Final Report

IPRO 301

I D E A S

Interdisciplinary Design Education And Strategies

Developed for the Summer semester, 2009

Information

Creators

IPRO 301 Summer 2009 Team

Professors db@brininstool-lynch.com
ametter@epsteinglobal.com

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Abstract

For years, the IPRO Program at IIT has been forced to operate wherever space can be found. Often, facilities are not equipped for the needs of the program. It has become necessary to find a way to give the IPRO Program its own dedicated space.

If we give the program its own space, then what is needed in that space? What needs to be done with it? What types of spaces are necessary? What technologies will be used?

IPRO 301 has started attempting to answer these questions. We have developed a basic proposal containing Information Technology, Educational Philosophy, Business Model, Programming, and Facilities reccomendations. These reccomendations can serve as the starting point for a real solution to this problem.

Contents

1 Background **1**
- 1.1 Client . . . 1
  - 1.1.1 Illinois Institute of Technology . . . 1
  - 1.1.2 IPRO Program . . . 1
- 1.2 Problem Statement . . . 1
- 1.3 History . . . 1
- 1.4 Ethical Issues . . . 1

2 Objectives **2**
- 2.1 Semester Goals . . . 2
- 2.2 Goal Details . . . 2
  - 2.2.1 Determine IPRO's Current Situation . . . 2
  - 2.2.2 Research Similar Facilities . . . 2
  - 2.2.3 Research Needs of the IPRO Program . . . 2
  - 2.2.4 Develop Designs For Potential New IPRO Spaces . . . 2
  - 2.2.5 Create A Proposal, Including Each Design . . . 2

3 Methodology **3**
- 3.1 Division of Work . . . 3
- 3.2 Changes . . . 3
- 3.3 Research . . . 3

4 Team Structure & Assignments **6**
- 4.1 Team Structure . . . 6
  - 4.1.1 Research Phase . . . 6
  - 4.1.2 Concept Development Phase . . . 6

5 Budget **7**
- 5.1 Planned Budget . . . 7

6 Results **8**
- 6.1 Accomplishments . . . 8
- 6.2 Objectives . . . 8
  - 6.2.1 Completed . . . 8
- 6.3 Ethical Issues . . . 8

7 Obstacles **9**
- 7.1 Obstacles Encountered . . . 9
- 7.2 Solutions . . . 9
- 7.3 Prevention . . . 9
- 7.4 Remaining Obstacles . . . 9

8 Reccomendations For Continuation **10**

A References **11**
A.1 Northwestern University 11
A.2 Purdue University 11
A.3 IIT IPRO Office 11

B Acknowledgements **12**

Chapter 1

Background

1.1 Client

1.1.1 Illinois Institute of Technology

The Illinois Institute of Technology is located four miles south of the Chicago Loop area. It has a total area of 120 acres on the main campus, in addition to facilities in the Loop area and in Wheaton, Illinois.

1.1.2 IPRO Program

The IPRO Program is a department at the Illinois Institute of Technology that provides courses focused on collaborative project work and experience doing so in a more realistic environment than that provided by the usual class projects.

1.2 Problem Statement

At this time, the IPRO Program is distributed across the IIT campus, with no specific location for any of its operations.

The main IPRO offices are in the 3424 Building, along with many of the class meeting locations. This building gives the impression of a cold war relic. It lacks power connections in the rooms, modern technology, printing facilities, tables and chairs, and in some cases, windows. It is also heavily used by a number of programs that are completely unrelated to IPRO.

A number of IPRO classes are in almost random locations all over the IIT campus. Many of these locations do not properly function as meeting/conference rooms, do not have technology desks (projectors, computers, power, internet), and in the case of this IPRO (IPRO301), the room is actively used by random other people during the meeting time.

1.3 History

In the past the IPRO program has moved around without ever having a successful dedicated space.

For some time, offices for this program were in E-1 along with a dedicated conference room and team studio workroom.

