IPRO 328
PROJECT PLAN

I. Team Charter

1. Team Information

A.

Name	Major	Year	Email
Kathryn Ciuffini	Architectural Engineering	Senior	kciuffin@iit.edu
Ja Young Kim	Architecture	Senior	jkim156@iit.edu
Robert Knapczyk	Civil Engineering	Senior	rknapczy@iit.edu
Matthew McKinley	Mechanical Engineering	Senior	mmckinle@iit.edu
Patrick O'Brien	Civil Engineering	Senior	pobrien7@iit.edu
Todd Maddamma	Aerospace Engineering	Senior	tmaddamm@iit.edu
Michael Schafer	Architecture	Senior	mschafe1@iit.edu
Philip Soderling	Computer Engineering	Senior	psoderli@iit.edu
Bonnie Wedster	Architecture	Jenior	bwedster@iit.edu

B.

Name	Strengths	Needs	Expectations
Kathryn Ciuffini	Fundamental knowledge of HVAC & electrical systems and energy transfer concepts. Patience, diplomacy, organization, proofreading, and communication skills.	Careful time management due to the many other commitments through school and home demanding my time and attention.	Learn to utilize specialized equipment for energy auditing; Continually develop better communication skills; Overcome setbacks with creative thinking and respectful cooperation; Create a viable program that can grow beyond this IPRO and beneficially impact the community for years to come.
Ja Young Kim	Valuable skills in many necessary computer software programs	Learn more about energy saving technologies	To influence others to help schools & churches save money and to help the environment
Robert Knapczyk	Worked as a site civil engineer intern and dealt with maintaining of roads & bridges. Decent amount of knowledge with the AutoCad program.	To learn more about energy efficiency and working on a professional project with a team	The team will communicate throughout the semester and achieve the goals that are set.
Matthew McKinley	Related coursework	To develop an understanding of websites	That the project will meet all of its goals

Todd Maddamma	Participated in an IPRO last semester; taking classes this semester applicable to the task	To work in small groups with more of a leadership position	To have accomplished works beyond those required as IPRO deliverables
Patrick O'Brien	Worked for a mechanical contractor with the engineer to help oversee a LEED certified project from start to finish. Broad knowledge of mechanical systems and controls. Researched and purchased new lighting fixtures for a company of about 100 employees to reduce energy usage and bills	To gain more knowledge on green building and energy efficiency, and get experience with working with a group of small teams all striving for that same goal	That the group will perform well together and help each other to broaden our knowledge on the subject at hand
Michael Schafer	Some knowledge of web site design and programming, knowledge of many design programs, basic knowledge in the trades that we'll be dealing with.	Improve communication and networking skills on a personal level.	We will establish the Energy Corp and make it a feasible organization
Philip Soderling	Worked on this IPRO last semester. Experience with various programming languages and website design/setup	To gain the tools necessary to perform an energy audit. To develop a functional and attractive website	That the group will work together throughout the semester and accomplish at least one energy audit
Bonnie Wedster	Graphics & organization; really good scheduler/time management person		That we plan and see a small project through.

C.
Church Green: A New Color For A New World

2. Team Purpose and Objectives

A.
The Fall 2009 IPRO 328 team envisions the development and ultimately execution of a volunteer program which would facilitate the implementation of energy saving improvements in a church and/or parochial school within the surrounding neighborhoods of IIT campus.

B.
To achieve this vision, the team will delve into multiple aspects of planning and communication, and aim at the following objectives:

i. Research the cost versus payback of various energy saving projects in order to generate interest of the recipients of the improvements by providing real data as to what they might expect to gain from the end product.
ii. Develop a training program on campus whereby students at IIT can learn to use equipment and analyze the data to perform an energy audit and determine which improvements would be most cost effective to implement
iii. Partner with interest groups/parties within the school and community to develop the program along parallel interest lines with the goals of IIT's Office of Community Affairs and the WISER sustainability program as well as this district's political leaders
iv. Promote the activities to both potential volunteers and potential sites of improvement through an improved website, flyers, video, and other means
v. Select a site in the target area at which to test the program based upon results of screening of technical, financial, political, and operational characteristics of the potential sites.
vi. Secure funding through grants, donations, and an intracting program or, at a minimum, clearly outline the means by which the individual churches could secure and manage such funding themselves
vii. Perform an energy audit at the test site and lay the groundwork for a future Day of Service at which some or all of the suggested energy improvements can be executed.

