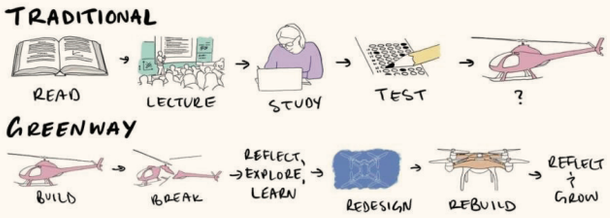
Project-based Learning

Applied hands-on learning and sustainable engineering



Essential Learning Outcomes and Mastery-based Standards

The Greenway Center for Equity and Sustainability (GCES) will uniquely utilize an entirely project-based curriculum, with projects addressing applications important to our students and tied to essential learning outcomes with established mastery-based standards. Learning will be supported by responsive mentoring that intentionally builds confidence and engineering identity.

Our Program

The Greenway Center for Equity and Sustainability is opening an innovation center in partnership with Elizabethtown College. Programs at GCES will function within Elizabethtown's existing ABET-accredited engineering program. GCES aims to re-imagine engineering education by centering equity and sustainability and using an integrated package of best educational practices. GCES strives to provide a supportive community and relevant, participative, hands-on, mastery-assessed instruction that gives every student the opportunity to develop the confidence, competence, and connections they need to thrive in engineering.

Supportive community, and team-based, hands-on learning

Centered on equity to broaden the pipeline into engineering

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GREENWAY INSTITUTE

ETOWN ELIZABETHTOWN COLLEGE

The Greenway Center for Equity and Sustainability

A unique, lecture-free project-based engineering program

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Sophomore "Semester Away" Program in Vermont

To strengthen the sense of purpose and the confidence of sophomore engineering students, GCES offers an engaging "semester away" program, organized around applied hands-on learning and sustainable engineering. This program will be open to sophomore engineering students and other interested and qualified college students. Students will spend a semester studying at the Greenway Center for Equity and Sustainability in Montpelier, Vermont.

The program will be built around community-based sustainable engineering problems that will drive both technical (e.g., engineering, math, science) and nontechnical (e.g., social science, communications) components of the program. In teams, the students will tackle sustainable technology issues that are meaningful to local communities and business partners. Through the program, students will ways how engineers can help design and build our equitable and sustainable future.

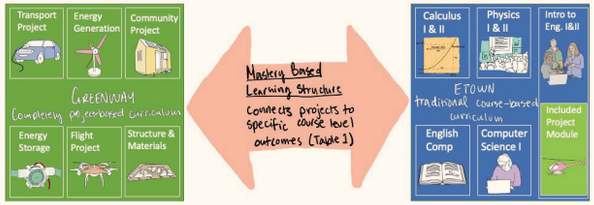


Table 1-Sample project alignment with MBL outcomes & traditional courses

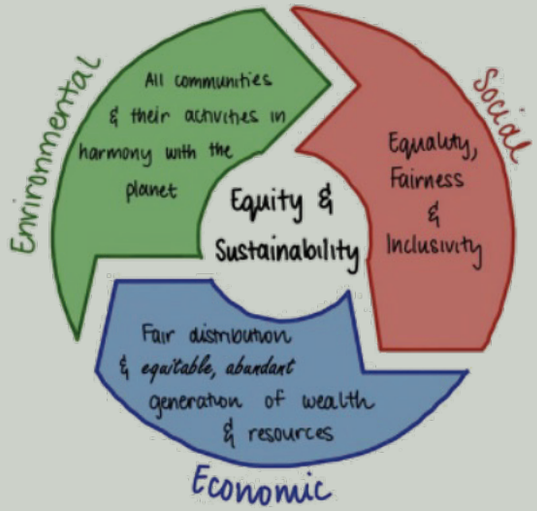
Project	MBL Outcome	Course
Transportation	Electromagnetic Induction	Physics II
Transportation	Basic rules for integration	Calculus II
Zero Waste	Free body force diagrams	Statics
Zero Waste	Analysis of engineering ethics	Science & Values

Students that successfully complete the Engineering for our Sustainable Future sophomore program will receive credits from Elizabethtown College equivalent to up to five courses. Course options include:

- **Math 122 (Calculus II)**
- **Physics 202 (Physics II)**
- **Engineering 260 (Statics)**
- **Engineering 210 (Circuits)**
- **Computer Science 121 (Computer Science I)**
- **Philosophy 265 (Science & Values)**

Each Greenway course has a defined set of learning objectives that mirror the Elizabethtown College course. Across the semester students will work on sustainable technology projects and problems that span multiple courses and target these learning objectives. By building these projects, students will acquire math, science, and engineering skills while discovering real world applications of sustainable technology.

Sustainablity at the Greenway Center



ENVIRONMENTAL SUSTAINABILITY

We are committed to making our planet a better place through smart engineering and entrepreneurship – not just reducing environmental harm, but aligning systems with the natural world.

ECONOMIC SUSTAINABILITY

We prioritize the long-term impact of sustainable design in terms of economic payback and gain through a practice of resource efficiency and equity. We view sustainable engineering design as an economic opportunity, not a drawback.

SOCIAL SUSTAINABILITY

We promote equitable and inclusive practices that strive for the collective well-being of people, justice for all communities, and communal concern for health and safety.