire creative problem-solving and innovative approaches
6. Students will be able to analyze user behaviors, needs, and goals to develop a detailed persona, demonstrating critical thinking in identifying and synthesizing patterns from research data.

7. Think critically about the designed object and learn to reflect this thinking in their own designs.
8. Students will learn to prototype, test, and build an electronic object including programming a microcontroller..
9. Students will play with the idea of a fantastic object and experiment with new ways that a human may interact with an object.
10. Students will be able to develop user personas to inform design decisions, practicing foundational user research methods.
11. Students will learn design research methodologies applicable to a variety of disciplines.
12. Reflect on their own learning in posts on the Parsons Learning Portfolio.

Weekly Outline

week	date	Activity
Week 1	01/27	Introductions, community agreements, communication, attendance, syllabus, supplies, Canvas.
		Utopia/Dystopia workshop, VS Code + Codium
		Assignment: *Emerging Object*, *Utopia/Dystopia*, *Lab Orientations*, *Acquire Supplies*
Week 2	02/3	Python 1, *Object Possibilities*
		Persona, *Python Application*
Week 3	02/10	Electronics 1, *Object Workshop*
		Assignment: *Electronic Circuit*, *Object Sketches*
	02/17	President’s day (no class)
Week 4	02/24	Microcontroller programming, Microcontroller & electronics
		Assignment: *Microcontroller Circuit*, *Object Presentation*
Week 5	03/03	Individual Meetings Online. No in-person meeting
	03/10	Spring Break (no class)

week	date	Activity
Week 6	03/17	Advanced microcontroller programming
		Object Sell Sheet
Week 7	03/24	Peripheral devices, Cardboard engineering
		Peripheral Device, *User Journey*
Week 8	03/31	Midterm check-in & work session
		Circuit Programming, *Acquire Object Materials*
Week 9	04/07	Circuit programming
		Prototype Circuit Presentations, *Mechanical Design*
Week 10	04/14	How to Solder
		Construct your Enclosure
Week 11	04/21	Assemble your object
		Assemble Object
Week 12	04/28	User testing
		Instructions, *Product Photography*
Week 13	05/05	Work session
		Update one sheet
Week 14	05/12	Work session
		Learning Portfolio Entry
Week 15	05/13	Final presentation

Assessable Tasks

These are activities, assignments, projects that satisfy the course's learning outcomes.

- ***Utopia/Dystopia***
  Envision a future society to challenge societal values, ecological sustainability, and/or personal responsibility.
- ***Object Possibilities & Object Sketches***
  By brainstorming and sketching their appearance and functionality, students will develop the skills of ideation and visual communication.
- ***Python Application*** Create a simple Python application that accepts user input, processes the input using conditionals or loops, and outputs the result. The application must include comments explaining its functionality and demonstrate proper use of coding conventions.
- ***Emergent Object*** Create an electronic that would be useful to an individual living in a future utopian or dystopian world.
- ***Persona & User Journey*** Students will be able to analyze user behaviors, needs, and goals to develop a detailed persona, demonstrating critical thinking in identifying and synthesizing patterns from research data.

Learning Portfolio

You will use the Parsons Learning Portfolio throughout your education at Parsons. It is an ongoing, cumulative repository for your creative development and experience across courses, and across years. It archives your working process, skills learned, and connections you make between assignments, courses, and years, as well as final "finished" work. The courses in the first year emphasize the process – how you started, what happened next (and why), and how you ended up at your final work for each project.

Showing preliminary work (sketches, drafts, notes, research, etc.) as well as final documentation of your work will help to tell your story and make connections that may not have otherwise been apparent. In *Emergent Objects*, the Parsons Learning Portfolio will serve as documentation of the process of creating your object and for the object itself.

Make sure to use the MANDATORY Parsons Learning Portfolio Template- and do not change the template as this is a shared component of the Parsons experience. Also please **add a Learning Portfolio link to your Canvas Bio.** This allows fellow students and faculty to access your portfolio.

Required Readings

Reading list

Materials and Supplies

Please note that there are materials costs associated with this studio course and you should expect to purchase up to $50 on supplies. The expected cost does not include printer points that you receive as a student, nor does it include the materials from the materials kit that is purchased as you enter the first year. You can find a list of the materials kit items on the First Year advising page: http://www.newschool.edu/parsons/academic-advising-first-year-students/

Materials list

Making Center Tool List

Learning Together/Community Agreement

Community agreements, sometimes called ground rules, invite faculty and students to work together in building an inclusive classroom, allowing for thoughtful and open dialogue while setting a tone of respect and responsibility. For more information on Community Agreements from The New School Faculty Center, Click here.

