EnPRO 352

A Recyclables Business Model for IIT

"A self-sustaining educational enterprise that OmIITs waste by converting it into profits and learning"

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Student Organization & Awareness

Introduction

The student organization is going to be a business ran by student workers. This business will contain the employees necessary to run and maintain the multiple programs which will be controlled by the Student Recycling Business. This business will also be in charge of creating events which will help to get the students, staff and faculty of IIT more involved in the recycling process. For prolonged success, the marketing component of any business plan is possibly one of the most essential. Within a student-run business, the need for campus support is enough motivation to implement an effective marketing strategy to advertise the products and gain an appropriate reputation. In terms of recycling, to achieve desired results for a specific objective requires that the target audience is fully informed. Thus, an awareness campaign must be introduced before any expected business success is observed.

As shown by the provided data, the large diversity on campus has and most likely will always remain a unique attribute of IIT. Not only do the ethnicity and gender size vary from one category to the next, but the large demographic range (age) that is not presented due to unattainable information is also a significant factor in target marketing. Having language barriers and large generational gaps makes it difficult to impose a single marketing strategy all over campus. A successful marketing plan will overcome these obstacles with ideas that integrate all backgrounds and avoid cultural seclusion.

Organization

Prior to the branching-off of the group, the initial focus of EnPRO352 was on the assessment of the current status of recycling awareness on campus and to ultimately seek necessary means to improve it. To understand the target audience, the task of creating a survey was designated to a portion of the group and brainstorming of effective marketing to the other. There were several members involved in the development of the Student Recycling Business and Awareness. Joseph Kim, a third year Mechanical Engineering major, Eddie Shin, a fifth year Architecture major, along with Raguveer Cumar a fourth year Business major worked to develop an appropriate survey through collaborative efforts with the IIT Psychology Department. While additional members: Mary McCabe, a fifth year Computer Science major, Sarah Wright, a third year Humanities major, and Linnea Fraser, a fourth year Architecture major were given the task of seeking out multiple marketing approaches to reach the demographic and impose more participation in the recycling program. In addition, they looked to find ways to implement these marketing approaches at an early level.

Methodology

When introduced with the objective to increase the recycling rate at IIT, everyone in EnPRO352 agreed that awareness and education was crucial for progress. While research showed that college campuses all over the world are leaning toward greener communities, there still exist complications of maintaining mass participation. This lack of involvement was either due to a lack of knowledge or inconvenience for disposal. With these considerations, the Survey team developed and extensively edited a brief survey to be distributed to the campus. To ensure participation in the survey, an incentive (a small bag of popcorn) was provided after completion. With a considerable amount of surveys, we

were able to conclude that paper is most commonly recycled and while most people utilized the desk side containers, their understanding of commingled recycling was minimal.

Following the survey analysis, the group contemplated the possibility of piloting an experimental program to measure the effectiveness of separating paper from other recyclable materials in classrooms where commingled recycling bins are the current setup. Through communications with Recycling Services Inc, IIT's current receiver of recycled materials, collaborative efforts were made to possibly introduce a temporary container specifically labeled for paper in one building. The pilot program took on various adaptations including the comparative analysis with a controlled building to one specific building introduced with paper bins after previous had been taken. Upon discussion and approval by John Sebby, a definitive proposal was created to be presented to the group for their approval. Due to time limitations and lack of precise tools for measurement, the group decided on delaying the experiment to take place under the supervision of the future student-run business.

Over the duration of the semester, prospective advertisements were discussed to integrate the recycling mind-set into the school's philosophy and image. The OMIIT WASTE logo was suggested to parallel the current endorsements that represent the face of the college. This design culminated as the slogan and symbol that would distinguish the future student-run business from all other minor group organizations on campus. When any interaction was made or was thought to be made in the future with the outside public, the OMIIT WASTE logo would indicate this specific business.

Process

There are two major parts which the Student Recycling Organization needs to put in place. Although there are going to be several students working under the Student Recycling Organization. There needs to be one part time employee, whose main focus is marketing and awareness (See Appendix1).

Pilot Program

The pilot program must be ran in order to gain further knowledge and statistical results for the impact of simply adding an extra, properly labeled bin to classrooms. This pilot program will in turn help to show the improvement of the recycling rate at IIT with the small changes. EnPRO352 recommends a collaborative effort with Recycling Services and IIT's University Recycling Coordinator, John Sebby, to create the most accurate qualitative analysis of an introduced bin for paper. In addition, to properly and more accurately quantify the comparative data, the EnPRO352 recommends purchasing or renting a sufficiently large (possibly electronic) scale.

1. Coordinate a schedule with John Sebby to properly inform the custodial staff of a temporary introduction of boxes and the need for separate bags.
2. Obtain free desk side containers from Recycling Services to fill number of classrooms, offices, and labs in chosen academic building.
3. Over a specific period of time, measure the quantity of the current recycled materials prior to their pick-up through calculated weight that is determined on the scale.
4. Publicize the new bins to all occupants of the building prior to their introduction.
5. Introduce paper only bins and appropriate labeling for other bins into same building at the end of earlier time period
6. Over exact same time period, measure the quantity of newly separated recycled materials prior to their pick-up through calculated weight that is determined on the scale

Marketing

Marketing is another important aspect of the Student Recycling Organization. Increasing the awareness and involvement of the IIT students, staff and faculty members is essential to the success of the business. The Student Organization & Awareness sub-team has developed a few different ways for this to happen.

- *Student Recycling Organization Calendar*: The calendar provided is a standard proposal encouraged to be maintained by the Student Organization Marketing Coordinator for the proper continuation of promotional marketing activities throughout the school year.
- *Campus Wide Events*: It is recommended that the Student Marketing Coordinator network with current IIT organizations and those existing at neighboring colleges for continual updates on the most effective approaches to achieving mass participation in recycling.

Financials

SUMMARY of the ANNUAL BENEFITS by the NEW RECYCLING PROGRAMS	Paper Recycling Program	Salvage Store Program	Composting Program	Bio-Diesel & Hand Soap Program	**TOTAL**
Program Savings	$60,000	$20,000	$10,350	$945	**$91,295**
Program New Revenue	*n/a*	$20,000	$4,600	$75,618	**$100,218**
TOTAL REVENUE and/or Savings	$60,000	$40,000	$14,950	$76,563	**$191,513**
Number of Students Empolyed	1	2	2	2	**7**
# of Supervisory Personel (*New-- for programs*)				1	**1**
Total COGS & Operating Expenses	$8,000	$21,000	$9,000	$60,000	**$98,000**
OPERATING PROFIT	$52,000	$19,000	$5,950	$16,563	**$93,513**
ASSETS (*Incremental for Program Operations*)	$3,500	$1,288	$5,000	$40,000	**$49,788**
ROA (*Modified for context -- no "net" profit available*)	1486%	1475%	119%	41%	**188%**

Benefits

The creation of a student run recycling business on campus would have a great impact on the campus as a whole. It would generate an overall unity on campus as well as give a better perspective of the cultural transitions over a large demographic. Similarly, this organization would provide a superior reputation for IIT through the various standards and reports. In addition it would prolong the success of unique developments in the sustainability field and provide increased proper disposal of recycled materials and diversion of unnecessary waste.

