



Empowering Cardinals through Sustainable Engineering Solutions



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Introduction

SVSU Mission: Transform lives through educational excellence and dynamic partnerships

Incorporate sustainability concepts from Freshmen to Senior engineering courses.

Develop industrial and community partnership

Measure student impact – sustainability mindset

Campus-wide sustainability pedagogical awareness

Progress and Plan for Scaling Up

Identifying

Faculty

Stakeholders

Pilot Courses

Building

Collaborators

Leadership Buy-in

K-14 educators

Outcomes

Sustainability Competencies

Sustainability Advocates

Engineering for One Planet (EOP) Campus

Cardinal - Sustainability Mindset & Climate

Methods

SUSTAINABLE ENGINEERING ETHICS

Engineering ethics is offered for all engineering students, freshmen-seniors. The courses focus on ethical awareness and conduct. The proposed activity will emphasize sustainable designs, ethical responsibility as an engineer to advocate for environmental impact on the planet.

SUSTAINABLE PROGRAMMING

Programming concepts focuses on computational efficiency techniques for sophomores. The EOP framework will enhance understanding of green s/w design with energy efficient modular designs leading to reducing e-waste and encouraging open-source resources.

SUSTAINABLE ENGINEERING DESIGN

Senior students develop capstone projects with sustainable engineering prototypes and Diversity, Equity, Justice and Inclusive (DEJI) focused to ensure materials, designs, and development for project has societal impact.

Evaluation and Impact

Creating Sustainability Mindset

Engineering students in four programs participated in the study (Computer engineering, Electrical engineering, engineering and technology management and mechanical engineering). Approximately 115 engineering students (freshmen-seniors) participated in the EOP module. Students were evaluated using pre and post survey on sustainability learning outcomes, mindset and understanding importance of ethical behavior, inclusive learning environments.

Creating Sustainable Solutions

Refine modules to incorporate interactive learning and implement mixed-method survey. Extend the modules for gateway engineering and general education courses.

Creating Inclusive Environment

Contact rmuralee@svsu.edu to implement EOP in your classroom.

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