3rd Semester Design Project II Report

IDC School of Design अभिकल्प विद्यालय

myapp.iitb.ac.in

Redesigned applications platform for internal IITB users

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Declaration

I declare that this written document represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/ source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Approval Sheet

The Design Project II titled “myapp.iitb.ac.in” by Annapurna Garimella, Roll Number 216330010 is approved, in partial fulfilment of the Masters Degree in Design at the IDC School of Design, Indian Institute of Technology Bombay.

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26-Jul-23 01:44:48 PM

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Acknowledgement

I would like to take this opportunity to express my gratitude towards Prof. Anirudha Joshi and Prof. Sunthar for their support, guidance and motivation. Their uniquely thoughtful insights have helped me approach the problem space better and gave me courage to take up a topic so huge. I hope to be able to do justice to the efforts they have put into guiding me.

I am extremely grateful to the faculty who agreed to make time for discussion and participate in user interviews. Their feedback and insights have been instrumental in the progress of the project.

Big thanks to my family and friends at IITB for their support without which this project would not have been possible. Special thanks to Shivangi Negi, Amit Kumar Ram and Janhavi SP for motivating me through out.

Contents

1. Abstract

Indian Institute of Technology, Bombay has multiple online platforms to facilitate academic and administrative activities of students, faculties and staff members of the institution. For every use case, there exists a platform that offers dedicated applications or a repository of related links. With the onset of digitization, these applications were developed to address the instantaneous needs of the users which led to an organic and unplanned evolution of a complex network of independent platforms.

As these portals were "never designed, only coded"; they are found to be extremely inconvenient to use owing to the complexity, redundancy and non intuitiveness. The platform "myapp.iitb" emerges from the idea of providing the users a single login access to a platform which consolidates all the relevant use cases. This project aims to build a part of the faculty interface of "myapp.iitb" through careful and thorough exploration of the problem space.

Keywords: *Mobile first design, Iterative Design.*

2. Introduction

All institutions run on complex background processes that bring multiple stakeholders together. The productivity of these institutions is largely dependent on the effective and smooth communication between these stakeholders. Most institutions have an efficient and established offline system to achieve this productivity. The introduction to the internet and the digital shift promised a more optimized system, which led these institutions into an unorganized adaptation of technology. This patchwork of unplanned transformation often results in inconveniences and in turn disrupts of the system. Thus, an organized digital system that facilitates effortless interactions is extremely important.

The Indian Institute of Technology, Bombay founded in 1958, has witnessed multiple transformations in the back-end organization system over the past six decades. There is a constant effort to optimize these systems to ensure a seamless workflow for over 600 academic staff and 10,000 on-roll students.
Despite capturing a vast majority of functionalities online, the phased adoption of technology and unplanned development of multiple applications, resulted in a complex network of interlinked yet individualistic platforms.

The "myapp.iitb" platform comes with a vision to unify and consolidate the fragmented workflow for all stakeholders (students, faculty and staff).

This platform aims to bring in existing portals of ASC, IRCC, ERP, EP for students, faculties and staff under a single umbrella. Existing platforms serve the following purposes -

- **ASC (Application Software Center)** - A platform where faculty and students can conduct all of their academic activities
- **IRCC (Industrial Research and Consultancy Center)** - A platform that co-ordinates and facilitates research and development activities at IIT Bombay

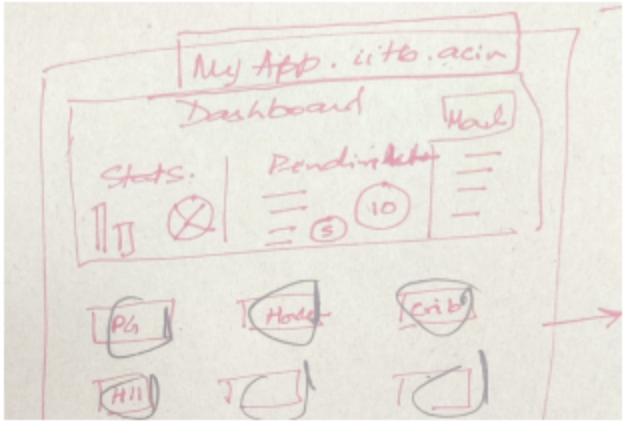

Fig 1: "myapp.iitb.ac.in" - the stakeholder vision

Other than this, processes that allow users to obtain gate passes, manage hall bookings, manage leaves or fulfill any medical needs - all happen through scattered platforms such as **ERP**, **EP** etc.

myapp.iitb is an effort to collate all of these different capabilities into one single platform. With a single login, this platform aims to facilitate users with :

- access to a consolidated & customized dashboard
- relevant alerts and actionable insights
- easy workflow by integrating relevant applications and links
- responsive and accessible interface

The platform would be primarily segregated on the basis of the user login - student, faculty and staff. Each of these logins would further be detailed depending on the user categories and persona. Further, the tasks undertaken on these platforms vary pre semester, post semester and during semester.