Next Steps

The first thing that needs to be done is for the Student Recycling Organization to initiate a preliminary controlled experiment that quantifies the effects of introducing paper-only bins in the classrooms. Ultimately, this program exists to predict whether there will be successful prevention of paper contamination and an increase in the recycling of less common materials. In addition to this, the Student Recycling Organization must help to generate a standard at IIT for labels on recycling

receptacles to avoid confusion due to a large diversity on campus. Similarly, this business will need to work to increase interest and participation among IIT students, staff, and faculty, not only in recycling but also other sustainability events and activities on campus. This can be done in part by introducing the most effective and up-to-date marketing to raise awareness and enforce an overall green routine on campus. The Student Recycling Organization also needs to be aware that training is extremely important. Regulating and enforcing recycling awareness training throughout the campus, aiming especially towards new staff and students.

Obstacles

There were several obstacles this sub-team encountered. When first getting together it became apparent the lack of knowledge of recycling practices at IIT. Almost none of the members had a full comprehensive knowledge of the recycling process. In order to educate ourselves, we took the time to research and find out exactly what the current processes were at IIT. In addition, time limitations made it difficult to implement the pilot program and other measures of understanding campus-wide recycling habits and uncertainties. Likewise, since we had limited information from recycling and waste audits and were restricted from viewing contractual documentation, we were forced to make assumptions on financial reports. Another issue arose because of the extremely diverse population at IIT. With so many different cultures, ethnicities and backgrounds it made it hard to propose a unified marketing strategy.

References & Acknowledgements

EnPRO352's Student Organization would like to thank the following persons, for whose help was essential in completing their goal:

- Joe Clair- EnPRO 352 Sponsor and Director of Campus Energy and Sustainability
- John Sebby- IIT University Recycling Coordinator
- David Levinson - Owner, Recycling Services Inc
- Bernadette McMahon - Marketing Coordinator, Recycling Services Inc
- Brendan Neuman - Project Manager at IIT Center for Research and Service
- Jen & Tim Donnelly - Owners, Mother Butter Popcorn

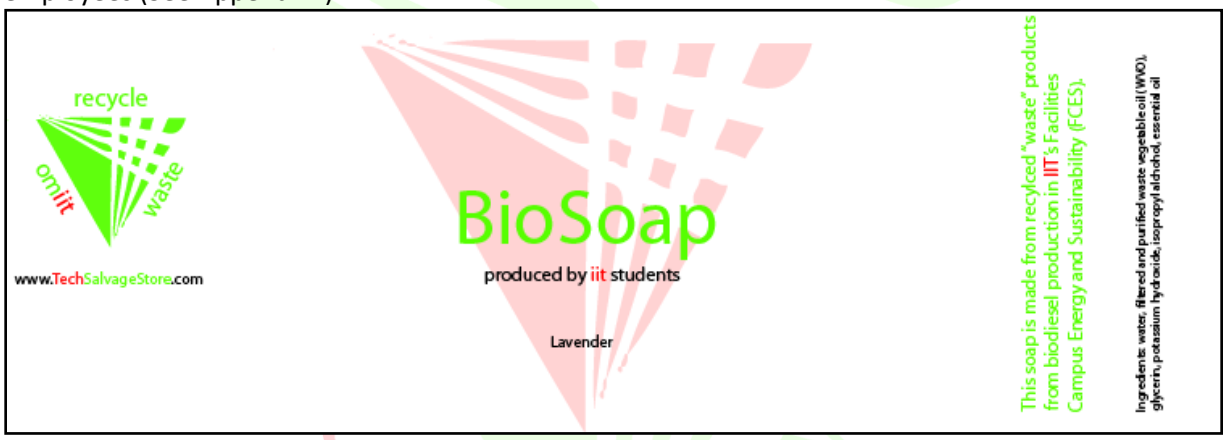
Biodiesel and Liquid Soap Program

Introduction

EnPRO 352's Biodiesel Sub-Team developed a plan to create a program that will convert waste vegetable oil into biodiesel and biosoap, which in turn will both save money and make a profit for IIT.

Organization

The Biodiesel and Biosoap sub-team of EnPRO 352 consisted of Mike Goduco, fourth year Architect major, and Bill O'Toole, fourth year Business major. These two members worked side by side on the majority of their tasks, but also had some individual tasks. Mike's individual tasks included creating a label for IIT's future Biosoap product (below), creating an Excel worksheet of estimates for HVAC and Blast door equipment, and creating the job description for future Biodiesel Lab student employees (See Appendix2).



Bill's individual tasks included obtaining variable costs associated with conversion of WVO to biodiesel and biosoap, obtaining process times and costs, and staying in touch with key contacts. Although Bill and Mike were the two individuals who were mainly focused on this program, they made sure the other team members were kept up to date with any new information and developments. In turn they also were sure to keep up to date on the developments from the other programs.

Methodology

Converting waste vegetable oil into biodiesel and biosoap was not an original aspect of EnPRO 352's project. Members of the team were searching IIT's waste stream for ways to save money or make a profit, but were having a hard time finding items that were not already under contract or not economically feasible to change. A couple weeks into the project a team member came across an internet article discussing a program at Brigham Young University in which students turned coconut oil into biodiesel. This led to some quick research in which the team concluded that waste vegetable oil from the cafeteria could be converted into biodiesel. After more research, Loyola University's Center for Urban Environmental Research & Policy's Biodiesel Program was discovered.

At this time, the team decided that it would be beneficial for members to take a trip to Loyola in order to gain a more in depth understanding of the program. Two members, Mike Goduco and Bill

O'Toole, established contact with Loyola's Biodiesel Lab Manager, Zach Waickman, and set up a visit. A tour and Question & Answer session at Loyola's Lab led to the obtaining of a lot of important and necessary information. After this visit, the Biodiesel team could now take the necessary steps into turning their goal into reality.

Process

In order to reach the goal of creating its own biodiesel, EnPRO 32 recommends that IIT purchases a Biodiesel Microprocessor from Loyola University's Biodiesel Program (pictured below). The cost for a microprocessor is $5,000, which includes everything needed to create biodiesel, training, and on-going technical support. The microprocessor is a scaled down version of Loyola's Biodiesel Lab, and it is capable of creating 16 gallon batches of biodiesel. The microprocessor can be upgraded for roughly an extra $200. The upgraded version is capable of producing 25 gallon batches. EnPRO 352's Biodiesel Sub-Team recommends that a microprocessor be purchase for a couple of different reasons. First, it will give IIT engineers the chance to learn how the process works without spending substantial capital. Next, it will allow for IIT engineers to make improvements to the systems efficiency and profitability. Lastly, IIT engineers can use the improvements to create a larger scale version that will eventually reach a capacity to meet IIT's goals.

IIT facilities will need to find adequate space for the Microprocessor to be housed. The device itself is small, measuring roughly 5ft x 2ft x 5ft (*lwh*). The room were the microprocessor is housed needs to have a designated HVAC system for proper ventilation, since some of the chemicals used and produced are hazardous. Also, the room needs to have a blast door as well as a blast cabinet for methanol storage (Costs for these items can be found in the financial model below).

