

The Center for Socially Engaged Design (C-SED)

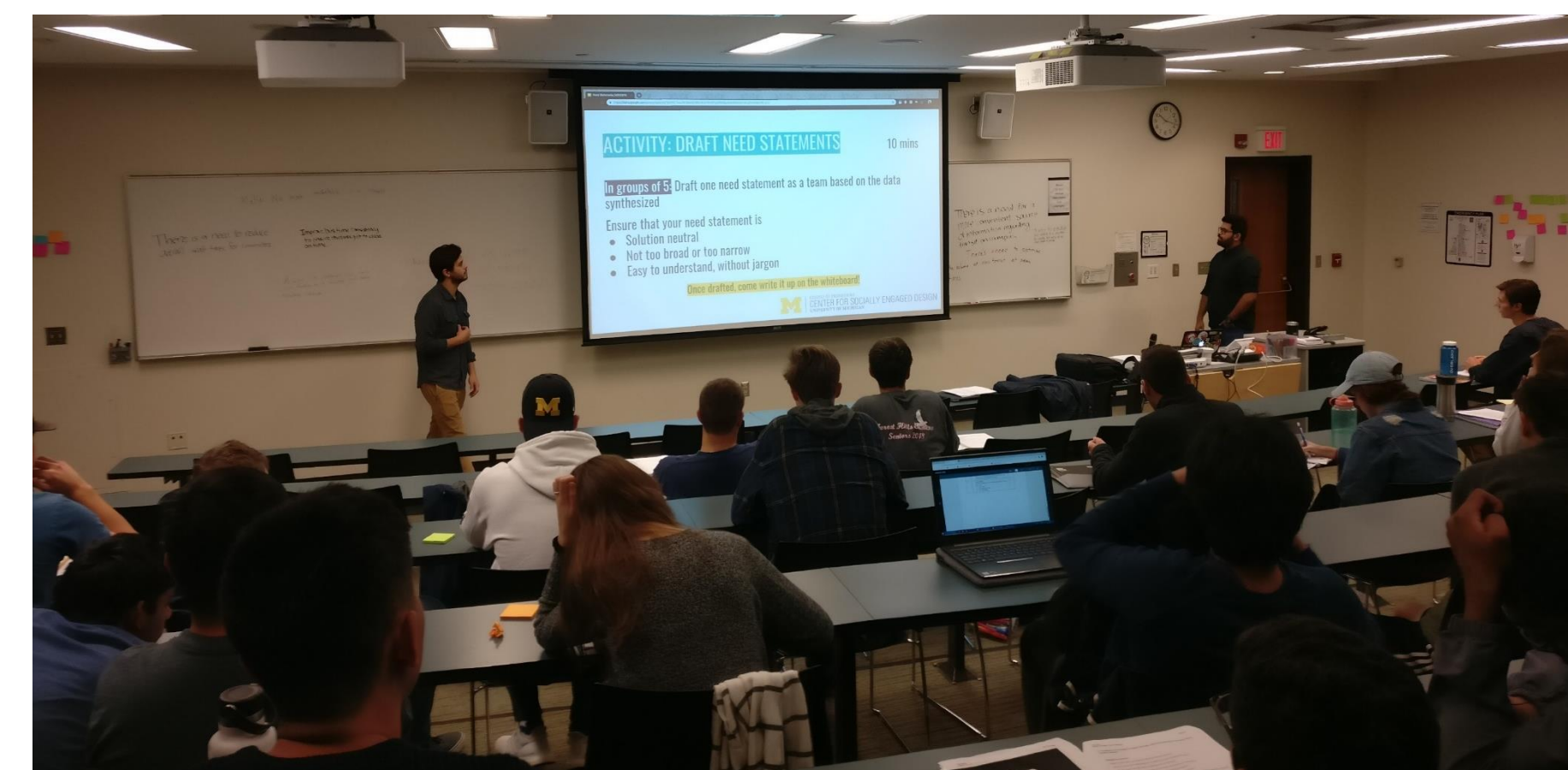
The Center for Socially Engaged Design (C-SED) uses evidence-based pedagogical methods in an adaptable, curated, customizable curriculum that integrates learning and practice experiences to meet each designer where they are on their design journey. Our goal is that all students leave Michigan with the demonstrated skills to co-design in an iterative, immersive context with communities of end-users.

