

ITMD 534 Human Computer Interaction

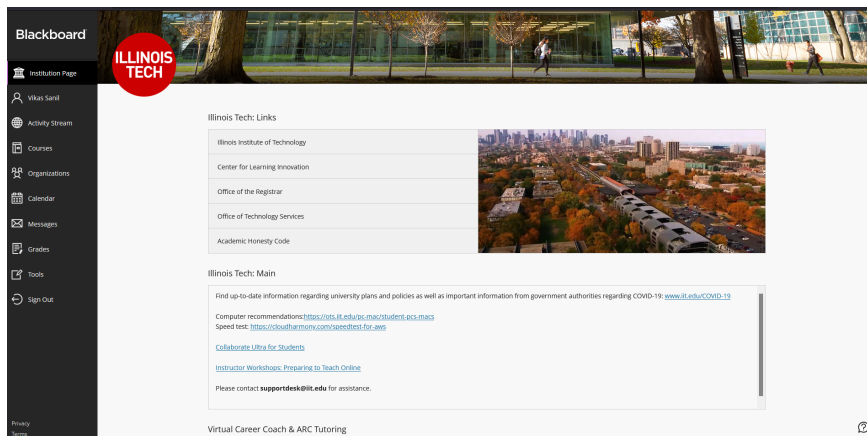
Final Project Report

Vikas Sanil

ITM M.A.S. Student

Illinois Tech

1. User Interface chosen for final project: Illinois Tech- Blackboard.



2. Brief introduction to interface:

Blackboard is a leading EdTech company serving higher education, K-12, business and government clients around the world. (“About Us”) And Blackboard Learn is their learning management system. **Illinois Tech** has customized Blackboard Learn per their requirement. Illinois Tech Students utilize this system for their daily course activities like schedule, contents, class recordings, assignment schedule, assignment submission, unit test and online classes through Collaborate Ultra.

3. Reason for selecting this interface:

Initially we planned to develop an app for Study Space location and availability tracker in Illinois Tech campus. But we found from our initial contextual inquiry with users that it is not hard to find a spot in the campus and people do collaborate in online portals when space is an issue. Hence we dropped that idea and were looking for a new one.

During this period when we were performing contextual inquiry as part of class homework, we found alumni and current students desired Blackboard to cover more features than what it caters today. So we picked Blackboard Learn as our user interface for this project and applied the tools we learnt in Human Computer interaction to identify the areas of improvement in Blackboard Learn.

4. Contextual Inquiry

- Tasks identified for contextual Inquiry:

Task 1. Access Blackboard and verify the courses you are taking this semester.

Task 2. When is Registration starting for the Fall semester?

Task 3. Verify the number of courses left to complete your Graduation.

- Detail of contextual Inquiry with User 1.

User 1 Persona: Female, 25yrs, Graduate Student in IIT-ITM

Persona Question:

1. What semester are you in?

- 2nd Semester

2. How many times have you registered for courses at IIT?

- 2 times

3. What is your major?

- Data Analytics and Management

Contextual Inquiry recording for User 1:

Task 1. Access Blackboard and verify the courses you are taking this semester.

0:00:00 Me : Thanks for agreeing to do this. I am reading out first task. Access Blackboard and verify the courses you are taking this semester.

0:00:10 User1: Opening my browser. Clicking on Blackboard saved as favorite.

0:00:18 User1: Logging in with my ID

0:00:30 User1: I am in Blackboard now. I am taking three courses. This semester I am taking Database Security, Data Analytics, Service-Oriented Architecture.

0:00:47 Me : Great! You are done with Task1. Now we are moving to Task 2

Task 2. When is Registration starting for the Fall semester?

0:00:55 Me : I am reading Task 2 now. When is Registration starting for the Fall semester?

0:01:00 User1: Oh, I have not registered for Fall semester. I am planning to do after Summer.

0:01:08 Me : No... I am not asking for Registration of course. I am asking you the start date for Fall semester course registration.

0:01:20 User1: Registration start date for Fall semester?! Oh..

(Clicks on “myIIT” saved as favorite on Browser and starts logging in)

0:01:26 Me : Please walk us through what you are doing.

0:01:30 User1: Oh! Yeah... I just clicked on myIIT and trying to log in.

(Goes to Academics tab and starts scrolling up and down)

0:01:45 Me : What are you looking for?

0:01:49 User1: I am searching for Registration open for Fall semester here.

0:01:55 Me : Oh, that’s published here in Academics tab. I was not aware of it..

0:02:02 User1: Oh, I am looking for...(hovers over her profile detail) I think.. This is my hawk ID and Registration number... I forget things...

(Starts scrolling the page again)

0:02:15 Me : Looks like you are bit stressed out. Please take a pause and relax. You are not being tested here. I am just observing how these applications are. Please relax, let’s take a break.

0:02:30(Paused recording for a minute)

0:02:30 User1: Ok, usually my husband sits next to me while I register for course. So he helps me in finding these things.

0:02:46 Me : Oh, wait. I am not asking you to register the course. I want to know how you find out when registration window opens.

0:02:58 User1: That I know it’s April 4th, right.

0:03:03 Me : Yes. Where did you see this date?

0:03:09 User1: I sent out mail to Advisor and he told me when and what course to register.

0:03:16 Me : You sent mail to him when registrations will open?

0:03:23 User1: No, I knew the registration opens up in April. So I sent mail to him. Starting of April.

0:03:34 Me : How did you know it’s in April.

0:03:39 User1: Oh, I made a note at the start of semester that Fall registration will be in April first week. I write down major dates so that I don’t miss them.

0:03:52 Me :Where did you see this detail? From where you got the date?

0:03:58 User1: hmmm... Let me check

(Clicks on ITM M.A.S. Specialization course catalog page from bookmark)

0:04:08 User1:No.. Not this one.

(Clicks on the Academics tab on the screen and looks for something... Clicks on Academic Calendar and selects Spring 2022)

0:04:24 User1: Here! April 4, Fall registration begins.

0:04:29 Me : Was that the exact date when Graduate registration started.