Grading and Evaluation

Students' ability to meet the course's learning outcomes will be evaluated based on the following criteria:

- Attend regularly and communicate any challenge or absences to their faculty
- Solve problems, both creative and technical through an iterative process

- Turn in project assignments and course material on time
- Document their research in the development of projects
- Describe the the cross-course exploration between the Studio and Seminar
- Participate in class discussions and critiques
- Be accountable in collaborative work
- Improve in technical, creative, and problem solving abilities
- Submit thoughtful studio works that have undertaken several stages of ideation.

About Attendance and Grading

Your final grade will be calculated based on class participation (40% total) and projects (60% total). The following grade calculation demonstrates the need for your consistent participation, and equally as important, your active engagement in each step of the learning process. Weekly participation will allow you to successfully complete course projects and to contribute to our learning community.

Students who must miss a class session should notify the instructor and make up any missed work as soon as possible- ideally in an email prior to the class meeting. The student is responsible for following the course on Canvas and continuing to meet due dates, regardless of absences. A student who anticipates an extended absence should immediately inform the faculty and his or her program advisor.

(For more information on attendance see the University Policies below)

Final Grade Calculation

Class Participation: 40%

10% Attendance/ Meeting Due Dates

10% Work-in-progress reviews; class discussions

10% In-class exercises, sketches, and digital studies

10% Learning Portfolio

Projects*: 60%

5% Each preliminary project

10% Final project

- See individual assignment sheets for grading criteria.

100% TOTAL

UNIVERSITY POLICY & RESOURCES

Resources
The university provides many resources to help students achieve academic and artistic excellence. These resources include:

- **The University (and associated) Libraries**
- **The University Learning Center**
- **University Disabilities Services**

  In keeping with the university's policy of providing equal access for students with disabilities, any student with a disability who needs academic accommodations must contact SDS. There are several ways for students to contact the office: via email at StudentDisability@newschool.edu, through the Starfish service catalog, or by calling the office at 212.229.5626. A self-ID form can also be completed on the SDS webpage at www.newschool.edu/student-disability-services. Once you contact the office, SDS staff will arrange an intake appointment to discuss your concerns and, if appropriate, provide you with accommodation notices to give to me. Please note that faculty will not work unilaterally with students to provide accommodations. If you inform me of a disability but do not provide any official notification, I must refer you to SDS.

- **Making Center**
  The Making Center is a constellation of shops, labs, and open workspaces that are situated across the New School to help students express their ideas in a variety of materials and methods. We have resources to help support woodworking, metalworking, ceramics and pottery work, photography and film, textiles, printmaking, 3D printing, manual and CNC machining, and more. A staff of technicians and student workers provide expertise and maintain the different shops and labs. Safety is a primary concern, so each area has policies for access, training, and etiquette with which students and faculty should be familiar. Many areas require specific orientations or training before access is granted.
- **Health and Wellness**: additional services and support available to New School students.

Grading Standards

Undergraduate
A student's final grades and GPA are calculated using a 4.0 scale.

A [4.0]	Work of exceptional quality, which often goes beyond the stated goals of the course (95-100%)
A- [3.7]	Work of very high quality (90% - <95%)
B+ [3.3]	Work of high quality that indicates higher than average abilities (87% - <90%)
B [3.0]	Very good work that satisfies the goals of the course (83% - <87%)
B- [2.7]	Good work (80% - <83%)
C+ [2.3]	Above-average work (77% - <80%)
C [2.0]	Average work that indicates an understanding of the course material; passable (73% - <77%); Satisfactory completion of a course is considered to be a grade of C or higher.
C- [1.7]	Passing work but below good academic standing (70% - <73%)

D	[1.0]	Below-average work that indicates a student does not fully understand the assignments (60% - <70%); Probation level though passing for credit
F	[0.0]	Failure, no credit (0% - <60%)
GM		Grade missing for an individual

Grade of W
The grade of W may be issued by the Office of the Registrar to a student who officially withdraws from a course within the applicable deadline. There is no academic penalty, but the grade will appear on the student transcript.

Grades of Incomplete
The grade of I, or temporary incomplete, may be granted to a student under unusual and extenuating circumstances, such as when the student's academic life is interrupted by a medical or personal emergency. This mark is not given automatically but only upon the student's request and at the discretion of the instructor. A Request for Incomplete form must be completed and signed by the student and instructor. The time allowed for completion of the work and removal of the "I" mark will be set by the instructor with the following limitations:

Undergraduate students: Work must be completed no later than the seventh week of the following fall semester for spring or summer term incompletes and no later than the seventh week of the following spring semester for fall term incompletes. Grades of "I" not revised in the prescribed time will be recorded as a final grade of "F" by the Registrar's Office.