3. Project Outline

Designing a single platform that enables different types of users to carry out all of these different activities - would be too broad of a scope. Therefore, it was imperative to decide on the objective and scope before diving into the project.

3.1 Aim

In this project, I shall be designing a portal consolidating the fragmented back-end applications to help faculty conduct their academic activities efficiently.

3.2 Objectives

- To identify gaps in the existing faculty interface of ASC portal - mainly the sections of the platform dealing with academic activities
- To understand the most important workflows for faculties
- To analyze how the existing system supports and responds to these workflows
- Derive a suitable Information Architecture for the proposed solution, considering the most important workflows
- Designing the visual language of this platform
- Iteratively improve upon the designs through user feedback
- Create high fidelity prototype for the solution
- Work closely with the development team to deliver an implementable solution

3.3 Scope

The development and implementation of the entire portal is a long journey. Given the time constraints, this project aims to design and deliver screens for few identified workflows based on the most important goals that faculty aim to accomplish on the existing platforms.

The project also aims to define a design language for the portal which could be used as a style guide for the designers who would eventually take the designs forward.

Lastly, the deliverable would be a prototype that can be exported to produce a clean code which will used by the web team to develop and implement the project.

This project focuses on designing a part of the myapp portal - consolidating fragmented back-end applications **to help faculty conduct their academic activities efficiently**. These activities include - managing courses, student registrations, grading and viewing course feedback.

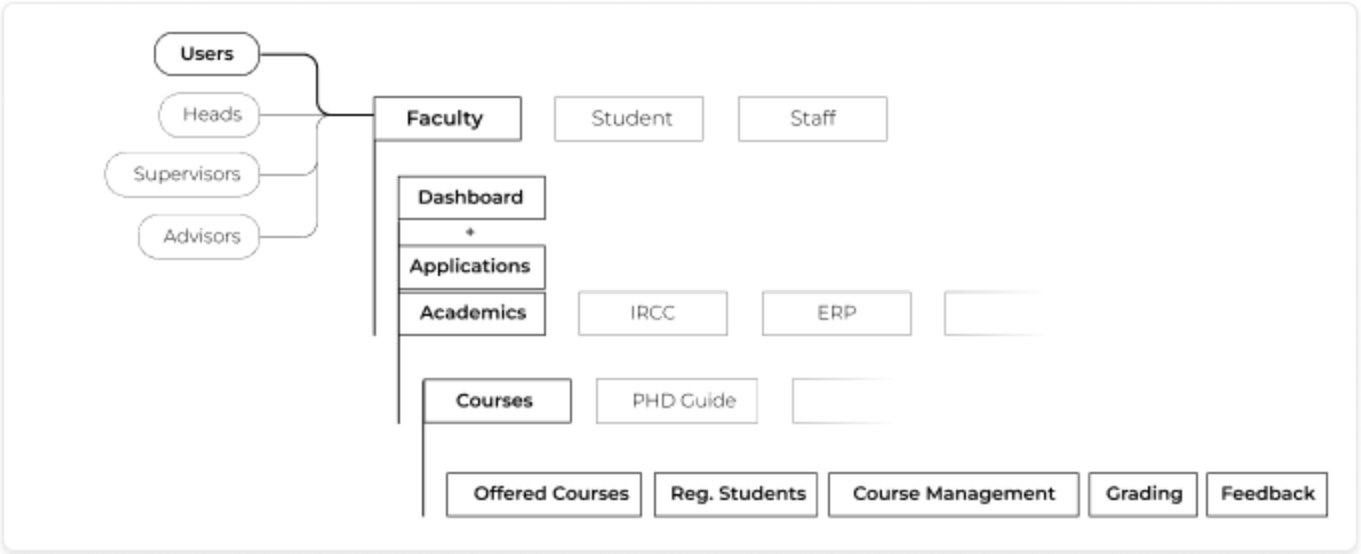

Fig 2: Scope of work - academic activities for faculty (eg. managing courses, grading, feedback)

3.4 Methodology

The methodology consists of initial **research** aimed at -

- clearly defining the scope and deliverables
- understanding the problem space through user interviews
- identifying important workflows through contextual enquiry of faculty from various disciplines (design, chemical, mathematics etc.)
- finding out how these workflows are realized in the current academic portal (ASC)
- identifying issues in the current academic portal, through contextual enquiry, as well as heuristic evaluation

Based on the findings from this research, I selected the most important and the most frequently used workflows. High fidelity screens were designed to enable the realization of these workflows. The new screens follow the design language of myapp.iitb.