Using C-SED in ME 450, the Capstone Design course

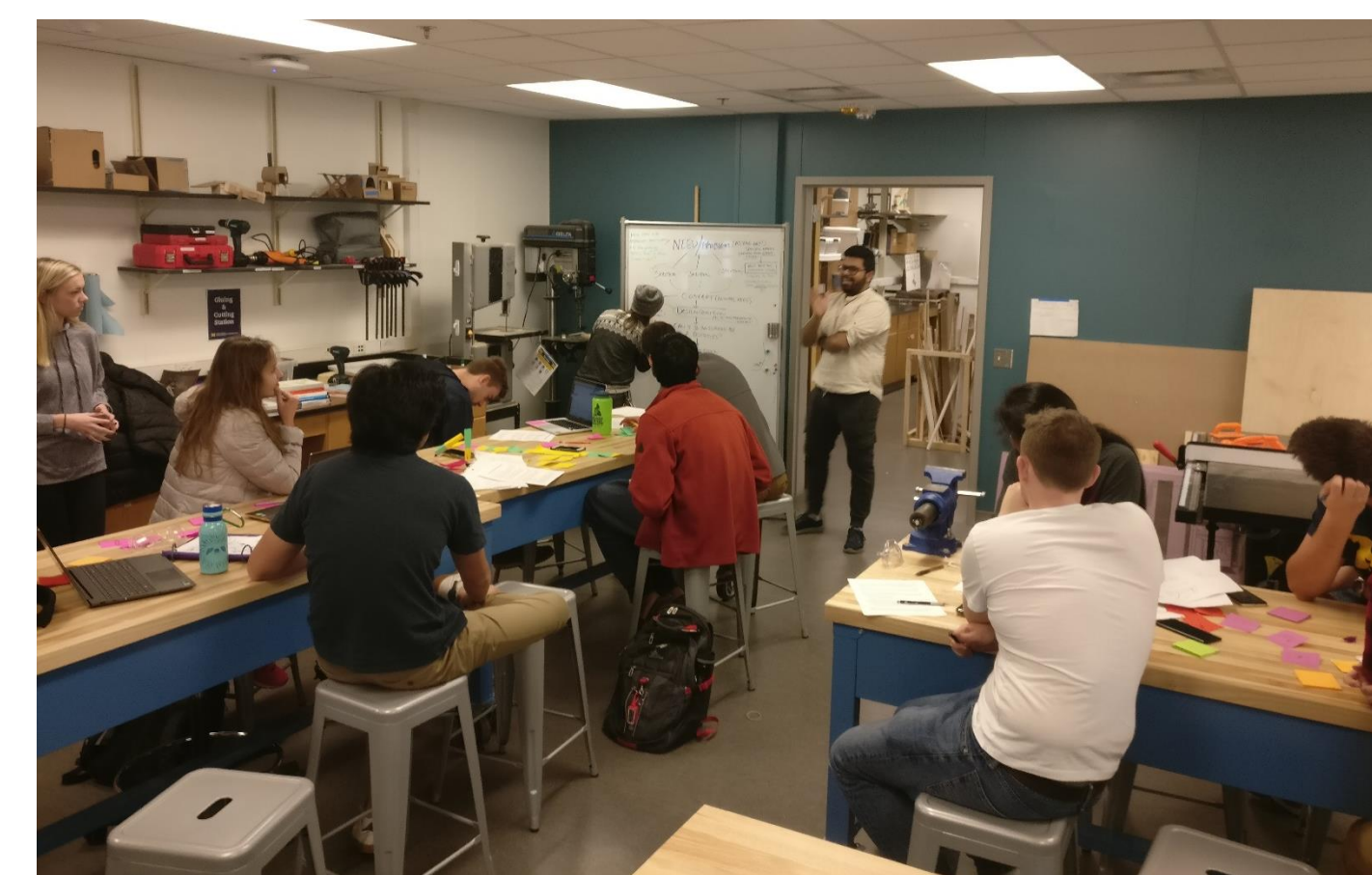
Mechanical Engineering students nearing graduation work in teams of 4-5 students on an open-ended, “real-world” engineering problem in ME 450, giving them insight into the design process. This semester-long project allows them the opportunity to apply a lot of what they have learned from their first several years of school, as they **elicit user needs, generate requirements, develop and analyze concepts** through applying engineering fundamentals, and **validate their prototypes**.

