IPRO 311 Project Plan
Summer 2008

Campus Branding/ Sustainability Image

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1.0 Abstract

The overall aim of the project is to improve and enhance the image of IIT, both as an institution and a physical campus, as regards sustainability and "green" practices. To that end, the current semester is focused on several design projects based on concepts generated in the previous semester. These projects will then be analyzed regarding their appeal, both direct and methodological, to other members of the IIT community in order to inform the best model for sustainability develop to be promoted by future semesters of this project.

2.0 Background

The IPRO 311 Team's overall objective is to create a conceptual design and branding of IIT as an eco-friendly campus, promoting sustainability to students, faculty and visitors. IPRO 311 is sponsored by the IIT Marketing and Communications Department, which seeks to portray a message of the university's accomplishments in the area of sustainability and future capabilities. Furthermore, this project is driven by the interests of two IIT trustees with an interest to enhance the visibility of the IIT Main Campus from the I-94 expressway and other challenging vantage points (US Cellular Field, Sears Tower, McCormick Place, 2016 Olympics venues, etc.).

In terms of sustainability activities on campus today, there exist ongoing construction projects that are greatly reducing the amount of energy consumed in the operation of the campus. A circa 1900 steam system design is being replaced with high efficiency hot water boiler systems. Lighting systems have been upgraded over the past decade, which resulted in significant energy savings for general building lighting. Outdated building automation control systems are being upgraded to more responsive systems. Metering improvements have been made over the years to identify the amount and location of steam usage. With the change to the hot water boiler decentralized system, utility gas meters throughout the campus will provide a more accurate picture of the fuel needed to operate each building or mini utility plant.

3.0 Objectives

Creative solutions that unify the campus and enhance visibility may in fact be more ubiquitous and pervasive, taking the form of LED lighting decorative elements that feature the campus buildings, ways of creating a themed experience associated with all the corners of the campus that might be interactive, replacing campus sidewalks with permeable pavement to improve both sustainability and aesthetics, or utilizing a significant building to promote visibility of the IIT Main Campus from I-94 and do so via sustainable technology solutions.

Initially, the focus of the IPRO was the development of signage that could represent sustainability and be situated at a prominent location on campus visible to the public. After several class discussions, the vision of the IRPO broadened, to develop an overall campus sustainable conceptual design, incorporating signage as one of the elements. Successful completion of the goals presented here will require each participant to gain useful experience and knowledge regarding teamwork, inter-professional skills and specifically sustainable concepts. There are several interrelated objectives:

(1) Build IIT brand awareness and campus visibility in ways that are aesthetically pleasing, exciting and memorable.
(2) Create an eco-friendly, self-sustained project that promotes general awareness of activities within the university among students, staff, faculty and the community.
(3) Play a leadership role in supporting Mayor Daley's vision for creating a ultra-green Chicago by 2020.
(4) Create an IIT campus sustainability plan for future IPROs to build upon.
(5) Further develop specific sustainability concepts and options for IIT to implement in the future.

For the first semester, the team explored, compiled, and identified different eco-friendly technologies that helped accomplish our goals. Additionally, the team maintained a strategy to ensure the scope of work built upon our objectives. Moreover, the team to designed the project with eco-friendly materials. Modeling and simulating the overall design strategy were part of the first semester IPRO deliverables.

The second, current, semester involves the further development of several of the concepts generated by the work of the first semester. In particular, the project is

focused on developing implementation plans for an outdoor solar workstation, the replacement of campus concrete with permeable paving, implementing and installing "green walls" on campus, and the possible efficiency gains of installing wind turbines and advanced insulation on and in campus buildings. These projects will be explored with respect towards maintaining and implementing the original campus plan by Mies van der Rohe, enhancing awareness of sustainability on the IIT campus, and developing a comprehensive sustainability plan for the IIT campus, allowing for further development in later semesters of the IPRO project.

In terms of energy and sustainability, IIT wants to take advantage of its rich history in innovation, problem solving and implementation by portraying itself as a center of sustainability education, research and project implementation for the Chicago metropolitan area and beyond. IIT graduates are known for their ability to accept responsible roles in the work force, create technology companies, and assume technology roles in established companies.

Any image of sustainability developed through this IPRO should be backed up with a continuation of improvements that make IIT more energy efficient, material efficient, and labor efficient while striving towards sustainability. Each existing building is in need of attention at the level of small details that cause them to use excessive amounts of energy. In addition, alterations in campus operations and the actions of students, professors, and staff will create a more sustainable university environment.
Beyond sustainability, an image enhancement is needed at the IIT main campus.

- The edges or borders of the IIT campus are not defined.
- IIT needs to improve its appearance as a university campus. New visitors to the campus do not interpret the entire assemblage of buildings as a university campus.
- IIT needs to improve the package of neighborhood amenities to create a campus environment. The institute is located a few minutes south of downtown Chicago, but have no immediate "campus town" amenities.

As regards the overall goals of enhancing the profile of sustainability on the IIT campus, the design efforts produced by the current semester are intended to serve as a potential model for future design efforts. Principally, evaluations of the projects when presented to the members of the other IPRO projects, their sponsors, and the judges will serve as an evaluation of the model of a design competition and symposium. To this end, viewers will be surveyed both during the midterm review and again at the final presentation. The overarching goal is

to determine what approaches appeal most to and garner the most interest with those not participating directly in the project.

4.0 Work Breakdown Structure

The work breakdown in this project was determined separately by each group. Additionally, analysis of the project by the entire group will be conducted during and immediately after the midterm review (6/26) and the final presentation (7/26) to further inform the future of the project.

I. Solar Workstation

Task	Description	Target deadline
Research	Research materials, solar panels, batteries, charge controllers, power inverters, lighting, and construction	6/24
Design	Model (CAD) various designs for workstation	7/1
Model	Build scale model for test purposes	7/15
Full-scale mockup	If possible, produce full-scale mock-up	7/22

II. Permeable Paving

Task	Description	Target deadline
Research	Investigate permeable paving materials and installation methods	6/24
Design	Determine areas most appropriate for pavement replacement, generate new paving plan	7/1

Model	Produce digital model of new paving plan	7/15

III. Green Walls

S.No.	Task	Start	Finish	Persons In-charge
1	**Research**			
1.1	Green Wall Technology	thurs 06.12.08	wed 06.18.08	prairna gupta & yunseok song
1.2	IIT campus	thurs 06.19.08	tues 06.24.08	prairna gupta & yunseok song
2	**Planning**			
2.1	drawings and study diagrams	wed 06.25.08	tues 07.01.08	prairna gupta & yunseok song
2.2	conceptual designs	wed 07.02.08	tues 07.08.08	prairna gupta & yunseok song
3	**Final Design**			
3.1	graphic renderings	tues 07.08.08	fri 07.18.08	prairna gupta
3.2	master plan	fri 07.11.08	fri 07.18.08	prairna gupta & yunseok song
3.3	budget sheet	wed 07.09.08	fri 07.11.08	yunseok song

IV. Wind Turbine and Insulation

Task	Description	Target deadline
Research	Conduct wind survey and physical survey of wind turbine location (Machinery Hall), obtain temperature and heat transfer measurements of insulation location (E1 building), determine best turbine design and insulation type	6/26
Feasibility	Assess potential costs and savings based on current expenditures and power requirements	7/1
Implementation plan	Based on results from previous, generate detailed implementation plan and investigate potential funding sources	7/22

5.0 Project Budget

Your submission was successful! Review your submission in the table below or at any time by clicking on the 'Budget' tab of your IPRO.

IPRO 311

Submitted Budget

Category	Requested	Approved	Actual/Forecast	Explanation	Status
Supplies	$ 200	$ 0	$ 0	Mock-ups and models	Pending
Equipment	$ 200	$ 0	$ 0	Aerogel samples (~$100) Materials for insulation ...	Pending
TOTAL	$ 400	$ 0	$ 0		

6.0 Team Structure and Assignments

In order to accomplish the objectives of the project for the current semester, the team has been divided into four groups.

The groups are as follows:

- **Solar Workstation**

  This group will develop a working model for an outdoor solar-powered workstation.
  Members: Abraham Contreras, Neils De Vita, Mohammad Ishaq, Richard King, Adam Stultz

- **Permeable Paving**

  This group will research the current use of concrete and other paving for sidewalks and streets and determine the feasibility and benefit of installing permeable paving, as well as creating a plan to do such.
  Members: Phil Korol, Ashley Ono, Ji Ae Park

- **Green Walls**

  This group will investigate the benefits of green walls and investigate potential sites and feasibility for their installation on IIT's campus.

Members: Prairna Gupta, Yunseok Song

- **Wind Turbine and Insulation**

  This group will investigate the potential benefits and feasibility of using advanced insulation in IIT buildings and the possibility and potential benefit of installing a visible wind turbine on the top of Machinery Hall.
  Members: Elliot Barlow, Michael Chamales, Anne Nadler

In addition, the project selected a team leader (Elliot Barlow) responsible for the timely submission of deliverables and coordination of disparate groups. The leader is not the guide of the project, however, merely the member whose duty it is to keep things "on track" per the goals established by group consensus.