0:04:35 User1: It should be, right? It's mentioned here.

0:04:39 Me : Ok. That ends our task 2. Great! you found the registration start date. We will move to task 3.

0:04:47 User1: Ok.

Task 3. Verify the number of courses left to complete your Graduation.

0:04:49 Me : I am reading Task 3. Verify the number of courses left to complete your Graduation.

(Opens new tab clicks on myIIT bookmark option)

0:04:58 User1: Oh, I know this.

(Clicks on Student Life tab in left navigation pane)

0:05:01 User1: It should be somewhere here.

(Keeps searching on screen)

0:05:07 Me : What are you looking for?

0:05:09 User1: I am looking for Degree Works link.

(Clicks on Academics and continues searching on screen)

0:05:15 User1: It should be here, let me search the screen.

(Performs Ctrl+F on browser and types Degree Work)

0:05:22 User1: Found it!

(Clicks on Graduate Degree Works for Students link in Graduate Academic Affairs section)

0:05:27 User1: Here... I have to still take 4 courses to complete graduation.

0:05:33 Me: Great! You finished task 3. We will move to next part.

- **User 1 interface experience:**

Experience question 1. How do you recall all these applications?

0:05:38 Me : How do you recall all these applications?

0:05:44 User1: Oh, I saw them as favorites and try to go through each of the favorites to find them.

0:05:56 Me : So you just go through your favorites options to find the application you need, that's great.

0:06:03 User1: Yeah, it's easy that way... It's hard to recall where things are.

Experience question 2. How do you keep track of the Registration start for next semester?

0:06:09 Me : How do you keep track of Registration start for next semester?

0:06:15 User1: As I mentioned, I make note of it at the start of semester. And I keep track of it.

0:06:21 Me : You make note where?

0:06:24 User1: I write it down in my notes. So I keep checking these dates to keep track of my deadlines.

0:06:33 Me : That's how you keep track of assignment submission too?

0:06:38 User1: Usually yes, I write down dates so that I don't miss it.

0:06:45 Me : You don't use Activity stream in Blackboard? (Gave a nudge since the user was more comfortable keeping track of dates in personal notes. Should not have done that.)

0:06:49 User1: I do use it. But sometimes the dates are not in order. I get confused. So I keep track of it in my notes.

Experience question 3. Please talk about your experience using these systems.

0:06:57 Me : Please talk about your experience using these systems.

0:07:04 User1: They are pretty good. I just keep them as favorites and try to go around.

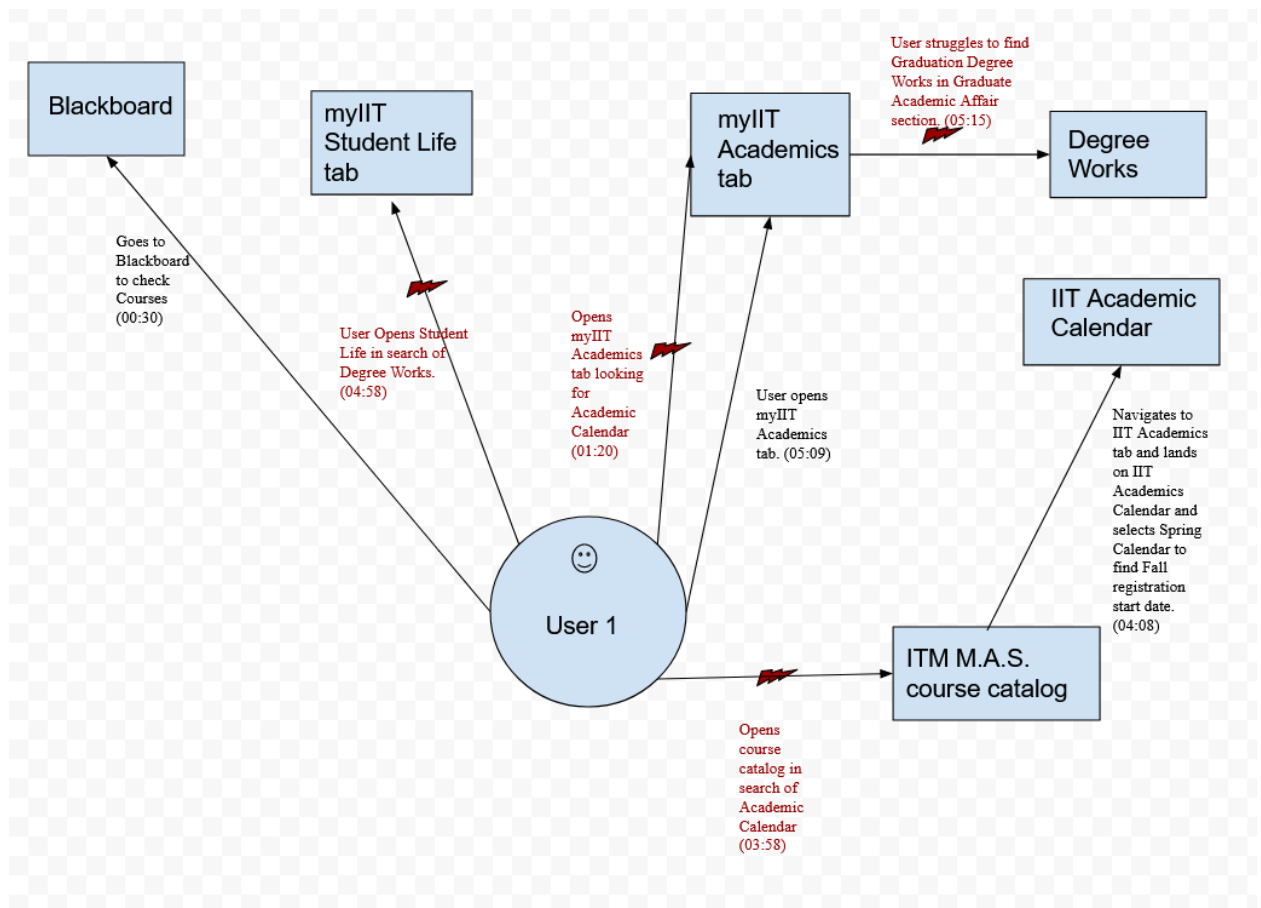
My husband usually sits with me when I register for courses. So usually he helps me out to find things as he remembers the location they are.