We turned to C-SED for help in the following:

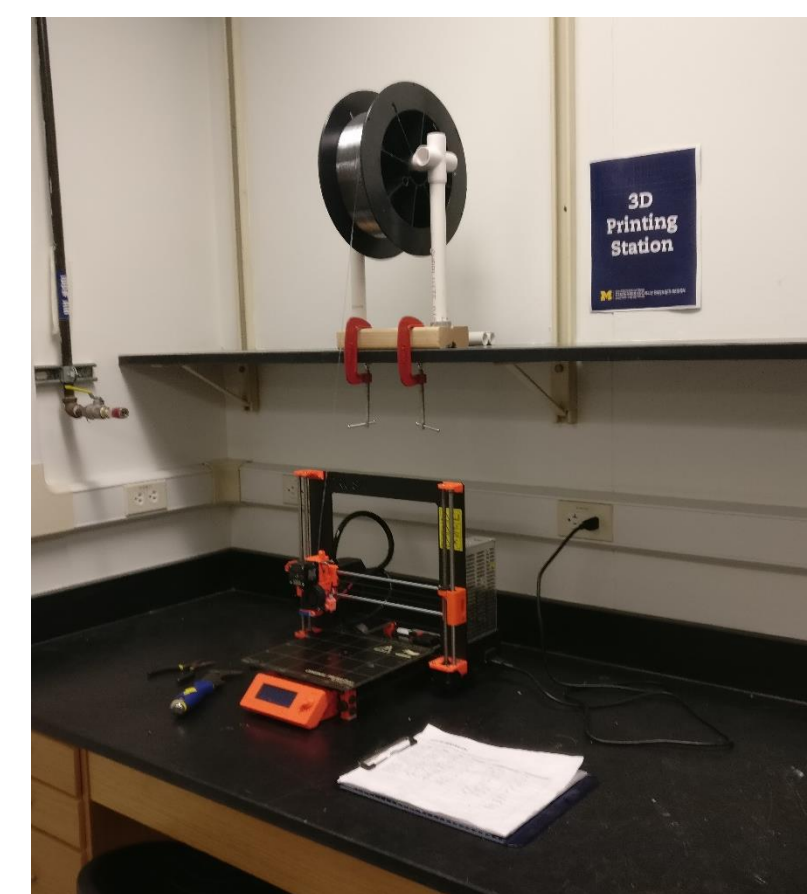
- **SEDA Shorts:** These online resources were posted to our ME 450 Canvas site to provide additional reading references for teams looking to review topics relevant to their project or to be exposed to new, “short bursts” of information, such as Designing for Sustainability or Lifecycle Assessment. These shorts are typically around 5-6 pages in length.
- **SEDA Blocks:** These are self-paced learning blocks that are more in-depth than the shorts. Faculty have used these blocks as part of their capstone discussion sections. Within the block, students take a pre-test students showing what they already know about certain topics (for example, design ethnography), complete the learning objectives via different media (video clips, journal article excerpts, etc.), and then apply this new knowledge on an activity before meeting with a consultant for feedback.
- **Project-specific feedback from C-SED Consultants:** C-SED has consultants (Faculty, post-docs, grad students) available with diverse backgrounds and experiences (industry, research, community-based work) to help students apply socially engaged design. Our teams most often use the consultants with experience in a variety of prototyping methods!
- **In-class workshops on socially engaged design topics:** As our capstone course continues to evolve, we identified two areas that could be strengthened by working with C-SED. They provided two in-class workshops on these topics (Design & Sustainability, Responsible Community Outreach in Design) based on our course needs.