The HUB was thought to be the ideal building for a collaborative space. After moving classrooms to the Expo area, it became apparent that the HUB would not suffice do to problems with acoustics and time conflicts with other scheduled events.

One architect drafted plans to establish a space within the HUB, but the plans were never documented as they were impractical and difficult to implement.

Currently the IPRO program is housed in 3424 along with the Stuart School of Business. However, there are limited resources and few classrooms and conference rooms.

1.4 Ethical Issues

Ethical issues faced by this project include gaining access to similar existing facilities. This requires permission from the organizations behind other facilites.

There are some issues involving potential landmark or historical status for buildings on the IIT campus. Modifying an existing facility might result in these issues getting in the way. As noted in the case of Soldier Field (here in Chicago), which lost its national landmark status after renovation, this issue must be considered.

In the case of a new facility, the impact of the facility must be considered. This includes environmental, social, and architectural concerns.

The final concern is funding. Not only is it important to design the best possible facility, but also to consider both the current economic situation, and IIT's current financial situation. Frivolous spending helps nobody.

Chapter 2

Objectives

2.1 Semester Goals

- Determine IPRO's current situation
- Research similar facilities
- Research needs of the program
- Develop designs for potential new IPRO spaces (considering both renovating existing facilities and constructing new facilities)
- Create a proposal, which includes each design

2.2 Goal Details

2.2.1 Determine IPRO's Current Situation

Before attempting to solve the problems that the IPRO Program faces, it is important to get the specifics of the problems that it is currently facing. Based on these specifics, we can determine the needs that the program faces, as well as the reasons for and situations surrounding the problems that exist.

2.2.2 Research Similar Facilities

There are other universities that have programs similar to IPRO. In some cases dedicated facilities do exist, so it would make sense to look into these facilities, their features, and the reasoning surrounding the features.

2.2.3 Research Needs of the IPRO Program

With information on the problems of the IPRO Program and the data from similar facilities at other universities, the next step is to look into what the IPRO Program would realistically need in a facility.

2.2.4 Develop Designs For Potential New IPRO Spaces

Once we know what needs to be done in order to solve the problems IPRO is facing, the next step is to create solutions. The first logical part of that would be creating an "ideal" facility. This would refer to creating the designs for a facility that does not take into consideration any constraints other than the problem description, and solution suggestions. This facility will take the form of a horizontal building, in the style of most existing IIT buildings. It will also be formatted in a vertical arrangement, with the general idea coming from the concept of urban design.

The next step is to fit the design to two existing facilities at IIT. As the campus covers approximately 120 acres, it would not be logical to continually suggest new facilities. There is space on campus that could be potentially renovated, including some spaces that are not used, or are not completely used. The two spaces looked at this semester are Machinery Hall and the A2 Building.

2.2.5 Create A Proposal, Including Each Design

The final product for this semester will be a document containing the proposals, which will cover the categories of Information Technology, Educational Philosophy, Business Models, Programming, and the facilities themselves.

Chapter 3

Methodology

3.1 Division of Work

The project, being a new project, was divided into two major areas, with a third implicit area in between. The first area is research. The research is much more heavy than that seen in most IPROs because, as a new IPRO, we must start with very little information. This section lasted about a month.

After the research was complete, it had to be analyzed and formatted so that it could be used. This is the implicit area. In this section, the research itself has to be turned into a set of information that can be used in crafting something that can be used to solve the problem.

Finally, once the research has been analyzed, the third area is Concept Design. This is the main point of this IPRO. The research (and subsequent analysis) exist only for the purpose of providing information to be used in the final concepts. This phase lasts nearly a month.

3.2 Changes

The most major change was the shift between the research phase and the concept design phase. The teams were completely reorganized, and the nature of the work completely changed.

The new teams were based on the five categories (IT, Educational Philosophy, Business, Programming, and Facilities), with one modification. The programming and facilities areas were merged, since the work is very similar, and was mostly handled by the same people.

The previous teams were based on the facilities being researched, but measures were taken to ensure that the five categories were represented in each team. This eased the transition into the concept design phase, since some familiarity with the categories already existed.