0:07:16 Me : Is there anything you feel can be improved?

0:07:21 **User1**: No they are ok. Just have to search a bit around. Usually I get it after 2-3 tries. It's just hard to keep track of the locations.

0:07:34 **Me** : Ok! That's end of our observation. Thank you for your time. I will stop recording now.

- **User 1** Flow model



- **Detail of contextual Inquiry with User 2.**

User 2 Persona: Male, 26yrs, Graduate Student in IIT-ITM

Persona Question:

1. What semester are you in?
 - 1st Semester
2. How many times have you registered for courses at IIT?
 - 1 time

3. What is your major?

- I am not doing any specialization. For now I have taken Data Analytics and Management.

Contextual Inquiry recording for User 2:

Task 1. Access Blackboard and verify the courses you are taking this semester.

0:00:00 Me : Thanks for agreeing to do this. I am reading out first task. Access Blackboard and verify the courses you are taking this semester.

0:00:13 User2: Opening browser. Clicking on Blackboard.

0:00:25 User2: These are my courses. You know them. We are taking one together

0:00:29 Me : Yes. That's great! We are done with Task 1.

0:00:34 User2: Alright!

Task 2. When is Registration starting for the Fall semester?

0:00:36 Me : I am reading out Task 2 now. When is Registration starting for the Fall semester?

0:00:44 User2: When is Registration starting for Fall semester... It started on April 4th, right?

0:00:50 Me : Yes.. It was. Uhhh, I am asking where you found out the date regarding Fall registration start date.

0:01:03 User2: mmmm.. I think, saw it in mail... From the newsletter. Let me check.
(Opens IIT mailbox, searches for the ITM weekly newsletter)

0:01:49 User2: Got it.. Here in this mail they have shared the calendar. So, that's found it from here.

0:02:08 Me : So April 4th was the start date for Graduate Student registration?

0:02:14 User2: mmmm, Oh wait here in the top. They have mentioned it starts on 5th for Graduate Students. I have not registered my courses yet. Just had discussion with Advisor. Will register once this semester is over. Too many things to complete.

0:02:27 Me : That's ok. Good, we are done with Task 2.

0:02:29 User2: Cool! 1 more to go!

Task 3. Verify the number of courses left to complete your Graduation.

0:02:32 **Me** : I am reading Task 3. Verify the number of courses left to complete your Graduation.

0:02:37 **User2**: Oh, that is easy.. I have to complete 7 more courses to complete graduation.

0:02:41 **Me** : mmmm.. So you are not aware of a page where you can see that detail.

0:02:45 **User2**: Oh.. I remember what you are asking for. Advisor showed me that in our first meeting. He added our discussion notes in it.

(Clicks on myIIT bookmark option. Takes some time to recall where the Advisor had shown it.)

0:03:04 **User2**: mmmm. He clicked on Academics.. Then in this corner... Here.. Graduate Degree Works.

(Clicks on Graduate Degree Works for Students link under Graduate Academic Affairs section)

0:03:24 **User2**: Yeah.. this is the one, right?

0:03:27 **Me** : Yes. This is the page.

0:03:29 **User2**: Yeah, everything is blank. Have to take courses.

- **User 2 experience feedback:**

Experience question 1. How do you recall all these applications?

0:03:32 **Me** : How do you recall all these applications?

0:03:36 **User2**: You know I am new here. So, I usually try to remember what is shown to me or just ask friends around... where to find them.

Experience question 2. How do you keep track of the Registration start for next semester?

0:03:49 **Me** : How do you keep track of Registration start for next semester?

0:03:53 **User2**: I keep looking at mails sent. They share the academic calendar every time. So it's easy to track there.

0:04:03 **Me** : Yeah. Even I do the same.

Experience question 3. Please talk about your experience using these systems.

0:04:08 Me : Ok, Can you please talk about your experience using these systems.

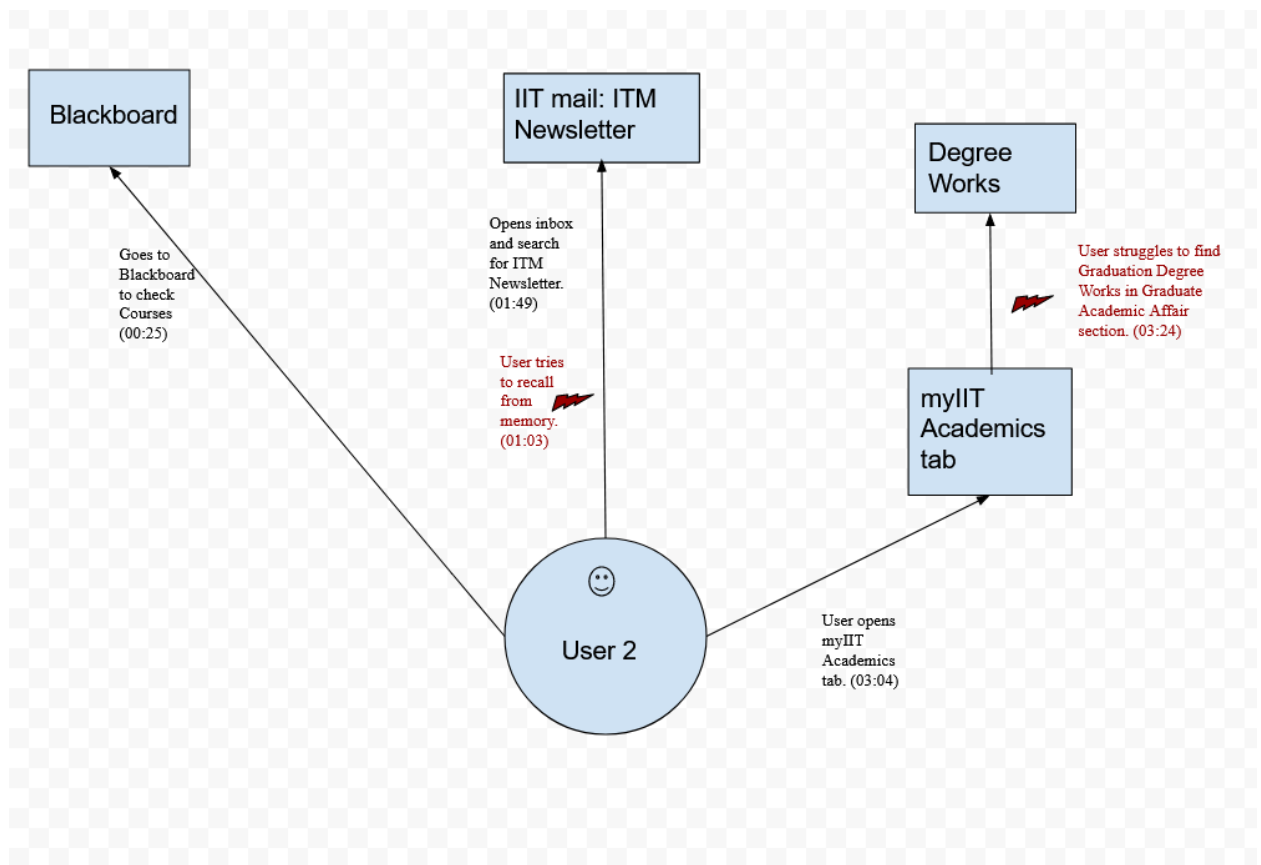
0:04:12 User2: I am pretty new to this as you know. So, still getting used to these systems.