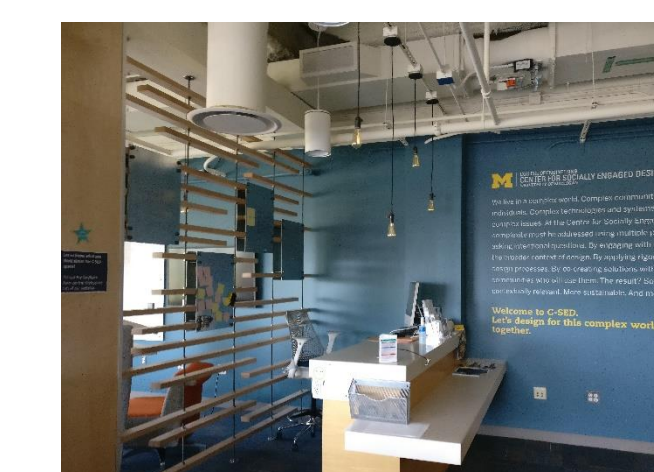
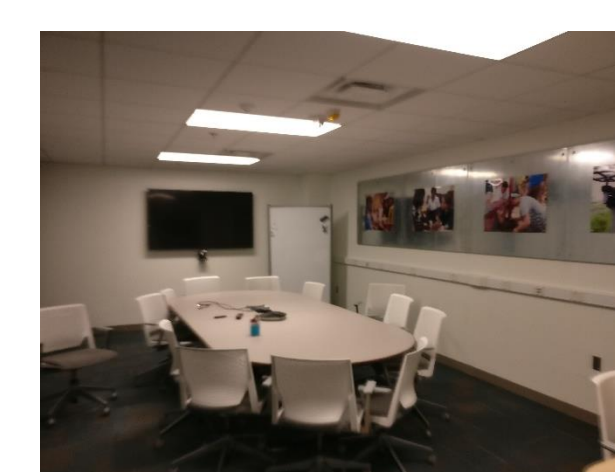
In-class workshops



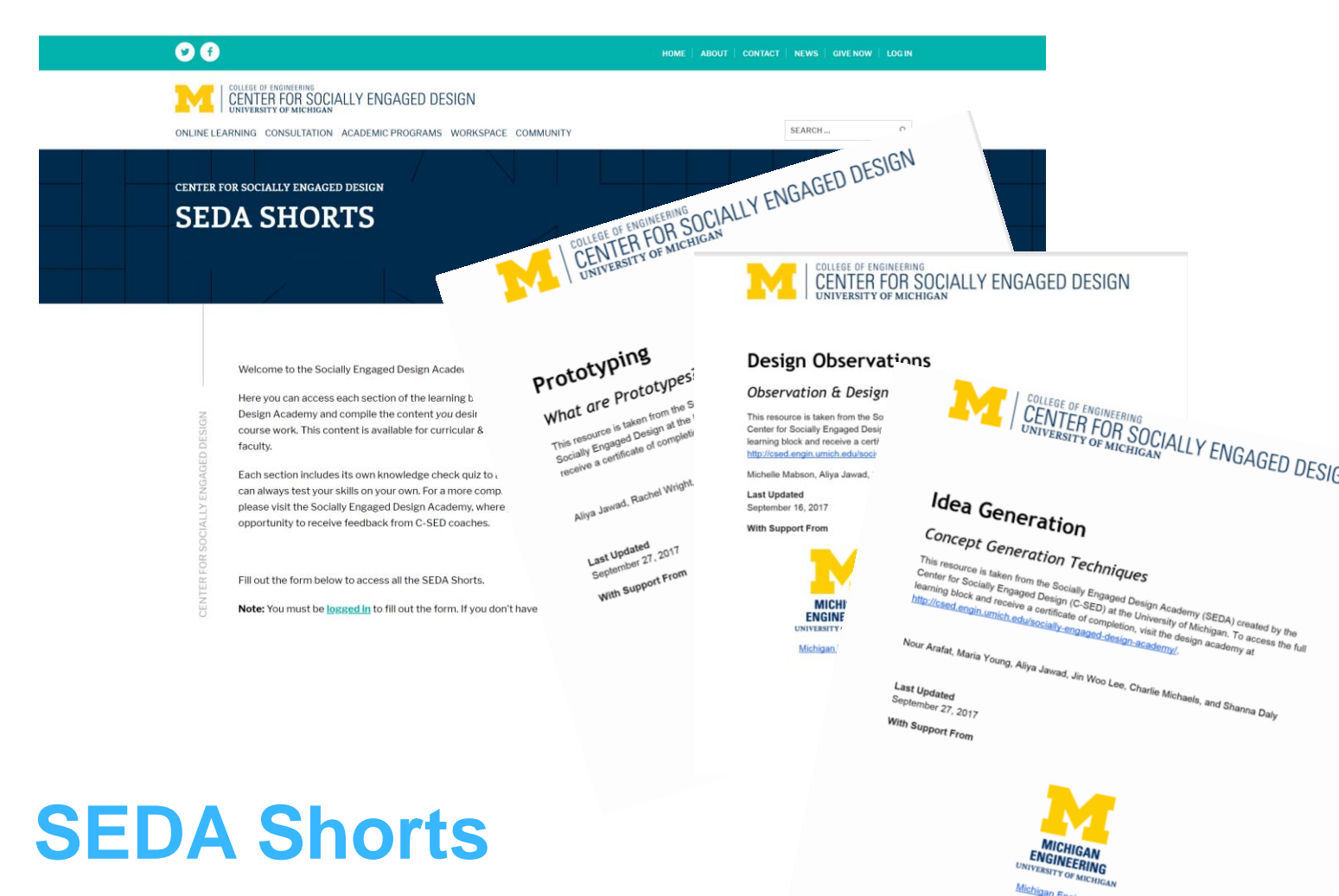
Lab Sessions



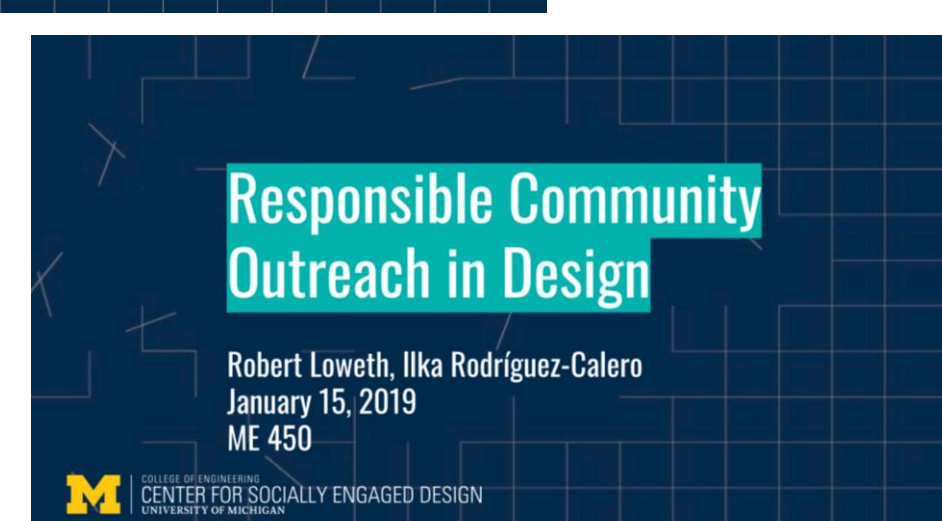
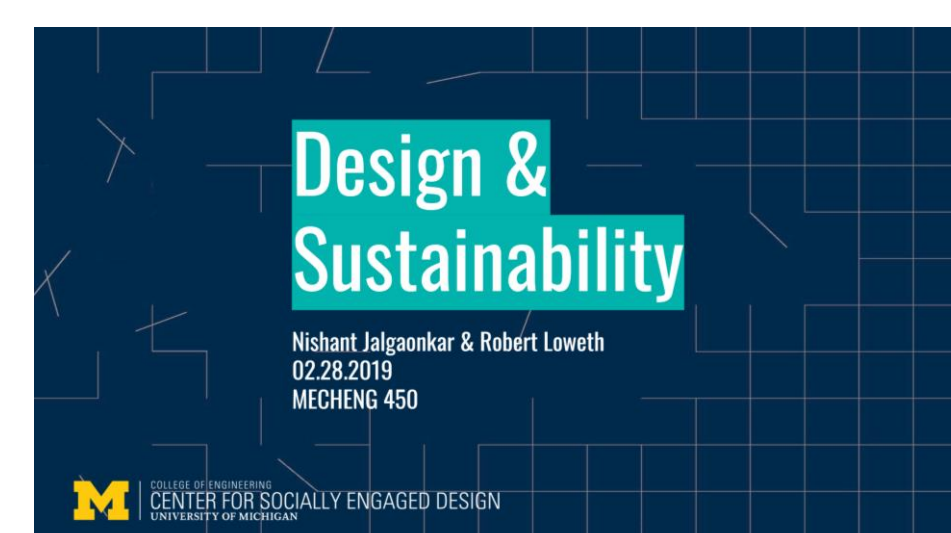
Access to Prototyping Lab



Access to Collaboration Space



SEDA Shorts



In-class workshops

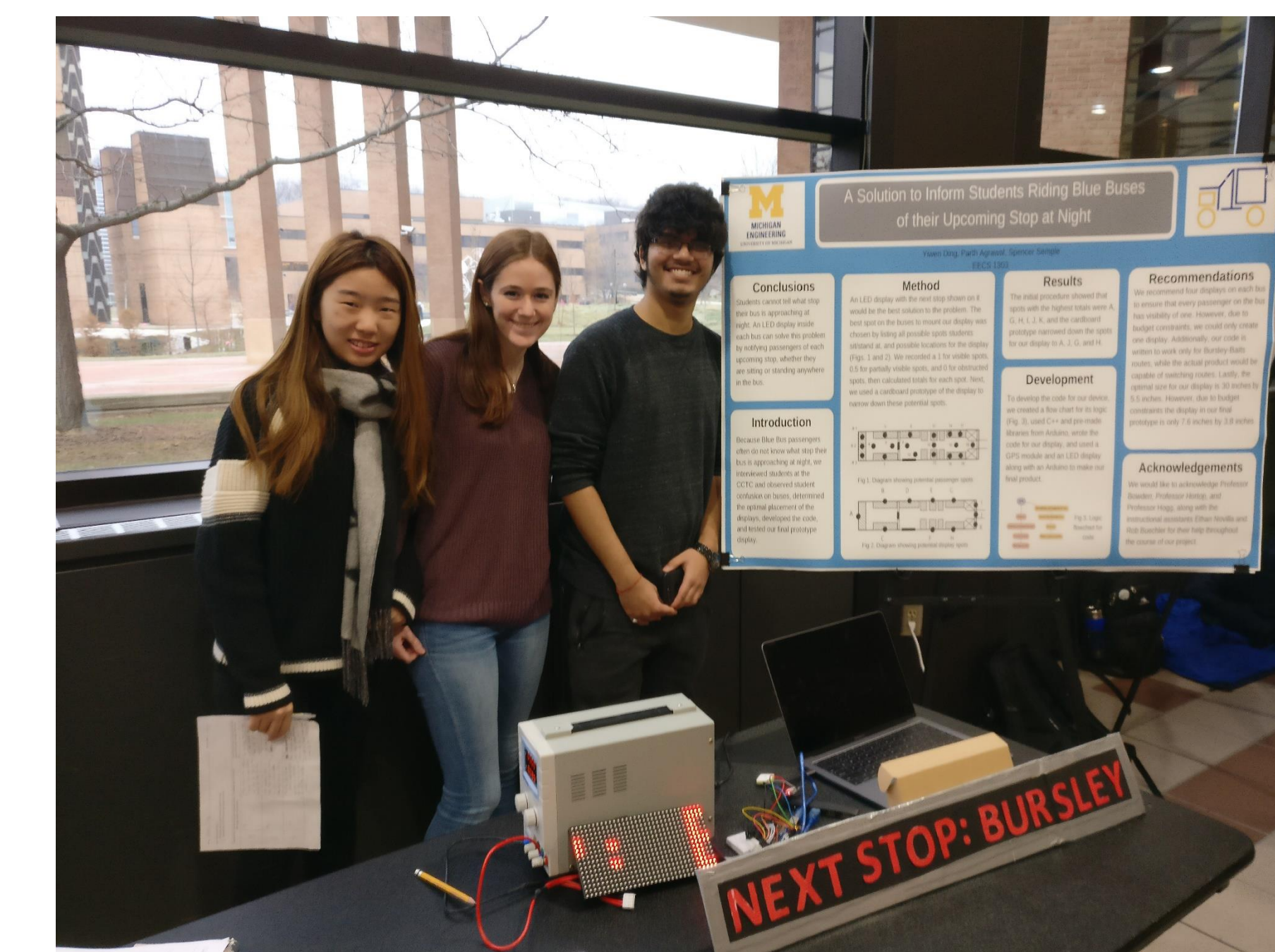
Using C-SED in F18 ENG 100 Section 800 (Urban Mobility):

In this section of Engineering 100, students were exposed to different design process models, and used design process to make improvements in mobility within the context of global engineering and socially responsible engineering.

Students in our section worked with the Center for Socially Engaged Design (C-SED) to **identify problems** with mobility. They identified **potential stakeholders and needs**, and each team proposed ideas for a new product or improved design of an existing product that would enhance mobility on campus. Using tools from C-SED, they talked to potential customers to find out what issues students have with transportation on campus and identify opportunities for socially responsible product or infrastructure improvements. Using the C-SED Prototyping Lab, the students **built and tested multiple prototypes** of their ideas.

C-SED provided support in the following ways throughout the semester:

- **Facilitated interactive workshops during lecture:** Consultants from the C-SED led a couple of in-class workshops on Needs Finding/ Making Observations and Eliciting Feedback from prototypes. Students enjoyed their “real-world” examples and stories...and actively participated!
- **Trained students to safely use C-SED Prototyping Lab:** All students went through an exercise during the first lab class that exposed them to all of the tools in the lab by having them each make a wood pencil holder.
- **Access to the C-SED Prototyping Lab:** Once students were trained, they were given access to use the space at their convenience. The lab space includes a table saw, miter saw, 3D printer, jig saw, drill press, and more. Power tools are only available when a GSI or C-SED consultant is also present in the lab space, but students have access to hand tools and other resources around the clock. Students retain this lab access for as long as they are students working on socially engaged projects, not just as ENG 100 students!
- **Supported lab sessions by providing lab facilitators:** Some weeks, the students were led through guided lab sessions as they worked to frame their problem, identify stakeholders, and generate concept ideas.
- **SEDA Shorts:** These online resources were posted to our ENG 100 Canvas site to provide additional reading references instead of requiring a textbook.



ENG 100 Section 800 End-of-Semester Poster Fair

Contact C-SED:
 Center for Socially Engaged Design
 GG Brown, 3rd Floor
 2350 Hayward St
 Ann Arbor, MI 48109
 c-sed-info@umich.edu