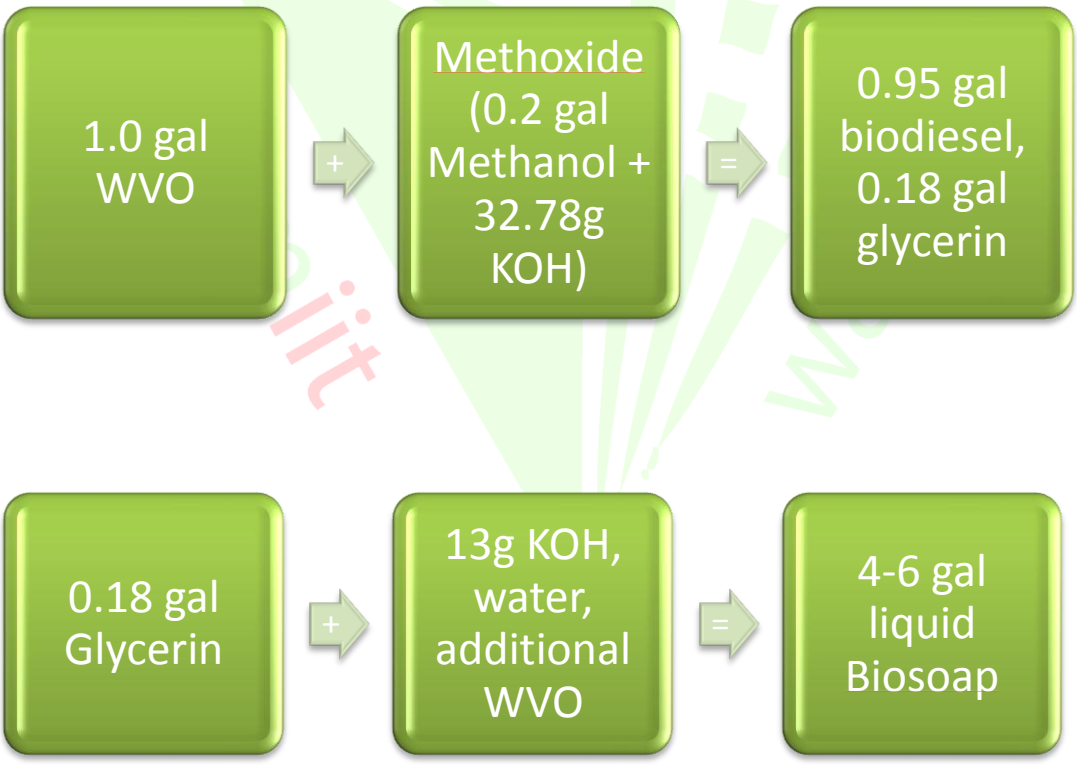
Next, IIT will need to hire one full time employee to serve as the Biodiesel Lab Manager. This person will be responsible for overseeing the student employees and making sure everything is up to standards. This person does not have to have chemical engineering knowledge, although it is preferred. This person should also have significant marketing, financial, and entrepreneurial insights. Along with the full time employee, EnPRO 352's Biodiesel Sub-Team recommends that IIT hire two part time student employees. These students will be responsible for most of the biodiesel and biosoap research and production. Chemical engineer majors should be preferred.

Once all the above steps are accomplished, IIT can move ahead with producing biodiesel and biosoap from WVO. The process may seem difficult to people with no knowledge of the subject, but after investigation it turns out to be fairly simple. For ease of understanding, we can break down the process into a series of steps:

1. Obtain WVO from campus cafeterias
2. Transport to in 55 gallon drums via facilities golf cart
3. Heat to 80° Celsius in steel drums

- As oil is heated, the molecules expand, creating a natural filter
- The waste sediments (biosolids) filter and settle to the bottom, where they can be drained out
  - Biosolids can be composted in small amounts
- Left with clean cooking oil that is ready to be converted into biodiesel

4. Cool to 60° Celsius
5. Mix in Methoxide
   - Mixture of 0.2 gallons methanol and 32.78 grams of sodium hydroxide
6. Methoxide reacts with cooking oil to create two separate products, biodiesel and glycerin
   - Glycerin settles to bottom where it can be drained (at this point it is hazardous and must be handled with caution)
     - Glycerin immediately transferred to a filter where methanol is filtered out, leaving us with non-hazardous glycerin
     - Methanol transferred to methanol storage
7. Biodiesel is washed and filtered a number of times until it passes a series of tests
8. Ready to sell
9. Glycerin is then combined with addition WVO, Sodium Hydroxide, and Water to create Biosoap



The whole process only takes about 3 hours of labor over a couple of days. 1.0 gallon of WVO produces roughly 0.95 gallons of biodiesel and 0.18 gallons of glycerin. 0.18 gallons of glycerin is used to create between 4 and 6 gallons of liquid biosoap. The exact process for producing biosoap is not known and further research needs to be conducted by IIT engineers to perfect a formula and process, but it is

known that it takes roughly 0.18 gallons of glycerin, 13 grams of Sodium Hydroxide, an additional amount of WVO, and some amount of water.

Once biodiesel is produced, a series of steps needs to be taken in order to sell the product to an outside consumer. First off, the biodiesel must pass testing through the American Society of Testing and Measurement to make sure it meets the established standards. Next, IIT must get the program approved by the National Biodiesel Board, Environmental Protection Agency, Internal Revenue Service, and the Illinois Department of Revenue. If IIT chooses not to sell their biodiesel product, but still wishes to go ahead with the program and use the biodiesel internally, they do not have to go through any of these steps.

Once the Biodiesel Lab at IIT has finished biodiesel and biosoap products, they can move ahead with selling the items. Biodiesel can be used for on campus vehicles and machinery that runs on diesel in order to save money from the purchasing of diesel gas. Once IIT's demand is met, the program can look outside of IIT for customers. Potential partners include Waste Management, Recycling Services, the City of Chicago, Cook County, and IIT's shuttle service. The biodiesel should be sold at market price, which can be accessed by the Jacobsen index. Current prices are hovering around $3.8581/gallon. Also, the National Biodiesel Board can be used to find sellers of WVO.

Currently, IIT purchases soap at $5.85/gallon. Once IIT's demand is met with biosoap, the Biodiesel program can take two separate avenues towards profiting from biosoap. First, they can sell it by the gallon to other institutions that are looking to become more environmentally conscious at $5.85/gallon. This is the same price as regular hand soap but gives the added benefit of being environmentally responsible. Next, the biosoap can package the product into smaller personal sizes and sell at the campus bookstore. As stated earlier, a label for the personalized product has been created by EnPRO 352.

Financials

BIO-DIESEL & LIQUID SOAP PROGRAM			Monthly		Annulized
Number of Operating Months			1		10
Revenue and Productions Assumptions					
Number of"base" Bio-Diesel production run batches per month				16	
Costs of Goods Sold per BATCH (*material costs only*) --" *CONVERSION PROCESS* "					
Number of gallons of Waste Vegetable Oil (WVO) per batch			16		
Bio-Diesel Production	cost/unit		Extensions based on above drivers		
1 Gallon of WVO	$0.00		$0.00	$0.00	$0.00
0.2 Gallons of Menthanol	$0.65		$10.40	$166.40	$1,664.00
32.78 Grams of KOH	$0.36		$5.76	$92.16	$921.60
Material Only COGS Subtotal	$1.01	*per gallon of WVO used*	$16.16	$258.56	$2,585.60
Output from Base Bio-Diesel Production					
Gallons of Bio-Diesel produced per gallon of WVO		0.95	15.2	243.2	2,432.0
Gallons of Glycerin per gallon of WVO prod. Run		0.18	2.9	46.1	460.8