College, School, Program and Class Policies
A comprehensive overview of policy may be found under Policies: A to Z. Students are also encouraged to consult the Academic Catalog for Parsons.

Canvas
Use of Canvas may be an important resource for this class. Students should check it for announcements before coming to class each week.

Electronic Devices
The use of electronic devices (phones, tablets, laptops, cameras, etc.) is permitted when the device is being used in relation to the course's work. All other uses are prohibited in the classroom and devices should be turned off before class starts.

Responsibility
Students are responsible for all assignments, even if they are absent. Late assignments, failure to complete the assignments for class discussion and/or critique, and lack of preparedness for in-class discussions, presentations and/or critiques will jeopardize your successful completion of this course.

Active Participation and Attendance
Class participation is an essential part of class and includes: keeping up with reading, assignments, projects, contributing meaningfully to class discussions,

active participation in group work, and attending synchronous sessions regularly and on time.

Parsons' attendance guidelines were developed to encourage students' success in all aspects of their academic programs. Full participation is essential to the successful completion of coursework and enhances the quality of the educational experience for all, particularly in courses where group work is integral; thus, Parsons promotes high levels of attendance. Students are expected to attend classes regularly and promptly and in compliance with the standards stated in this course syllabus.

While attendance is just one aspect of active participation, absence from a significant portion of class time may prevent the successful attainment of course objectives. A significant portion of class time is generally defined as the equivalent of three weeks, or 20%, of class time. Lateness or early departure from class may be recorded as one full absence. Students may be asked to withdraw from a course if habitual absenteeism or tardiness has a negative impact on the class environment.

I will assess each student's performance against all of the assessment criteria in determining your final grade.

Using AI and generative tools in Parsons First Year
Please note that the use of Artificial Intelligence and generative text and image tools are addressed in the New School statement on Student Academic Integrity. As a general rule please consider the following with regards to AI:

- Do not submit any final work - writing or images - generated by AI tools without written permission from your faculty.
- AI tools deliver results that have been synthesized and averaged from many non citable sources. Misrepresentations are easy to miss.
- The AI tech space is rapidly changing and will continue to be contested. Be discerning in how you use these tools.
- Remember why you are at Parsons - to invest in yourself as a creative. Explore these tools with curiosity and criticality, rather than dependency.

Faculty Specific policy about the use of AI and generative tools
Students may us AI in the way that is used in the class.

Academic Honesty and Integrity
Compromising your academic integrity may lead to serious consequences, including (but not limited to) one or more of the following: failure of the assignment, failure of the course, academic warning, disciplinary probation, suspension from the university, or dismissal from the university.

Students are responsible for understanding the University's policy on academic honesty and integrity and must make use of proper citations of sources for writing papers, creating, presenting, and performing their work, taking examinations, and doing research. It is the responsibility of students to learn the procedures specific to their discipline for correctly and appropriately differentiating their own work from that of others. The full text of the policy, including adjudication procedures,

is found on the university website under Policies: A to Z. Resources regarding what plagiarism is and how to avoid it can be found on the Learning Center's website.

The New School views "academic honesty and integrity" as the duty of every member of an academic community to claim authorship for his or her own work and only for that work, and to recognize the contributions of others accurately and completely. This obligation is fundamental to the integrity of intellectual debate, and creative and academic pursuits. Academic honesty and integrity includes accurate use of quotations, as well as appropriate and explicit citation of sources in instances of paraphrasing and describing ideas, or reporting on research findings or any aspect of the work of others (including that of faculty members and other students). Academic dishonesty results from infractions of this "accurate use". The standards of academic honesty and integrity, and citation of sources, apply to all forms of academic work, including submissions of drafts of final papers or projects. All members of the University community are expected to conduct themselves in accord with the standards of academic honesty and integrity. Please see the complete policy in the Parsons Catalog.

Intellectual Property Rights
The New School (the "university") seeks to encourage creativity and invention among its faculty members and students. In doing so, the University affirms its traditional commitment to the personal ownership by its faculty members and students of Intellectual Property Rights in works they create. The complete policy governing Intellectual Property Rights may be seen on the university website, on the Provost's page.

Student Course Ratings (Course Evaluations)
During the last two weeks of the semester, students are asked to provide feedback for each of their courses through an online survey. They cannot view grades until providing feedback or officially declining to do so. Course evaluations are a vital space where students can speak about the learning experience. It is an important process which provides valuable data about the successful delivery and support of a course or topic to both the faculty and administrators. Instructors rely on course rating surveys for feedback on the course and teaching methods, so they can understand what aspects of the class are most successful in teaching students, and what aspects might be improved or changed in future. Without this information, it can be difficult for an instructor to reflect upon and improve teaching methods and course design. In addition, program/department chairs and other administrators review course surveys. Instructions are available online here.