3. Background

A.
The project was started by Vincent Cushing of Clean Urban Energy with the help of McNally Engineers. Old St. Mary's Church was the target of the last semester's work, but there are plans to expand to other locations for this semester.

B.
Many churches throughout Chicago lack the funding necessary to perform regular maintenance and upgrades. As a result, they are often faced with high utility bills stemming from energy-inefficient buildings. These churches and their members may either be unaware of the potential savings or simply be too poor, but whatever the reason, they are in need of work.

C.
McNally Engineers has already supplied equipment that monitors gas usage, electricity usage, temperature, and room usage (via a motion sensor). This equipment is currently installed at Old St. Mary's, and provides a good idea of some building properties to look at. One additional piece of equipment that will no doubt be very useful is a thermal camera, which can be used to see what parts of a building are bleeding a particularly large amount of energy.

D.
Vincent provided the team with select examples of previous projects he worked on in structures similar to Old St. Mary's in which he was able to reduce the energy use of the facility. An example of savings from a previous project by Jim McNally of McNally Engineers can be seen following this link:
http://www.squidoo.com/church_energy_conservation

E.
Ideally, much of the funding for the solutions will come from outside sources, many of which will be investors hoping to get some sort of return on their investment. Because of this, we need to make sure that anyone investing understands what exactly they're investing in and

what sort of returns they can expect from the energy savings.

F.
There are several possible methods for funding different solutions. One such method is intracting, where investors are payed back a certain percentage of their original investment over a span of time. Other methods include grants (from local/state/federal government and energy companies), donations, or a revolving loan fund (RLF). The team will also be looking into building a group of volunteers that would perform energy audits and/or physically implement proposed solutions.

G.
The team is currently divided into two groups. One group will be tasked with putting together an "energy core", a group of volunteers that would perform energy audits and/or physically implement proposed solutions. The other group will research various areas, such as projects with a similar scope to our own and solutions that can reasonably be accomplished.

H.
Some Chicago churches already have groups in place to finance various projects or perform physical maintenance, although many do not.

4. Team Values Statement

A.
Commitment – Team members should be on time and prepared for each team meeting. Team members should be willing to accept new tasks and assignments to further help the team. It is expected of each team member to earn the trust of the other group members so that they can be relied on when the team needs each and every team member.

Communication – Members of the team should be able to communicate clearly with others. Email and phone calls are only effective if responded to. In order for the team to excel towards a common goal as one, communication between members is essential. During team meetings, it is expected that each team member has constructive feedback for the team on tasks at hand.

Contribution to the team – Everyone on the team is expected to contribute equally. Positive input that helps the team and individuals is expected during team meetings and any other group meeting involved with the project. Team members are expected to do the assigned work in a timely manner and be able to present it to the team.

Conflict Resolution and Respect – When working with people of different specialties, it is inevitable that conflict will arise. Constructive conflict handled correctly can be very beneficial to helping the team reach their goals. Team members are encouraged to voice their opinions and constructive criticism as long as the respect of the other members of the team is kept in mind. Sub-team conflicts that can be handled within the sub-team are to be handled by them again with the respect of others kept in mind. Larger scale conflicts can be brought to the team meetings and discussed with the input of the whole team.

B.
Conflicts will be inevitable with a project of this size. The group welcomes positive and constructive conflict. With the utilization of sub-teams, it will be expected that many concerns be dealt at the sub-team level. Given the size of the sub-groups, the issues can be done by simple informal discussions. Time is precious; it would not prove productive for all concerns to be brought to the team. During the designated IPRO team meetings will be an opportunity

to receive updates on all the sub-teams and provide a conduit for project issues to be presented. Those that concern the direction of the project and affect all the teams will be brought up in discussion and voted on by the team members during an IPRO team meeting by a simple majority.

II. Project Methodology

1. Work Breakdown Structure

A.

The problem is that churches and schools are wasting lots of money due to inefficient energy usage. Some of the contributing factors include outdated and weatherized infrastructure, inefficient HVAC systems, and improper facility usage by people (such as heating an unused room). Most of these churches and schools don't even know where the majority of their money loss is occurring. The team plans on finding areas of inefficiency and helping the church make the necessary improvements.