Liquid Hand Soap Production -- per "base" Bio-Diesel production Run					
0.18 Gallons of Glycerin	$0.00	*from base production*	$0.00	$0.00	$0.00
13.0 Grams of KOH	$0.14		$2.24	$35.84	$358.40
Water Added	$0.00		$0.00	$0.00	$0.00
Addditional WVO	$0.00		$0.00	$0.00	$0.00
Material Only COGS Subtotal	$0.14	*per gallon per base prod. Run*	$2.24	$35.84	$358.40
Gallons of Liquid Hand soap produced per "base" run		5	80.0	1280.0	12,800.0
Production Labor					
Student Labor; Number of	2				
Hours worked per month	40				
Wage rate per hour (gross)	$10.00				
Subtotal Direct student cost	$800.00				$8,000.00
Lab Manager Salary (annual)	$40,000				$40,000.00

BIO-DIESEL & LIQUID SOAP PROGRAM

NEW REVENUE and/or EQUIVILANT SAVINGS			Annual Est.
Bio-Diesel Sales			
Estimated gallons of Bio-Diesel produced annually (*see above*)		2,432.0	
Annual average price of Bio-Diesel Sold		$3.85	$9,363.20
Liquid Hand-Soap Savings			
Est. of gallons of liquid hand soap used (annually) by IIT		180	
Annual average price paid by IIT per gallon		$5.25	$945.00
Liquid Hand Soap Sales			
Est. of gallons of soap available for sale *(annual PROD. - used by IIT)*		12,620	
Average annual selling price per gallon of hand soap		$5.25	$66,255.00
TOTAL REVENUE AND SAVINGS			$76,563.20
COST OF GOODS SOLD (COGS) -- annual estimates			
Student workers		$8,000.00	
Lab Manager		$40,000.00	
Estimated on-campus facilities rent and utilities (annualiozed)		$6,000.00	
Depreciation of Production Equipment Only (straight-line; 10 yr life)		$500.00	$54,500.00
GROSS PROFIT from OPERATIONS			$22,063.20
Other Overhead Expenses -- Annual Fees			
National Diesel Board -- health & administration regulations		$2,500	
American Society of Testing and Measurement -- biodiesel tests		$1,000	
Annual cost of bond with Illinois Department of Revenue		$2,000	$5,500.00
OPERATING PROFIT			$16,563.20

ASSETS PURCHASED		
Leasehold Improvements		
Blast Curtain	$15,964	
HVAC System	$19,036	
Production Equipment		
Microprocessor (bought from Loyola Univ; includes training)	$5,000	
Total Assets		$40,000.00
ANNUALIZED RETURN ON ASSETS (ROA) -- *formula modified for context; no "net" caluculation available*		
ROA estimated using the formula of "= Operating Profit / Total Assets"		41%

From the above financial tables, it can be seen that EnPRO 352 expects the Biodiesel Program to be profitable after one full year (10 months) of production. Total revenue and savings of the program is expected to be $76,563.20 with an operating profit of $16,563.20. The annualized return on assets (ROA) is expected to be 41%.

Benefits

The benefits to starting a program to convert WVO to biodiesel and biosoap at IIT are enormous. First off, the program will eliminate an item from IIT's waste stream, helping IIT reach its goal of having the lowest amount of per capita waste in the nation. Also, it will create extremely valuable learning opportunities for students who will be able to use the gained knowledge after graduation in a world that is striving to be more sustainable every day. Next, the program will create value to the City of Chicago and State of Illinois and will possibly create valuable partnerships with them in the future. The program will also likely attract more students who will be impressed by the value IIT places on sustainability and the health of Earth. In addition, having this program will bring national exposure to IIT's efforts of becoming the most sustainable institution in the country. With this exposure and increased sustainability also comes the possibility of the university receiving grants due to the establishment of this program. Finally, and most importantly, it will both save money and create a profit for IIT, which can use the funds for other areas of improvement.

Next Steps

In order for the Biodiesel Program to maximize its efficiency, some future steps should be taken. First off, a student organization of engineers should be developed to conduct research and create a more efficient and profitable process for converting WVO into Biodiesel and Biosoap. This research should allow the Biodiesel program to grown in scale so that they are able to completely supply IIT's campuses with biodiesel and biosoap. In the future, the end goal is to be able to create enough biodiesel to secure strategic partnerships with various government and corporate organizations. Currently, our group is in the process of submitting a grant request to the Clean Energy Trust. IIT should then strive to create learning partnerships with other institutions across the United States, and possibly even across the globe, to share the knowledge and help the world as a whole become more sustainable. In the end, IIT could become the world's leading researcher and producer of biodiesel and biosoap from WVO.

Obstacles

EnPRO 352's Biodiesel Sub-Team did not always meet its goals smoothly. There were sometimes obstacles that stood in the way of valuable information. The Biodiesel Sub-team experienced reluctance of certain departments within IIT to help with obtaining needed information. The team overcame these obstacles by being extremely persistent, and when e-mails and phone calls failed they paid personal visits to offices. Another huge obstacle was the lack of engineering knowledge, especially Chemical engineering. Finally, obtaining accurate estimates for the process of creating biosoap was an obstacle that was not overcome, since Loyola University was not willing to share their formula and process due to Intellectual Property issues.

References & Acknowledgements

EnPRO 352's Biodiesel Sub-Team would like to thank the following persons, for whose help was essential in completing their goal:

- Zach Waickman- Biodiesel Lab Manager at Loyola University
- John Sebby- IIT University Recycling Coordinator
- Joe Clair- EnPRO 352 Sponsor and Director of Campus Energy and Sustainability
- Tom Gorman- EnPRO 352 Faculty Advisor

Salvage Store

Introduction

The IIT Salvage Store's mission is to be a central location for all recyclable and reusable items on-campus to funnel through and then be allocated to the appropriate area. The Salvage Store would establish a central point of contact for all university staff, faculty, and students and would allow for a more streamlined and efficient process to benefit the campus sustainability goals. The Salvage Store would direct items to correct outlet including: the website for resale items, TechSalvageStore.com, various recycling companies already under contract with IIT, and a possible adopted school local to the university to accept donations.

Organization

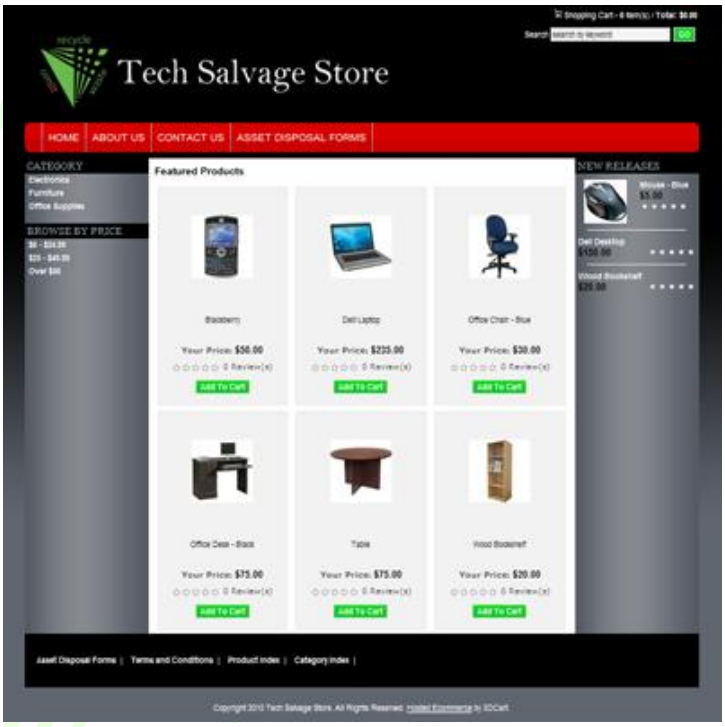
The Salvage Store sub-team for EnPRO 352 consisted of five members: Sarah Wright, a third year Humanities major, Mike Goduco, a fourth year Architect major, Eddie Shin, a fifth year Architecture major, Joseph Kim, a third year Mechanical Engineering major, and Mary McCabe a fifth year, Computer Science major. These team members worked together to gather information from numerous areas. Sarah Wright and Mike Goduco met with on campus departments interested in a salvage program as well as universities which already have a similar program in place. In addition Sarah and Mike created the job description and worked with various departments to discover items currently on campus which would be able to be placed on the salvage store website. Similarly, Eddie Shin and Joseph Kim worked with the various departments, mainly facilities, to gain answers surrounding storage for and costs associated with the salvage store. These two members are also responsible for researching legal issues with such a program and creating the Asset Disposal Form. Since we had all the information needed to begin a store, we decided to create a mock up website. Mary McCabe purchased a domain name, TechSalvageStore.com and created a functioning website with example products.