0:04:17 Me : Is there anything you feel can be improved?

0:04:21 User2: Yeah, They can probably keep everything centralized so that we don't have to go around looking for it. But it seems they don't have any system like that. So we have to get around and understand all the apps they have.

0:04:37 Me : Ok! That brings to end this observation. Thank you for making time for this. I will end this recording here.

- User 2 Flow model



- Observations from Contextual Inquiry

- Both users had to rely on memory and bookmarks to find Registration start date for Fall semester or Degree Works.
- Users have to go through multiple sites to find the required details.
- Registration start date is available in multiple locations.
- Registration start date mentioned in the Academic Calendar is the overall start date. Student specific dates are shared in the Department newsletter in mail.
- Department newsletter keeps updating existing content. It's hard to notice what items are updated in the latest newsletter.
- Advisors use Degree Works more often than Users in myIIT site.

5. Goals identified for this project:

Goal 1: Introduce Course completion Snapshot and link to Degree Work.

Goal 2: Course Registration alert within the Activity stream and link to the Registration Dashboard.

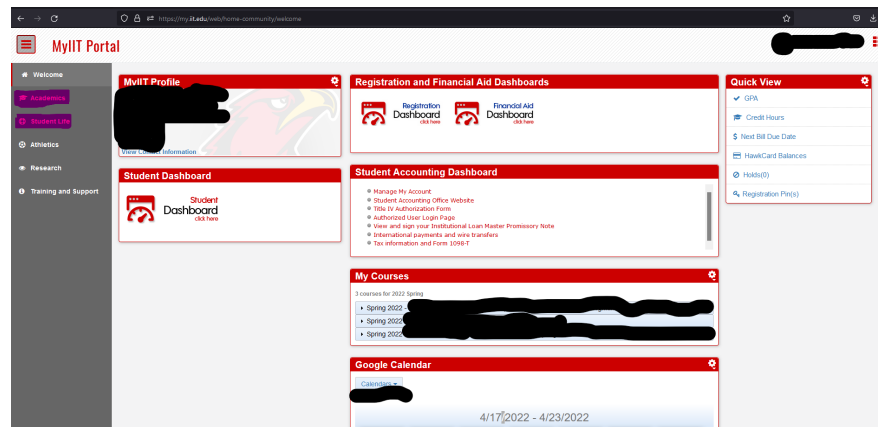
6. Heuristic Evaluation. (Nielsen)

Visibility of system status

Blackboard

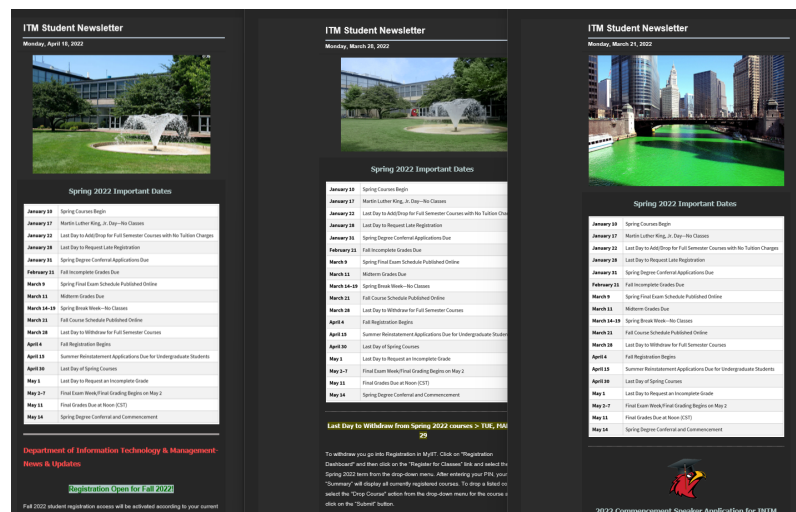
- **No reference of registration or degree work detail.** Since this is the learning management system used by Students there should be quick access to Registration and Degree work related information in this system.
- Courses page do list courses completed/in progress for a semester individually.
- **But doesn't give an overall snapshot of courses taken.** A snapshot of progress made till now should be displayed.

myIIT



- Registration portal is displayed on the main page.
- **No detail/notification regarding registration start date.** There should be an event notification section or banner which should alert the Student when course registrations are open.
- **Student relevant information like DegreeWorks not displayed in default/main screen.** DegreeWorks should be displayed in the default/main screen similar to the Registration dashboard.