The new screens were evaluated **iteratively** with a small group of faculty members. The key intention was to gather feedback on the design and usability of the screens.

- Based on the feedback from the evaluation, the screens were redesigned.
- Evaluation and refinement process was repeated until the design of the portal was satisfactory and met the needs and goals of faculty.

Throughout the iterative design process, it was important to involve faculty members and to gather their feedback and input in order to create a portal that is user-friendly and meets their needs. This was done over multiple stages.

Fig 3: Process - iterative design

4. ASC Portal

4.1 Overview

ASC Portal is IIT B's platform on which users (faculty and students) can view and manage their academic activities. Faculty can undertake the following actions on ASC portal -

- manage courses
- manage account and salary related information
- view archived academic work
- view academic details of all students studying in IIT B
- manage feedback, grading and self-assessment
- managing enrolled PHD students

Out of these, managing courses itself involves the following processes which are carried out on the ASC portal currently :

- check how many students have registered for a course
- view the academic details of students who have registered for their course
- approve or deny registrations if required
- reach out to registered students through email if required
- check historical data of any specific course - when exactly was the course floated, who taught the course, what was taught, and how did students perform
- check the course time table
- grade students
- view course feedback (both quantitative and qualitative)

All of these academic activities can be categorized into - pre semester, during semester and post semester activities.

Actions like managing course registrations typically happen in the pre semester period, while grading and feedback related processes take place post semester. These categorizations help us understand which activities are most important to faculty at any given point in time.

It is also important to understand the issues with conducting these activities in the existing portal. Heuristic evaluation was conducted to understand the same.

Fig 4 & 5: Some screens from the ASC portal for faculty - showing academic details

4.2 Heuristic evaluation of the ASC Portal

The existing ASC platform was evaluated using Jacob Nielsen's heuristic principles for interaction design. The following insights were obtained -

Match between system and real world

- Menu items, and the corresponding nesting into further levels do not follow a proper mental model
- Poorly designed information architecture
- Sort and filter options do not work at all in most screens
- Design of the screens and the user flow - are not intuitive

Aesthetic and Minimalist design

- There are many redundant menu items, buttons etc. throughout the portal
- There are multiple, unnecessary redirects to links
- Links direct users to different portals, where the user needs to login again just to retrieve some data

User control and freedom

- Often, the flawed navigation system does not allow users to easily exit a screen
- No option for customization or personalization of the portal

Visibility of System Status

- Active and non-active links look same

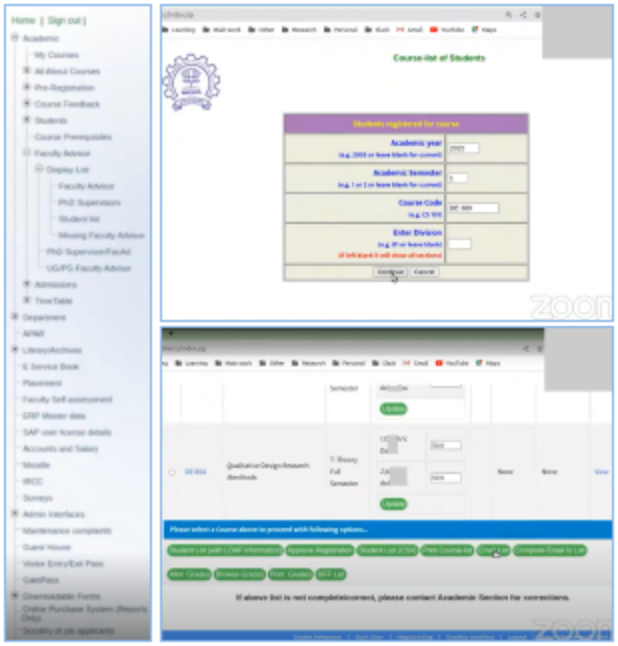

Fig 6: Some screens from the ASC portal - showing the menu bar as well as academic details

Consistency and standards

- Inconsistent Visual Design across the portal
- Inconsistent UX writing does not allow users to easily make sense of the UI elements

Flexibility & efficiency of use

- Shortcuts for frequent actions are not available

Recognition rather than recall

- Breadcrumbs are missing from the portal, making it difficult for a user to know where they are at any given time
- Information architecture is not clearly visible, and users must rely on memory to figure out where different elements are, or where they can take certain actions

Lack of critical elements

- Several important elements such as alerts & notifications are missing from the portal
- No search option
- There are no consolidated reports

5. Primary Study

Post multiple discussions with project heads and fellow designers, a basic understanding of the problem space was established initially. Given a problem this complex, it was essential to divide the solution into phases and approach the problems in small chunks.