Methodology

When we discovered the many contracts the university was already involved in, we needed to look elsewhere for materials. In doing so, we came across the many electrical devices and office supplies the university drives on. Now that we had discovered items which we would be able to take control of, we needed to come up with a way of recycling these items. Several ideas were passed back and forth including Selling materials to electronics stores (i.e. Best Buy) in exchange for gift cards and selling materials directly to a recycling center (insuring 100% of the material was recycled). In passing one of our members mentioned these ideas to Kelly Schaefer. Kelly stated she was familiar with a program that DePaul University had implemented successfully, a university online salvage store. This would be a place where different offices and departments on campus would be able to donate their unused items for sale to the IIT community. This would include tables, chairs, shelving, or any other unused items. Kelly put us into contact with Brian Laffey in the Controller's Dept. who had been considering this type of program. Two of our members then set up a meeting with Brian Laffey of the Controller's Office which also included Frank FioRito of Purchasing in attendance at the meeting. In addition the sub-team began to research DePaul University and their program at the same time. Mr. Laffey and Mr. FioRito directed us to Northwestern and the program that university was working on. The

sub-team then began to research the DePaul program. In doing so we discovered DePaul's program includes external sales to the public. This meant any individual, even those not affiliated with the university, would be able to purchase these items. We contacted Abe Reising who manages the Salvage store, along with two student staff he manages, and gathered further information about how they got their program started and everything involved with running a program such as this.

Once we had this idea and had done some background research, we decided to talk with some of the departments at IIT to see if they indeed would be open to a program such as this for recycling their unused office items. We took pictures of items that potentially could be salvaged on a website. The other university which currently has a similar program in place is Northwestern. Their program, however, was purely internal and departmental. Their program was put in place solely for the purpose of the departments trading items. These items would then easily be able to be grant items as well as direct purchases from departments. Conducting further research on this program allowed us to gain insight on the differences of the two programs in order to decide which type would be more viable for IIT. Once all the research was done, and we knew we would have departments to get involved, we had to decide what type of program we wanted to implement: internal or external. Upon further discussion we agreed upon doing a hybrid of both. Our implementation would contain sections for departmental grant items to be sold only to other departments as well as sections for any other items to be sold to the public. In order to show how this program would work, we have purchased and set up a functional website with example items. We have also included a release form for individuals to fill out to insure it is indeed their property as well as gain information on grant items. This site is not fully functional in separating items from departmental and public access nonetheless does show the general idea of how the program would function.



Process

The Salvage store program is going to require two part time student workers. These workers will be in charge of running and maintaining the salvage store. This includes the website and the donated/sold items (See Appendix3).

1. Department has an item to dispose of such as furniture, electronic equipment, office equipment.
2. Department submits an Asset Disposal Form (ADF) which can be a link online under facilities on the work tab at my.iit.edu(See Appendex3-1)
3. Once the ADF is filled out, they will receive an electronic reference # assigned to them and the Salvage staff will receive a request (auto email) for the item to be retrieved.
4. Student salvage staff will check requests daily and determine if items can be picked up by the student salvage staff or if a facilities work order needs to be placed for large/heavy items.

5. Once the item(s) to be disposed have been retrieved, the items will need to be placed in the appropriate area:
    1. Grant items: Can be posted to the salvage site if reusable condition and made only available to university departments. If item cannot be reused, it needs to be returned to federal government.
    2. Capital Purchases: Items that are tagged as assets (totaling over $25000) must go through the controller's office to have their asset tags removed before they can be salvaged.
    3. Electronic items such as computers which contain sensitive info: The hard drives will be wiped by a staff member to be completely secure before resale
    4. Regular Items: The student staff will determine the value
6. Items that are sold will be picked up at the Salvage Store room. Items that are listed for resale or waiting in transit will also be housed in this room.
   Suggestions for the room include: The M & M building and the Facilities Building
7. There will be set pickup hours that the salvage store would be open and the hours will be posted on their website.

Financials

SALVAGE STORE	Monthly	Annulized
Number of Operating Months	1	10
REVENUE and/or SAVINGS		
Revenue Estimates (monthly average of revenue from sales)	$2,000	$20,000
Savings Estimates (monthly average of new purchases avoided)	$2,000	$20,000
Total SAVINGS & REVENUE ESTIMATES	$4,000	$40,000
OPERATING EXPENSES		
Number of Students	2	
Number of hours/month	80	
Gross Student wage/hour	$10.00	
Subtotal of Student Payroll/mo.	$1,600.00	$16,000
Related Operating Expenses		
Other Expense Items (i.e., on-campus storage facility rent)	$500	$5,000
Total Operating Expenses	$2,100	$21,000
OPERATING PROFIT	$1,900	$19,000
ASSETS		
Camera		$200
Moving Eqipment		$414
Website/Software (annual fees)		$674
Total Assets		$1,288

ANNUALIZED RETURN ON ASSETS (ROA)

formula modified for context; no "net" caluculation available

ROA estimated using the formula of "= Operating Profit / Total Assets" 1475%

Benefits

There are several benefits to implementing a salvage program at IIT. By having a program like this, departments can save money by purchasing used items that are still in usable condition instead of buying new. With departments purchasing items originally from other departments, it will cause an increase in communication between all the departments. Similarly, since these items are going to be taken out of the offices and placed up for sale, it will clear up clutter from the offices. Also, the salvage store process will reduce the number of items placed in the waste stream while increasing the recycling rate. On top of the benefits listed above, having a salvage program such as this will create a more sustainable campus. Having this sustainability will increase the appeal of IIT to future students as well as cause IIT to become a green role model for the surrounding community.

Next Steps

In order for this idea to become reality there are still a few things that need to be done. The salvage store is going to have numerous items which have been donated, but have not yet been sold. These items are going to need to be stored some place while they are in transition from their old owners to the new. One thing which still needs to be completed is finding an on campus location for these items to be housed. In addition, the items being donated can be as small as a cell phone to as large as a conference table. The members of the student business will be able to carry many of the smaller items when picking up and delivering. However, there needs to be some sort of transportation device or some means of assistance for moving the larger/heavier items. The last thing needed to make this program work, is to train the staff members. There are certain protocols and procedures which need to be followed correctly and fully in order to insure clients their items are being properly handled.