Department newsletter



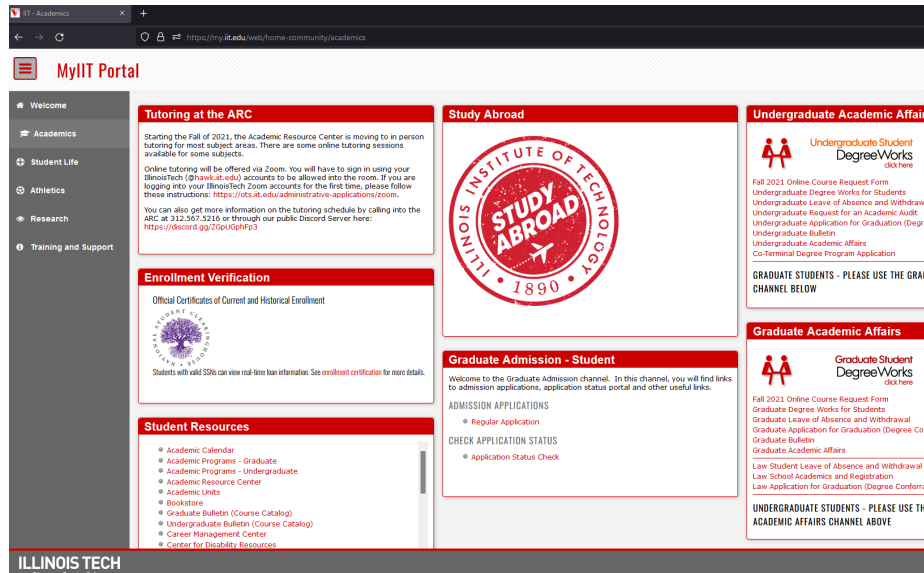
- **The update in the newsletter is hard to notice.** New/Updated content should be labeled appropriately so the user can identify what is new in the newsletter.

Match between system and the real world

Blackboard

- Covers most of the learning items required for a student.

myIIT



- Provides more than required information. Too loaded for students to get lost.
Should reduce content or rearrange the items so that students can follow.

Department Newsletter

- Provides the Department updates required for students.

User control and freedom

Blackboard

- Provides a good amount of control and freedom to users to explore.

myIIT

- Provides a good amount of control and freedom to users to explore.

Department Newsletter

- Since it's a newsletter, this point is not applicable.

Consistency and standards

Blackboard

- Follows industry standards and consistency feature placement wise.

- Features don't function consistently.
 - Clicking on Blackboard icon launches Illinois tech main page,
 - Activity Stream doesn't follow timestamp
 - Courses completed are not displayed when the "completed" filter is used.

The Illinois Tech team maintaining Blackboard should work on these inconsistencies.

myIIT

- Follows industry standards and consistency for the most part.
- Default/main screen should be customizable for students to pick the applications they want.

Department Newsletter

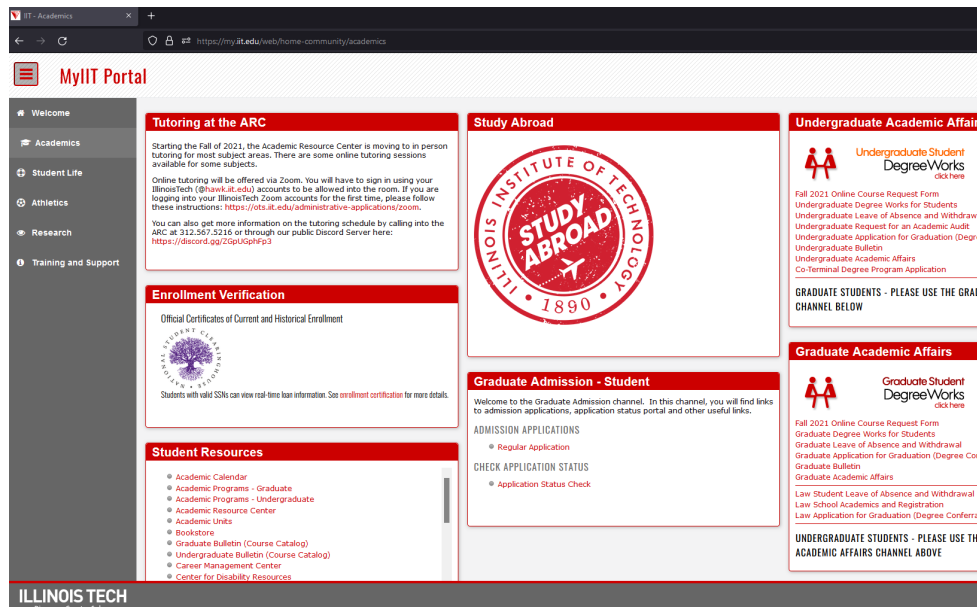
- Latest news/updates are not marked correctly. Should either add it at the start or label it.

Error prevention

Blackboard

- Not applicable since there were no scenarios in the tasks identified where error occurred.

myIIT



- The font size is not legible. The screen seems to be designed keeping only the desktop in mind. Site should be redesigned to function in all devices available today.

Department Newsletter

- Latest news/updates are not marked correctly. Should either add it at the start or label it.

Recognition rather than recall

Blackboard

- Provides data upfront for main topics
- Subtopics like individual Courses require some recall since there is no standard template set for faculty. Standard templates should be shared with faculty so that they follow the same layout.

myIIT

- Data heavy on each screen. Not easy for users to remember everything. Should reduce the content or merge them.

Department Newsletter

- No distinction between new and old data. Should provide some distinction.

Flexibility and efficiency of use

Blackboard

- Provides a good flexibility and is efficient to most of the extent.
- Missing a few features like Department notification or Degree progress status. Should provide these features which are required for students to be aware of.

myIIT

- Not efficient, too much data. Should evaluate the contents available in the site and rearrange them based on user usage.

Department Newsletter

- Students have to keep track of these newsletters to know what is happening in the Department. Should utilize all available avenues to reach students well. And publish the contents with some label so that students can differentiate it and utilize it.

Aesthetic and minimalist design

Blackboard

- Yes, it follows aesthetics and minimalist design.

myIIT

- **Needs redesign.** Modern aesthetics and minimalism needs to be implemented.

Department Newsletter

- Minimalism is followed **but not aesthetic.** Needs redesign in layout so that readers are able to distinguish between new and old news.

Help users recognize, diagnose, and recover from errors

Blackboard

- Provides a good amount of help for users to recognize, diagnose and recover from errors for the tasks performed.

myIIT

- Provides a good amount of help for users to recognize, diagnose and recover from errors for the tasks performed.

Department Newsletter

- Since it's a newsletter, this point is not applicable.

Help and documentation

Blackboard

- **Help and documentation is hidden under the Privacy link.** Help and documentation should be displayed on the main page.

myIIT

- Help and documentation is provided. **Too much content to go through.**

Department Newsletter

- Since it's a newsletter, this point is not applicable.

7. Goal Selected

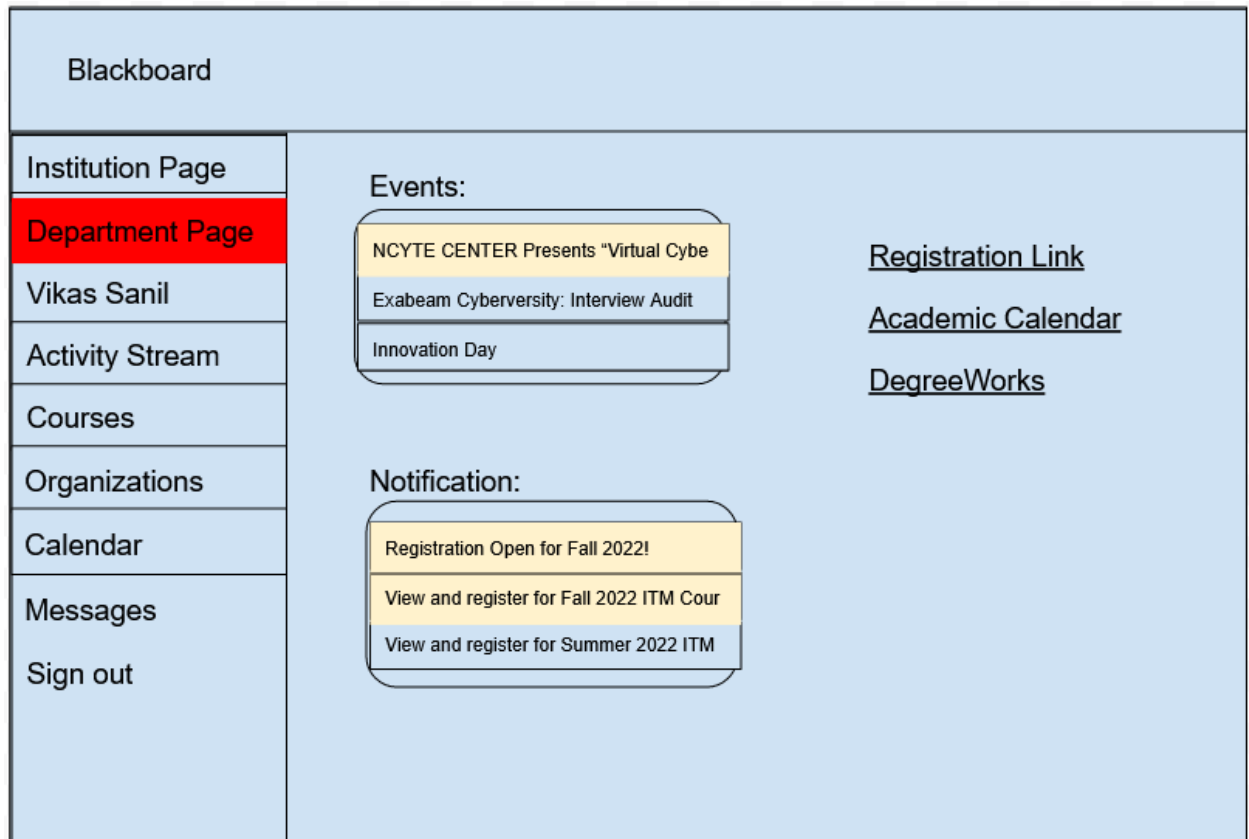
Project member Jacob Roberson, had more inputs from his users on Degree Work hence we came to the agreement that he will work on **Goal 1** and **I will be working on Goal 2.**

Goal 1: Introduce Course completion Snapshot and link to Degree Work.

Goal 2: Course Registration alert within the Activity stream and link to the Registration Dashboard.

8. Prototype

Prototype 1



Contextual Inquiry with Team member

Persona: 21 yr Male, Coterminal Student in Illinois Tech.