3.3 Research

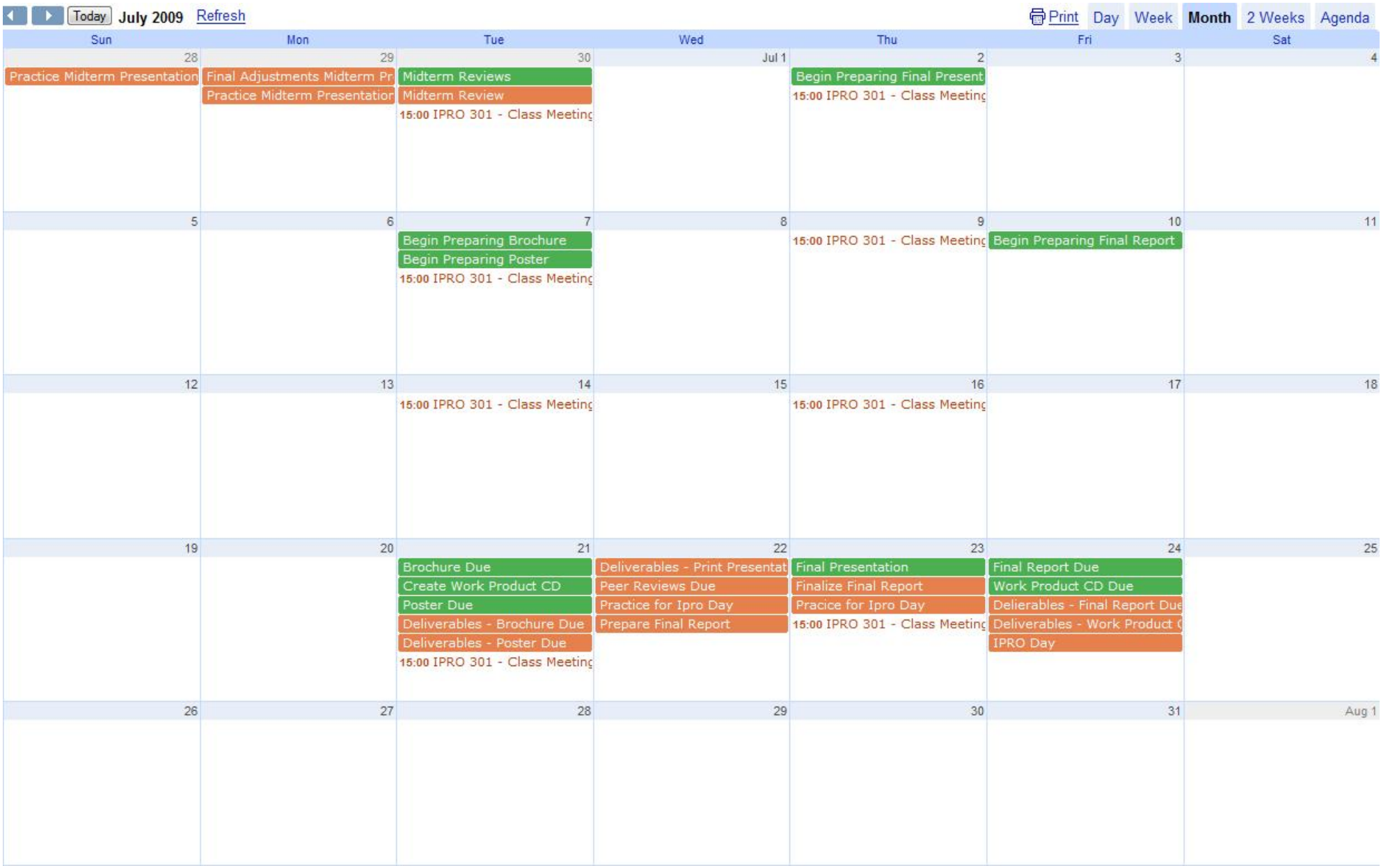
For this semester of this IPRO, research was a massive part of the workload. It wound up being something like half the total work.