The team will go about solving the problem by splitting into two subgroups:

1. The first subgroup's focus will be on the research, funding, and screening of the churches in the area.
2. The second subgroup's focus will be on creating a volunteer group at IIT that will undergo a training program that will prepare them to do the improvement work at the churches.

The majority of the semester will be spent doing the research for the project and creating a volunteer group. The data collected will be represented on the website so that it can be interpreted by a lay person. The research collected by each sub-group will be communicated to the entire team. Each member of the team will participate in the discussions at the weekly team meetings. Questions will be answered at these meetings and details will be sorted out.

After collecting all the necessary data and putting all the details together, the team will prepare a presentation to give to the administrative body of IIT. The layout of the booth for IPRO day will be designed and the presentation slides will be organized. Additionally, the website will be updated and hopefully finalized. The deliverables will be assigned to certain individuals decided by the entire team. It is important that all the deliverables are completed and it is the responsibility of every team member to make sure each one is done on time.

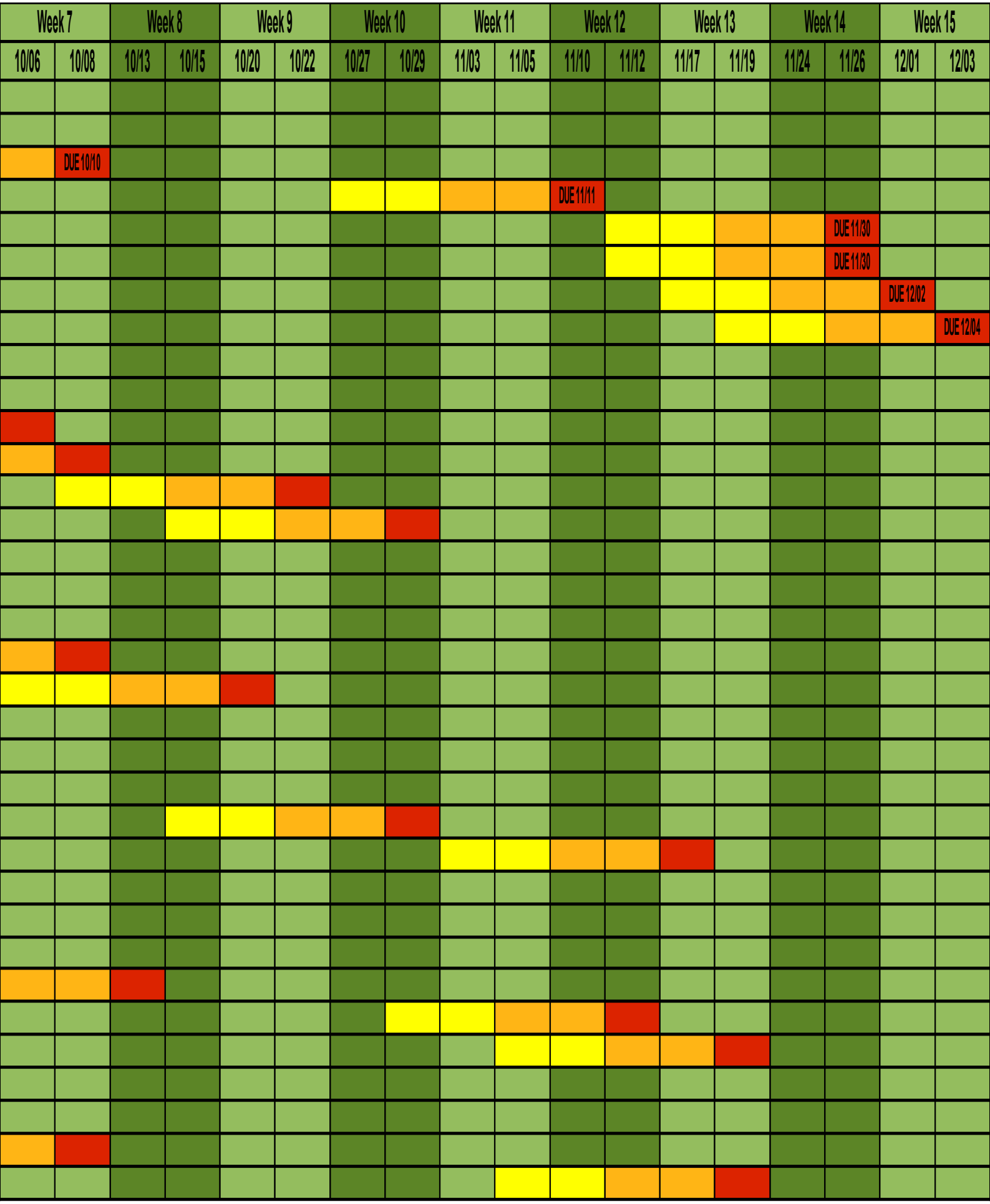
B.