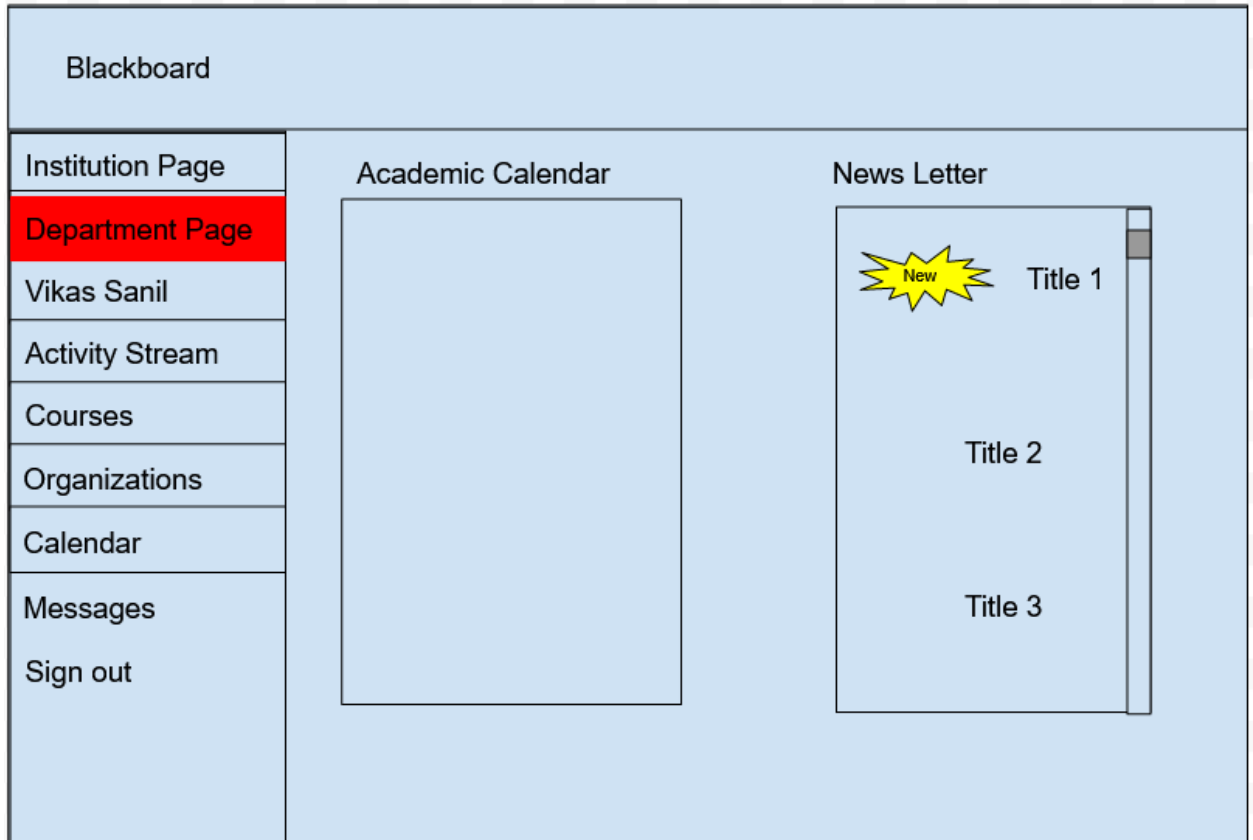
Contextual Inquiry transcript:

Me: I am proposing to display a new tab Department Page and multiple sections with links to the events. We will have to propose a new ITM Department page as these notifications are not published anywhere else other than ITM newsletter.

Team member: Agreed, the layout looks good but the ITM Department page would be extra, which would be like introducing one more interface.

Me: Yes, it will not centralize the user experience. And if the ITM department had resources and time they would have not stuck to just a newsletter with the same content sent out every week. Let me revise the prototype.

Prototype 2



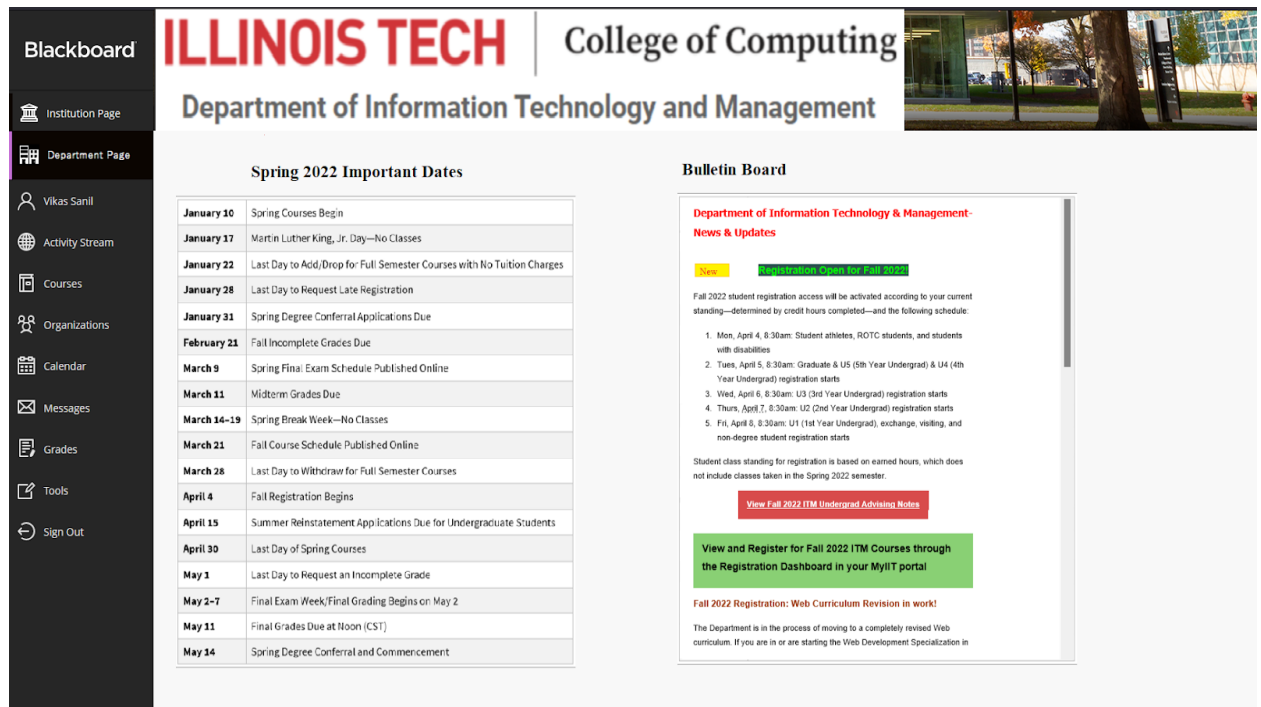
Contextual Inquiry with Team member

Contextual Inquiry transcript:

Me: So this is the new layout. Simple enough for the administrator to push detail in the Blackboard. The administrator while preparing the newsletter will have to keep in mind to label the content as New appropriately.

Team member: This looks reasonable and simple for the Department to maintain and student to follow up on.