Research meant exploring IIT and determining what IPRO is, and what it should be. Surveys were issued, and interviews were conducted with various people who have had various levels of experience with the IPRO Program.

Two additional teams visited Purdue University and Northwestern University. Each has its own program, similar to IPRO in some ways. More importantly, each has a facilitiy with dedicated space for the programs. These teams were there to look into how the facilities served the needs of the programs.

Today **June 2009** Refresh — Print | Day | Week | **Month** | 2 Weeks | Agenda

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	Jun 1	2 15:00 IPRO 301 - Class Meeting	3	4 Collage due today Start Project Plan 15:00 IPRO 301 - Class Meeting	5 14:30 IPRO-301 Ethics meeting	6
7	8	9 Project Plan - Input Due Project Plan Assignments Submission of Research Ques 15:00 IPRO 301 - Class Meeting	10 Visit to NU Ford Design Cente	11 Purdue Visit 15:00 IPRO 301 - Class Meeting	12 Visit to NU Ford Design Cente	13
14 Assessment of Collected Infor	15	16 Begin Preparing Midterm Pres Project Plan Due Deliverable - Project Plan 15:00 IPRO 301 - Class Meeting	17	18 15:00 IPRO 301 - Class Meeting	19	20
21	22	23 15:00 IPRO 301 - Class Meeting	24	25 Prepare Mideterm Presentatio 15:00 IPRO 301 - Class Meeting	26 Complete Midterm Presentati	27 Practice Midterm Presentation
28 Practice Midterm Presentation	29 Final Adjustments Midterm Pr Practice Midterm Presentation	30 Midterm Reviews Midterm Review 15:00 IPRO 301 - Class Meeting	Jul 1	2 Begin Preparing Final Present 15:00 IPRO 301 - Class Meeting	3	4


Today
July 2009
Refresh
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Day
Week
Month
2 Weeks
Agenda
Sun
Mon
Tue
Wed
Thu
Fri
Sat
28
29
30
Jul 1
2
3
4
Practice Midterm Presentation
Final Adjustments Midterm Pr
Practice Midterm Presentation
Midterm Reviews
Midterm Review
15:00 IPRO 301 - Class Meeting
Begin Preparing Final Present
15:00 IPRO 301 - Class Meeting
5
6
7
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10
11
Begin Preparing Brochure
Begin Preparing Poster
15:00 IPRO 301 - Class Meeting
15:00 IPRO 301 - Class Meeting
Begin Preparing Final Report
12
13
14
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16
17
18
15:00 IPRO 301 - Class Meeting
15:00 IPRO 301 - Class Meeting
19
20
21
22
23
24
25
Brochure Due
Create Work Product CD
Poster Due
Deliverables - Brochure Due
Deliverables - Poster Due
15:00 IPRO 301 - Class Meeting
Deliverables - Print Presentat
Peer Reviews Due
Practice for Ipro Day
Prepare Final Report
Final Presentation
Finalize Final Report
Pracice for Ipro Day
15:00 IPRO 301 - Class Meeting
Final Report Due
Work Product CD Due
Delierables - Final Report Due
Deliverables - Work Product C
IPRO Day
26
27
28
29
30
31
Aug 1

Chapter 4

Team Structure & Assignments

4.1 Team Structure

4.1.1 Research Phase

The team structure during the research phase was based off of the facilities being researched. The three teams were IIT, Northwestern, and Purdue.

The IIT Team handled research involving IIT. This was slightly more extensive than the research performed at other universities.

The research performed at Northwestern and Purdue, while less extensive than that done with IIT, also required some travel, and coordination with the other universities.

4.1.2 Concept Development Phase

For the concept development phase, teams were reformed. This time, they were formed based on the five categories, as mentioned previously, except that programming and facilities were merged.