Team Leader: Robert Knapczyk	
Site Research/Project Funding	**Volunteer Training and Funding**
Sub-team Leader: Robert Knapczyk	Sub-team Leader: Philip Soderling
Todd Maddamma	Kathryn Ciuffini
Ja Young Kim	Michael Schafer
Matthew McKinley	Bonnie Wedster
Patrick O'Brien	

C.

ID	Task	Week 1		Week 2		Week 3		Week 4		Week 5		Week 6	
		08/25	08/27	09/01	09/03	09/08	09/10	09/15	09/17	09/22	09/24	09/29	10/01
	Deliverables												
0	Project Plan							DUE 9/11					
1	Midterm Review												
2	Ethics Reflective Report												
3	Abstract/Brochure												
4	Poster												
5	Final Presentation												
6	Final Report												
	Screening												
7	Review list of churches												
8	Review/update previous semester's surveys												
9	Send out new surveys												
10	Follow up with churches & review returned surveys												
11	Select site												
	Funding												
12	Research various funding methods												
	Marketing & Communication												
13	Talk to groups (from within the university & community) with similar interests												
14	Refine efforts based on other groups' results and interests												
	Research												
15	Find projects similar in scope to our own												
16	Review other projects results												
17	Explore some simple solutions applicable to our set of possible sites												
18	Explore specific solutions applicable to our specific site												
	Energy Corp												
19	Research effective volunteer organizations												
20	Research existing training programs for performing energy audits												
21	Acquire materials for training an energy corp												
22	Train IPRO team members to perform an energy audit												
23	Perform energy audit on our selected site												
	Website												
24	Review previous semester's website												
25	Acquire feedback on new and existing features												
26	Update website												

Key
Task due date
Task almost due (≤1 week off)
Task due soon (>1 week off)
Ongoing task


Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Week 13
Week 14
Week 15
10/06
10/08
10/13
10/15
10/20
10/22
10/27
10/29
11/03
11/05
11/10
11/12
11/17
11/19
11/24
11/26
12/01
12/03
DUE 10/10
DUE 11/11
DUE 11/30
DUE 11/30
DUE 12/02
DUE 12/04

2. Expected Results

The team believes that many church and school energy problems can be solved or improved in some way. A lot of the problems have to do with outdated forms of energy along with effects due to weather and wear & tear. Churches also waste a lot of energy due to poor facility usage (for example, the HVAC system is on every time the church is occupied even though it is only occupied by a few people). The team wants to figure out a way to improve the church's energy efficiency and ultimately save them money in the future. The ability for our team to find funding for the project will be a huge reason for our success. The team plans on starting a volunteer group at IIT that will do the majority of the work on the church's improvements. This volunteer group will go through a training program that teaches them the fundamentals of an energy audit and prepare them for the work they will be doing. The team will inspect many churches in the Bronzeville area and put them through a screening process to narrow the field to a couple of churches that can really use our help. The team's ultimate expectation for this project is to pick a church from our screening process, come up with funds, and have the trained volunteer group do the work on the selected church. Data collected about energy savings during the project will be updated on the team's website along with many new features.

3. Budget

Item	Amount
Volunteer energy core incentives	$75.00
Transportation to site visits	$50.00
Printing materials	$25.00
Tool rental	$100.00
Supplies for training academy	$50.00
Supplies for implementation of energy plan	$100.00

4. Designation of Roles

Role	Individual
Agenda	Philip Soderling
Time Keeper	Matt McKinley
Meeting Minutes	Kathryn Ciuffini
Paperwork	Patrick O'Brien
iGroups Moderator	Todd Maddamma