9. Final User interface presented in class:



Blackboard

Institution Page

Department Page

Vikas Sanil

Activity Stream

Courses

Organizations

Calendar

Messages

Grades

Tools

Sign Out

ILLINOIS TECH | College of Computing

Department of Information Technology and Management

Spring 2022 Important Dates

January 10	Spring Courses Begin
January 17	Martin Luther King, Jr. Day—No Classes
January 22	Last Day to Add/Drop for Full Semester Courses with No Tuition Charges
January 28	Last Day to Request Late Registration
January 31	Spring Degree Conferal Applications Due
February 21	Fall Incomplete Grades Due
March 9	Spring Final Exam Schedule Published Online
March 11	Midterm Grades Due
March 14-19	Spring Break Week—No Classes
March 21	Fall Course Schedule Published Online
March 28	Last Day to Withdraw for Full Semester Courses
April 4	Fall Registration Begins
April 15	Summer Reinstatement Applications Due for Undergraduate Students
April 30	Last Day of Spring Courses
May 1	Last Day to Request an Incomplete Grade
May 2-7	Final Exam Week/Final Grading Begins on May 2
May 11	Final Grades Due at Noon (CST)
May 14	Spring Degree Conferal and Commencement

Bulletin Board

Department of Information Technology & Management- News & Updates

New **Registration Open for Fall 2022**

Fall 2022 student registration access will be activated according to your current standing—determined by credit hours completed—and the following schedule:

- Mon, April 4, 8:30am: Student athletes, ROTC students, and students with disabilities
- Tues, April 5, 8:30am: Graduate & US (5th Year Undergrad) & U4 (4th Year Undergrad) registration starts
- Wed, April 6, 8:30am: U3 (3rd Year Undergrad) registration starts
- Thurs, April 7, 8:30am: U2 (2nd Year Undergrad) registration starts
- Fri, April 8, 8:30am: U1 (1st Year Undergrad), exchange, visiting, and non-degree student registration starts


Student class standing for registration is based on earned hours, which does not include classes taken in the Spring 2022 semester.

[View Fall 2022 ITM Undergrad Advising Notes](#)

View and Register for Fall 2022 ITM Courses through the Registration Dashboard in your MyIT portal

Fall 2022 Registration: Web Curriculum Revision in work!

The Department is in the process of moving to a completely revised Web curriculum. If you are in or are starting the Web Development Specialization in



Blackboard

Institution Page

Department Page

Vikas Sanil

Activity Stream

Courses

Organizations

Calendar

Messages

Grades

Tools

Sign Out

ILLINOIS TECH | College of Computing

Department of Information Technology and Management

Spring 2022 Important Dates

January 10	Spring Courses Begin
January 17	Martin Luther King, Jr. Day—No Classes
January 22	Last Day to Add/Drop for Full Semester Courses with No Tuition Charges
January 28	Last Day to Request Late Registration
January 31	Spring Degree Conferal Applications Due
February 21	Fall Incomplete Grades Due
March 9	Spring Final Exam Schedule Published Online
March 11	Midterm Grades Due
March 14-19	Spring Break Week—No Classes
March 21	Fall Course Schedule Published Online
March 28	Last Day to Withdraw for Full Semester Courses
April 4	Fall Registration Begins
April 15	Summer Reinstatement Applications Due for Undergraduate Students
April 30	Last Day of Spring Courses
May 1	Last Day to Request an Incomplete Grade
May 2-7	Final Exam Week/Final Grading Begins on May 2
May 11	Final Grades Due at Noon (CST)
May 14	Spring Degree Conferal and Commencement

Bulletin Board

View and Register for Fall 2022 ITM Courses through the Registration Dashboard in your MyIT portal

Fall 2022 Registration: Web Curriculum Revision in work!

The Department is in the process of moving to a completely revised Web curriculum. If you are in or are starting the Web Development Specialization in either the graduate or undergraduate Information Technology and Management degrees, you will find that there are new courses, and the courses you expect to see may no longer be offered. ITMD 441/ITMD 561 Web Application Foundations. If you are just starting the specialization, that's your course for Fall 2022. If you have completed ITMD 485 or ITMD 565, you can register in the fall for [ITMD 442/ITMD 562 Full-Stack Development](#), but you will need to get a permit from your adviser. The [Fall 2022 ITM Undergraduate Student Information and Departmental Policies](#) and the [ITM Graduate Student Information and Departmental Policies](#) to be published in August will have full details of the new courses and how the curriculum transition will be handled.

Fall 2022 Registration: Human Computer Interaction Design

ITMD 536 Human-Computer Interaction Design is an advanced, project-based study in human-computer interaction with a particular focus on the design of application and web interfaces. We have not offered this course in a while, but we have an increased emphasis on HCI/UX since we now have a Department Chair with a Ph.D. in Human Factors and a full-time faculty member whose principal focus is the Web. If you have completed ITMD 534 you can register for ITMD 535; if you have completed ITMS 534 you can register for 535 with a permit from your adviser. Note that ITMD 535 does not apply toward the Master of Cyber Forensics and Security or Master of Science

Visibility of system status: Academic Calendar for the semester is called out. New content is labeled as “New”

Match between system and the real world: It is the same as a Newsletter sent out every week. So Students will be able to recognize the content.

User control and freedom: NA

Consistency and standards: Follows the current newsletter format and includes “New” label for content added.

Error prevention: Users will be able to distinguish between old and new data. And since it is available in the interface they regularly use it is easier for them to go through it without any issue.

Recognition rather than recall: Same as current newsletter with added new feature of displaying the new content with a label.

Flexibility and efficiency of use: Users can easily scroll through the content being added to the Bulletin board.

Aesthetic and minimalist design: Blackboard design aesthetic is followed which is very minimalistic. It will be easier for the administrator and students to publish/follow the content.

Help users recognize, diagnose, and recover from errors: NA

Help and documentation: NA

10. References:

“About Us.” *Blackboard*, <https://www.blackboard.com/about-us>. Accessed 28 April 2022.

Nielsen, Jakob. “10 Usability Heuristics for User Interface Design.” *Nielsen Norman Group*, 15 November 2020, <https://www.nngroup.com/articles/ten-usability-heuristics/>. Accessed 28 April 2022.