The IT, Business, and Educational Philosophy teams were responsible for developing reccomendations for these categories. The architecture team (programming & facilities) was responsible for visualizations for all concept areas (ideal, machinery hall, A2), as well as the programming for these facilities.

Chapter 5

Budget

5.1 Planned Budget

Budget		
Category	**Amount**	**Description**
Transportation	$150.37	Visiting other universities
Models	$120.00	Models of ideas
Idea Booklets	$198.00	Final booklets for ideas
Research Printing	$90.00	Printing of research related items
Final Proposal	$125.00	Self explanatory
Other Costs	$66.63	Other costs that may arise
Total	**$750.00**	

Chapter 6

Results

6.1 Accomplishments

We consider our major accomplishments to be the fact that our objectives have been fulfilled, despite operating in a summer semester setting.

We have developed a large document cataloging everything that has come out of our research, as well as a compilation of all the work done towards concept design.

As far as the work [towards concept design] goes, we have four concepts that have been created (machinery hall, A2, and ideal in vertical and horizontal formats).

6.2 Objectives

6.2.1 Completed

One of the things that all project teams would be happy to say is that we have completed our objectives.

- Determine IPRO's current situation
- Research similar facilities
- Research needs of the program
- Develop designs for potential new IPRO spaces (considering both renovating existing facilities and constructing new facilities)
- Create a proposal, which includes each design

6.3 Ethical Issues

The most major ethical issue that has come up is the "special" value of buildings on the IIT campus. This could be architectural, historical, or landmark value/status. These things are important to preserve. This is our most major issue because we are looking at renovating existing facilities, which could easily damage the value of the facilities.

Chapter 7

Obstacles

7.1 Obstacles Encountered

Our major obstacles are as follows:

- Large group size (18 members)
- Short semester length (8 week summer semester)
- Many entities in various areas that all must be contacted for research

7.2 Solutions

For the large group size, the solution was a team based approach to the project. We divided into multiple teams (in two different ways at different times).

For the semester length, there really is no solution. The same is true for the fact that mutliple entities were targeted in the research phase. These are simply difficulties that are inherent in the situations.

7.3 Prevention

We managed to prevent some coordination and communication issues due to our team approach. There is no doubt that a single team of 18 people working on everything would have proven very difficult.

7.4 Remaining Obstacles

The most major issue that will be faced in the future is that of turning the ideas generated into a real solution. This involves approval, choosing a final site, generating complete documentation for the site, and contracting to create it.

The other issue is funding. In order to undertake the process that was just mentioned, the renovation (or new construction) will have to be funded.

Chapter 8

Reccomendations For Continuation

In order to continue this project, it is important to solidify a location. While we have looked at the options concerning Machinery Hall and the A2 building, these were our choices. IIT itself has not decided to do anything, much less where to do it. In order to really do anything from here, IIT needs to decide on a location that can either be renovated or built on.

With a location chosen, the next step is to create the documentation for that location. What we have is concept designs. Actual construction requires complete documentation. This will be the better part of the project.

Appendix A

References

A.1 Northwestern University

Northwestern University is located in Illinois. This IPRO worked with Northwestern to gather data about their Ford Center, which was one of the research facilities.

A.2 Purdue University

Purdue University was the site of the other research facility. This facility is used by their EPICS program.

A.3 IIT IPRO Office

The IPRO Office was very useful as a source of information about the IPRO Program

Appendix B

Acknowledgements

The Team

Project Manager	Ed Scanlon
IT	Kristin Lucchesi Joel Cornelius
Educational Philosophy	Mehrdad Nikamalfard Vito Natale Faraz Hussein
Business	Alexis Laurence Aaran McEneff Philip Brierly
Architecture	Timothy Phillips Gergana Horozova-Nalls Kevin Krupp Julia Valadez Ruben Robledo Dennis Radtke Kai Hansen

Faculty Advisors

Professors	Prof. David Brininstool Prof. Andrew Metter

Outside Assistance

Other Assistance	Tom Jacobius Jennifer Keplinger
Existing Examples	Northwestern University Purdue University

Bibliography

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