Physical Computing, Minor

Physical Computing Minor

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Overview

~~Physical computing is driven by a creative combination of arts and engineering disciplines. Our students' projects interact with their surroundings, remember information, make decisions, and generate tangible outputs like movement, sound, or light.~~

Physical computing projects range from the tiny and plain (a blinking light on a breadboard) to the extravagant (a simulation of an alien landscape), and everything in between. They may be functional, like an assistive device for a person with disability, playful, like an interactive marble run, or exploratory, like a prototype for a future human-computer interface in a world of sentient machines.

Students ~~in the *Physical Computing* minor~~ gain a broad range of skills in our courses because physical computing as a field is fundamentally interdisciplinary: our projects combine software, electronics, and physical fabrication.

Learn how to:

- Write low-level software to computationally define a project's behavior, usually using C or Python
- ~~Fabricate projects using techniques borrowed from various crafts and disciplines (mechanics, textiles, woodworking, etc.)~~
- Design, test, assemble, and debug electronic circuits to bring a project to life
- Use 3D computer-aided design (CAD) for visualization, simulation, and fabrication
- Combine digital fabrication techniques (3D printing, laser cutting, etc.) with hand craft to iterate towards creating a final, polished product

~~The Physical Computing minor is offered through a collaboration between IDeATe and the Robotics Institute (https://www.ri.cmu.edu/), bringing together expertise from across the university.~~

Curriculum

Physical Computing Minor — Minimum of 45 Units

One Computing Course - Minimum of 9 Units

		Units
15-104	Introduction to Computing for Creative Practice	10
15-110	Principles of Computing	10
15-112	Fundamentals of Programming and Computer Science	12
60-212	Intermediate Studio: Creative Coding	12

One IDeATe Portal Course - Minimum of 9 Units

60-223	IDeATe: Introduction to Physical Computing	10
16-223	IDeATe Portal: Creative Kinetic Systems	10

IDeATe Physical Computing Courses - Minimum of 27 Units

15-294	Rapid Prototyping Technologies	5
15-394	Intermediate Rapid Prototyping	5
16/54-375	IDeATe: Robotics for Creative Practice	10
16-376	IDeATe: Kinetic Fabrics	10
16-480	IDeATe: Creative Soft Robotics	10
18-578	Mechatronic Design	12
24-672	Special Topics in DIY Design and Fabrication	12
62-423	IDeATe Inclusive Design Studio: From Interview to Product w Physical Computing	10
62-478	IDeATe: digiTOOL	9

Additional course options as available. Please refer to the IDeATe website for courses for the current and upcoming semester.

Double-Counting

Students may double-count up to two of their *Physical Computing* minor courses toward requirements for other majors and minors.