Obstacles

While coming up with all the components involved in creating this salvage program, there were several issues the sub-team encountered. Since IIT is a technical school, it is a good assumption there are going to be a large number of laptops and other electronics going through the salvage store. The sub-team knew many departments have confidential information on their machines. Therefore, they had to come up with a way to insure the clients this information was properly taken care of and removed. In addition, there are also the legal issues associated with a program of this type. The sub-team did their homework, and was able to develop the Asset Disposal Form.

References & Acknowledgements

EnPRO352's Student Organization would like to thank the following persons, for whose help was essential in completing their goal:

- Joe Clair- EnPRO 352 Sponsor
- John Sebby- IIT University Recycling Coordinator
- Kelly Schaefer - IIT Campus & Conference Centers
- Brian Laffe - IIT Controller's Office
- Frank FioRito - IIT Purchasing Office
- Abe Reising - DePaul Procurement Office
- Matthew Cook - IIT Graham Resource Center

Composting Program

Introduction

EnPRO 352's Composting Sub-Team elaborated on a plan to create a program that will convert organic wastes into compost from on-campus sources. In turn the university will be able to complete the circle by using this compost to help fertilize different areas around campus. In addition, composting will allow IIT to save money on fertilizer while making a profit from the sales of the compost.

Organization

The Composting sub-team of EnPRO 352 consisted of Hugo Ramirez and Daniel Vega, both fourth year Architecture students. Although many of the tasks associated with this part of the project were done by both members, there were some tasks which were done individually. Hugo's individual tasks included identifying sources of organic waste, evaluating the potential savings/ profits, researching the legal issues, and staying in touch with key contacts. Daniel's individual tasks included doing initial research on the topic, obtaining previous proposals for on-campus composting, process development and creating the job description for future Composting Lab student employees. Both members always worked in parallel and were always up to date with each other. Mary McCabe also stepped in to help interview Brickman Landscape company representatives. These members were sure to include the rest of the members in the EnPRO in any updates or discoveries they developed. Weekly updates were also shared with the other members to insure the complete involvement of the group.

Methodology

Converting organic waste into compost was a primary objective of EnPRO 352's project. The program was influenced by a previous project, IPRO 312: The Rotten IPRO, in spring 2009. After contacting Blake Davis, the professor of IPRO 312, and obtaining all their research, the sub-team found the information from this IPRO showed enough reasoning for the Composting program to be further developed. This led to some quick research in which the team concluded that there is sufficient organic waste generated on campus to sustain the composting program. Just to be sure, team members contacted the several food service centers on campus to discuss the amount and types of material they disposed of. In addition, they spoke with Brickman Landscaping company representative, Will Haverkamp to gain even further insight. Since we determined there was more than enough material to implement a composting program we decided to dig further into the research. It was then the sub-team discovered there had yet to have been any research done as far as machinery needed to transport compost nor any information about fencing or other means of containing the generated compost. In addition the sub-team had to look into the legal issues of gathering these

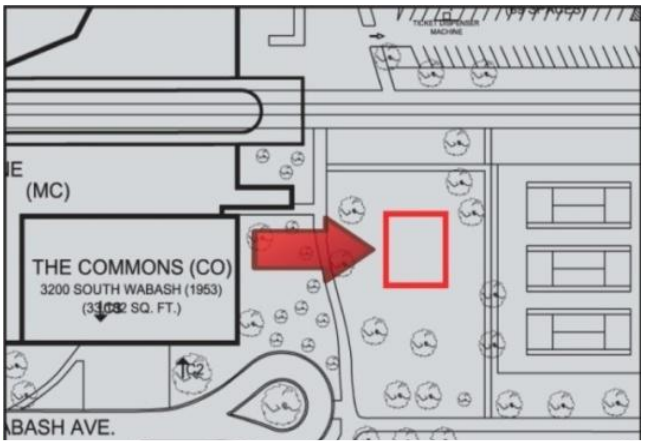
Several sources of organic waste

materials. They had to find current contracts and make sure they would not be in violation of these contracts. Another area the sub-team researched was the possibility of selling the generated fertilizer to outside companies. They looked into legislation and other legal material in order to gain knowledge on this topic. In their search they found state legislation SB-99 which allows businesses, schools, and other organizations to compost organic waste and sell it as compost. Although this program is not yet to that point, the scheduled implementation of the composting program is spring of 2011.

Process

IIT is currently setting up the purchase of a 30 cubic yard composter. The composter will be a stationary industrial scale processor capable of creating 1 cubic yard of compost per day. For the most part, the composter will be automated. The cost is approximately $50,000. However, this does not include everything needed to properly create, store and move the raw and finished product materials. Additionally, there is need for training and on-going technical support as well as a continuous source of electricity to operate the machine.

The location of the composter will need to be in an area large enough to accommodate the composter and an area for proper storage and transport of the material. The device itself measures roughly 10ft x 3ft x 4.75ft (*lwh*). The room were the composter is housed needs to have a designated storage area with a concrete wall enclosure used to scoop up the compost material with a "bobcat" tractor with bucket. Also, the compost will need to be covered with a tarp or canopy if left exposed for extended periods.



Proposed Location for the In-Vessel Unit on IIT

Next, IIT will need to hire one full time employee to serve as the Composting Manager. This person will be responsible for monitoring the composter and overseeing the student employees and making sure everything is up to standards. This person does not need to have any previous composting knowledge, although it is preferred. This person should also have significant marketing, financial, and entrepreneurial insights. Along with the full time employee, EnPRO 352's Composting Sub-Team recommends that IIT hire two part time student employees. These students will be responsible for most of the composting research and production. Biology, Chemical Engineering or Landscape Architecture majors should be preferred (See Appendix4). The whole composting process takes about 6 to 18 months, depending on the content and the time of year. With maximum capacity of the composter reached, it will result in about 1 cubic yard of ready compost every day. Once compost is produced, a series of steps need to be taken in order to sell the product to an outside consumer. First off, the compost must meet the established standards. In order to achieve higher quality compost, a variety of organic material should be included in each load. It is important to allow or introduce bacteria and other organisms into the process in order to improve and accelerate the composting. The following description is the general process that can be further developed as the program progresses and evolves:

1. Locate your composter on bare soil. Somewhere that is easily accessible all year round.

2. You should mix your Green and Brown materials evenly when composting. Greens are soft, wet materials like grass cuttings, vegetables and fruit scraps. Browns are harder, dryer materials like hedge trimmings and strips of cardboard.
3. When composting you should put a lot of materials in all at once. Chop large items into smaller pieces to help with the process. Try to ensure that your compost is moist but not wet – when squeezed in your hand, a few drops of water should be produced. Add water if it is too dry; cover and add dry material if too wet.
4. If you wish, add compost accelerator (young nettles are an excellent natural accelerator) to help speed up the composting process.
5. Keep adding materials, remembering to agitate the contents every couple of weeks throughout spring and summer to keep air flowing through.
6. Your compost is ready when it is dark in color and smells like earth. This can take from 6 to 18 months depending on the materials used and the time of the year.

Currently, IIT purchases compost at $23.00/cubic yard. Once IIT's compost demand is met, the Composting program can take two separate avenues towards profiting from left over compost. First, they can sell it by the cubic yard to other institutions that are looking to become more environmentally conscious at $23.00/cubic yard. This is the same price as regular compost but gives the added benefit of being environmentally responsible. Also, the compost can be used for a student run organic garden or green house on campus which may provide greens for the school cafeteria or garden plant for the campus landscape.