Once the premise was understood, the basic architecture of the back-end systems was mapped out to identify and understand the system inter-dependencies. This process helped in categorizing and segregating users and functions to create workflows.

A major challenge while conducting research was the lack of access to the faculty ASC portal, due to reasons of confidentiality. This challenge was navigated through contextual enquiry, where users were asked to give a walkthrough of the portal, and the screen was recorded. The main aim was to understand how the ASC portal is used by a diverse group, including -

- faculty advisors
- technology and design faculty
- faculty teaching small classes, as well as faculty teaching large classes
- students who are a part of the student council

Interviews were structured in a way that helped understand faculty's generic workflow and overall philosophy. Below are a few examples of the kind of questions that were asked.

- What does their work day look like?
- How much do they interact with students
- What courses do they teach?
- What is their batch size?

Secondly, questions were asked to understand where the ASC portal comes into their workflow and what functions they use ASC for. During the study, they were asked to open the ASC portal and point to the frequently used and less used sections.

Attention was also given to supplementary offline activities - like uploading grades in Excel sheets or passing circulars - that support their academic workflows.

The next set of questions focused on understanding the pain points while using the current ASC portal.

Infrequent activities that happened only once in a while - like students registering for the wrong course and then approaching the relevant authorities to correct their registrations - were also identified.

Additionally, questions related to analytics were explored -

- what kind of analytics do faculty want to view?
- given that the current ASC portal does not provide any analytics currently, how do they judge a batch's performance and what sort of metrics do they look at?

The study was conducted at different times throughout the semester to capture different workflows, such as

- during course registration
- during the semester
- at the end of the semester

Some key insights from the study included the need for faculty to manually check for backlogs among graduating students and the importance of tracking the performance of students in all courses and providing extra attention to those who need it.

Faculty advisors also have to manually check the registration statuses of each student individually. They must keep track of the performance of academically struggling students and reach out to them to help improve their performance.

5.1 Understanding our users

Although "faculty" is a generic user group, initial discussions helped identify the personas within this group, which were - course instructor, department coordinator, heads and faculty advisor. Out of these, **course instructor** was found to be most fundamental role undertaken by any member of the teaching staff of the institution. Another important persona was found to be of a **faculty advisor**. A faculty advisor is also a faculty member, and therefore, is responsible for teaching a specific course or set of courses. Additionally, a faculty advisor provides guidance and support to students, particularly those who are pursuing advanced degrees such as a master's or PhD. Their role involves helping students plan their course of study, advising them on academic and research matters, and providing support and mentorship as they progress through their studies.

Since, **faculty advisor** handles additional responsibilities, on top of being a course instructor - this persona was chosen as the **primary persona** - as any course instruction related interventions that help a faculty advisor, will also work for course instructors.

It is clear that both the personas - faculty advisor and course instructor - may differ in terms of their primary motivations, focus, goals, and interactions with students.

The primary goals of a course instructor are as follows -

- **Float a course** by sharing required details to a senate, after which the course is approved by the senate
- **Inform students** about the floated course
- **Approve registration requests** from students who want to take up the course
- **View academic details** of students who have registered for the course
- Obtain the mailing list of registered students and communicate any course related information to them
- Deny a request for registration, or ask a student to drop the course if they do not meet the required criteria
- **Viewing course material** and important links - that were used to teach the same course earlier
- View previous student performance in the same course
- They are responsible for developing the course material, delivering lectures or leading discussion sessions
- **Grading assignments** and exams
- **View performance of students**
- **View feedback** provided by students
- View overall performance of the instructor

The primary goals of a faculty advisor, other than the ones mentioned above, are as follows :

- Helping students plan their course of study for the upcoming semester
- Assisting students in choosing courses that align with their academic and career goals
- Making sure that all the advisee students have registered for the necessary courses
- Helping students with any **issues** they are facing **while registering** for courses
- