

ISDN 3002 Year-3 Project – Second Term

This course is the second part of a one-year project course offered to third year students. Each student is assigned a component of a large project. The project is expected to be of increased technical complexity compared with the second year project. In the first part, each team has put together a prototype that demonstrated the proof of concept. In this course, the main goal is to iterate through multiple generations of the original prototype, enhancing each generation and culminating in a product design that considers issues such as manufacturability, user interface design, industrial design, robustness and ergonomics.

Each iteration will require project planning, load-distribution and collaboration within each team, construction/fabrication, testing, and user-feedback. Other important factors, such as sustainability, and marketability must also be considered.

Course Intended Learning Outcomes:

At successful completion of the course, you will be able to

- Be a self-learner
- Demonstrate increased competence in technical knowledge and design skills
- Acquire relevant knowledge and skills via project-based learning
- Product design with sustainability and marketability mind-set as well as budgetary constraint
- Communicate with and function as an interdisciplinary team
- Document and present one's own work
- Demonstrate a strong working knowledge of ethics
- Conduct project planning activities

Grading

Individual Student Technical Studies 20%

Project Definition 10%

Critical Design Review 20%

Final Design Review 20%

Final Deliverables 20%

Product spec and system design document

Integrated product and demo

Metaverse Expo

Peer Review: 10%

Key milestones

Product and Project Definition Review

- Robust design of major components of the product
- Testing data report on each component
- Selection of materials, industrial design, and assembly structure

Critical Design Review

- Working prototype
- Field testing data and analysis
- Failure modes and analysis, design improvements planning

Final Design Review

- Assembled and tested final iteration
- Demonstration in class