Financials

COMPOSTING PROGRAM	Monthly	Annual
Number of Operating Months	1	10
REVENUE and/or SAVINGS		
Savings Estimate Calculation		
Compost Used by IIT (Yds^3)		450
Price paid by IIT (per Yds^3)		$23.00
Savings Estimate		$10,350
Revenue Estimate Calculation		
Excess Compost available for sale (Yds^3)		200
Net Revenue of Compost Sold (Yds^3)		$23.00
Revenue Estimate		$4,600
Total SAVINGS & REVENUE ESTIMATES		$14,950

OPERATING EXPENSES		
Number of Students	2	
Number of hours/month	40	
Gross Student wage/hour	$10	
Subtotal of Student Payroll/mo.	$800	$8,000
Related Operating Expenses		
Other Expense Items (Est., gas, etc...)	$100	$1,000
Total Operating Expenses	$900	$9,000
OPERATING PROFIT		$5,950
ASSETS		
Composting system *(Donated -- no cost charged)*	$0	
"Bobcat" - type tractor -- *estimated cost*	$5,000	
Total Assets Needed / Purchased		$5,000
ANNUALIZED RETURN ON ASSETS (ROA)		
formula modified for context; no "net" caluculation available		
ROA estimated using the formula of "= Operating Profit / Total As		119%

From the above financial tables, it can be seen that EnPRO 352 expects the Biodiesel Program to be profitable after one full year (10 months) of production. Total revenue and savings of the program is expected to be $14,950.00 with an operating profit of $5,950.00. The annualized return on assets (ROA) is expected to be 119%.

Benefits

The benefits to implementing the composting program to convert organic waste to compost at IIT are modest but valuable. First off, the program will eliminate an item from IIT's waste stream, helping IIT reach its goal of having the lowest amount of per capita waste in the nation. Also, it will create extremely valuable learning opportunities for students who will be able to use the gained knowledge after graduation in a world that is striving to be more sustainable every day. Next, the program will create value to the City of Chicago and State of Illinois and will possibly create valuable partnerships with them in the future. The program will also likely attract more students who will be impressed by the value IIT places on sustainability and the health of Earth. The program will also bring national exposure to IIT's efforts of becoming the most sustainable institution in the country. Finally, and maybe most importantly, it will both save money and create a profit for IIT, which can use the funds for other areas of improvement.

Next Steps

It is important to take additional steps to fully implement the composting program. It will be necessary to purchase some machinery that can handle moving moderate amounts of heavy compost. In addition, the workers will need to be trained in order for them to safely and properly use the machinery and composter; manage the incoming organic waste and resulting compost; and recording and

gathering data. Additional tasks of the composting program may include expanding the sources of organic waste and marketing IIT's compost products.

In order for the Composting Program to maximize its influence, some future steps should be taken. First off, a student organization from the appropriate majors (biology, landscape architecture, etc.) should be developed to conduct research and create a more effective, efficient and profitable process for converting organic waste into compost or other appropriate products. This research should allow the Composting program to grow in scale so that they are able to completely supply IIT's campuses with compost. In the future, the end goal is to be able to create enough compost to secure strategic partnerships with various government and corporate organizations. IIT should then strive to create learning partnerships with other institutions across the United States, and possibly even across the globe, to share the knowledge and help the world as a whole become more sustainable. In the end, IIT could become the world's leading researcher and producer of high quality organic compost.

Obstacles

EnPRO 352's Compost Sub-Team did run into some challenges along the way. There were sometimes obstacles that stood in the way of valuable information. The Compost Sub-team experienced reluctance of certain departments within IIT to help with obtaining needed information. The team overcame these obstacles by being extremely persistent, and when e-mails and phone calls failed they paid personal visits to offices. Another obstacle was the lack of composting knowledge. This was important because some of the process involved in the proper storage and transport of compost material was not included in previously proposed IIT composting program recommendations and so had to be researched to include in EnPRO 352's proposal. In addition there were the ethical and legal issues of selling the compost which the team had to insure proper action was taken.

References & Acknowledgements

`EnPRO 352's Composting Sub-Team would like to thank the following persons, for whose help was essential in completing their goal:

- Blake Davis - IPRO 312 Professor
- Eddie Skidmore & Jovanny Zepeda - Sodexo
- Will Haverkamp - Brickman Representative
- John Sebby- IIT's University Recycling Coordinator
- Joe Clair- EnPRO 352 Sponsor and Director of Campus Energy and Sustainability
- Tom Gorman- EnPRO 352 Faculty Advisor

Appendix1 – Student Organization & Awareness

Job Description: Student Marketing Coordinator for Recycling Awareness	
Job Category:	Business Marketing
Position Title:	Student Marketing Coordinator for Recycling Awareness
Department:	Campus Energy & Sustainability
	Business marketing student promotes recycling awareness through various event/programs and the creation of advertisements campus-wide in accordance with the Office of Sustainability.
Key Responsibilities:	Initiate campus-wide events and becomes actively involved in the collaboration of a variety of organizations offered at IIT. Implement knowledge of recycling to students, staff, and faculty through a calendar of programs (attached) that will be offered during the academic year.
	SALVAGE ROOM: Promote the flow of materials with the creation and distribution of various advertisements for the storefront. Collaborate with the salvage workers to increase the number of viewers of the salvage store website.
	COMPOSTING: Publicize the current composting service offered at IIT to increase the appropriate disposal of organic waste.
	COOKING OIL SOAP: Design labels for the future soap products to be sold and used on campus as a green alternative.
	WEBSITE: Collaborate with the Office of Sustainability on the improvements of the current recycling at IIT website. Update information of green improvements on campus and potential upcoming projects to increase the recycling rate.
	Other Duties: Participate in job-related training as deemed necessary by the University or department.
Additional Responsibilities as assigned.	

QUALIFICATIONS	
Education & Experience:	Currently enrolled IIT student in good standing. A background in customer service or business marketing would be beneficial.
Preferred Skills:	Demonstrated Ability to: -Communicate effectively to large groups and multitask with various projects. -Provide an enhanced creative perspective to current recycling awareness programs on campus. -Willingness to work with and further the sustainability goals of the university. -Take direction and complete work independently with minimal supervision.
Physical Environment:	Shared Workspace
Other Physical Environment:	-Good attendance & punctuality are essential to the efficient operation of the entire sustainability team.
Location:	IIT Main Campus (MC), 3300 S. Federal, Chicago
Requisition Number:	1234567
Required Applicant Documents:	Resume & Cover Letter

Appendix2 – Biodiesel/Liquid Soap

Job Description: Biodiesel/Liquid Soap Worker	
Job Category:	Facilities
Position Title:	Biodiesel Apprentice
Department:	Facilities, Campus Energy & Sustainability
General Description:	Biodiesel apprentices take used cooking oil and refine it to make biodiesel.
Key Responsibilities:	-Make biodiesel from waste cooking oil
	-Be able to handle chemicals properly
	-Have excellent communication skills
	-Ability to work well in groups
	-Refine the biodiesel process and come out with innovative ways to improve the quality of biodiesel produced
Additional Responsibilities as assigned.	
QUALIFICATIONS	
Education & Experience:	Currently enrolled IIT student in good standing. (Chemical Engineer Majors preferred) Experience in material handling, inventory control, and website maintenance preferred.
Preferred Skills:	Demonstrated Ability to: -Access computer programs & use computer operations related to position requirements. -Willingness to work with and further the sustainability goals of the university. -Take direction and complete work independently with minimal supervision.
Physical Environment:	Shared Workspace
Other Physical Environment:	-Work well with chemicals and fumes
Location:	IIT Main Campus (MC), 3300 S. Federal, Chicago
Requisition Number:	1234567
Required Applicant Documents:	Resume & Cover Letter

Appendix3 – Salvage Store

Job Description: Student Salvage Store Worker	
Job Category:	Facilities & Maintenance
Position Title:	Student Salvage Store Worker
Department:	Facilities, Campus Energy & Sustainability
General Description:	Salvage store workers maintain the IIT main campus Salvage Store through, processing Asset Disposal Form (ADF) requests, operating the website, and assisting with campus recycling & donation efforts.
Key Responsibilities:	ADF's/PICKUP: Responsible for daily processing of ADF's , and pickup of materials on-campus. Based on the item to be retrieved from departments, worker will be required to coordinate pick-up of items through work-orders with facilities staff or by using transport equipment such as carts to retrieve light-weight items.
	SALVAGE ROOM: Ensure inventory of items that are being housed in the storeroom at all times. Items that have not been sold as resale, need to be funneled to the appropriate vendor for recycling or donations. Responsible for constant flow of items through the salvage store.
	PURCHASED ITEMS: Available to man the Salvage Room during pickup hours for buyers to receive their paid-for items and assist in loading. Answer emails or concerns made to the salvage store from potential buyers as they arise in a timely manner.
	SECURITY: Items that may contain secure information, such as computer hard drives, will be wiped with a secure, reputable program prived by the department for this purpose. The working area, specifically the salvage room, will be kept clean and safe and in an organized fashion.
	WEBSITE: Items deemed appropriate for resale will be posted to the website after being priced and approved by the professional staff. Items that have not sold in the required time frame, will be removed from the site.
	Other Duties: Participates in job-related training

	as deemed necessary by the University or department.
Additional Responsibilities as assigned.	
QUALIFICATIONS	
Education & Experience:	Currently enrolled IIT student in good standing. Experience in material handling, inventory control, and website maintenance preferred.
Preferred Skills:	Demonstrated Ability to: -Access computer programs & use computer operations related to position requirements. -Willingness to work with and further the sustainability goals of the university. -Take direction and complete work independently with minimal supervision.
Physical Environment:	Shared Workspace
Other Physical Environment:	-May be exposed to wet or dry environments, harsh weather, extreme heat or cold, and long hours during emergency situations. -Must be able to climb ladders, lift, unload, and move loads of up to 100 pounds. -Good attendance & punctuality are essential to the efficient operation of the entire sustainability team.
Location:	IIT Main Campus (MC), 3300 S. Federal, Chicago
Requisition Number:	1234567
Required Applicant Documents:	Resume & Cover Letter

Appendix3-1 – Asset Disposal Form

ILLINOIS INSTITUTE OF TECHNOLOGY

Office of Campus Energy and Sustainability

ASSET DISPOSAL FORM (for department)

Name:	Department:	Date:

Email:	Number of Items:	

The asset described below is available for disposal	Attach additional page if required. Note that dean of any departments must approve any sale where revenue is estimated to be greater than $5,000.
Serial Number (if available):	Description:
Barcode Number (if available):	

Condition: ☐ Excellent (Like New) ☐ Good ☐ Fair ☐ Poor	Estimated Sale Price	$

Location of asset: (Building/Room)

FOR PURCHASING DEPARTMENT USE ONLY

☐ Advertised Internally	☐ Advertised Externally	☐ Competitive Bids Obtained
Particulars of sale :		
	Date:	
Sold to (Name of department) :		
Name:	Telephone :	
Address:		

Amount Received $	Direct costs (if required):	Accounts Credited:
	Labour $	
	Shipping $	
☐ Inventory Adjusted	Other $	

DISCLAIMER OF OWNERSHIP

I (initial) _____, hereby assign and convey to IIT all right of assets, so that IIT may have full ownership of these assets, with the right to sue for any infringement of the works.

Signed: _____ Date: _____

_____ _____ _____

Signature Printed – Name/Title Date

ILLINOIS INSTITUTE OF TECHNOLOGY

Office of Campus Energy and Sustainability

ASSET DISPOSAL FORM (for student)

Name:	Department:	Date:
Email:	Number of Items:	

The asset described below is available for disposal.	**Attach additional page if required**
Serial Number (if available):	**Description of asset:**
Barcode Number (if available):	

Additional details, if needed.

Condition (check): □ Excellent (Like New) □ Good □ Fair □ Poor Estimated Sale Price	$

Location of asset: (Building/Room)

DISCLAIMER OF OWNERSHIP

I (initial)_____, hereby assign and convey to IIT all right of assets, so that IIT may have full ownership of these assets, with the right to sue for any infringement of the works.

Signed: Date:

_____ _____ _____

Signature Printed – Name Date

Appendix4 – Composting Program

Job Description: Composter Manager	
Job Category:	Facilities & Maintance
Position Title:	Composter Manager
Department:	Facilities, Campus Energy & Sustainability
General Description:	The Composter Manager will direct and operate the IIT Composter, which may include budget development and management, sourcing and coordinating incoming materials, on-site materials handling and processing, and compost trade. Additionally, the Composter Manager oversees any additional staff or volunteers working on the site and will collaborate with other staff on tasks, such as marketing, workshops and research projects. The Composter Manager will be tasked with the execution of operational aspects of education and research programs, and will participate in workshops and trainings. The Composter Manager will play a critical role in the expansion of IIT's composting operation and related research programs, providing both leadership and the capacity to execute tasks as needed. The Composter Manager reports directly to the Director of Campus Energy and Sustainability and is supported by the organization's resources and staff.
Key Responsibilities:	OFFICE: Assist with budget management, record keeping, and invoicing. Continue relations with IIT food services and landscape maintance contractors to secure and increase organic materials for composter and further the compost trade.
	COMPOSTER: Resposible for sourcing and coordinating incoming materials, on-site materials handling and processing, and compost trade. Distribute or replace compost bins throughout campus.
	MARKETING: Assitst with marketing events and workshops at IIT campus.
	OUTREACH: Responsible for scheduling and overseeing a calendar of community education and

	outreach events and workshops, for IIT students, related to composting or other related sustainability issues.
	Other Duties: Participates in job-related training as deemed necessary by the University or department.
Additional Responsibilities as assigned.	
QUALIFICATIONS	
Education & Experience:	Currently enrolled IIT student in good standing. Experience in material handling, inventory control, and website maintenance preferred. Experience gardening, composting, or farming preferred.
Preferred Skills:	Demonstrated Ability to: -Access computer programs & use computer operations related to position requirements. -Willingness to work with and further the sustainability goals of the university. -Take direction and complete work independently with minimal supervision.
Physical Environment:	Shared Workspace
Other Physical Environment:	-May be exposed to wet or dry environments, harsh weather, extreme heat or cold, and long hours during emergency situations. -Must be able to climb ladders, lift, unload, and move loads of up to 50 pounds. -Good attendance & punctuality are essential to the efficient operation of the entire sustainability team.
Location:	IIT Main Campus (MC), 3300 S. Federal, Chicago
Requisition Number:	1234567
Required Applicant Documents:	Resume & Cover Letter

recycle
omit
waste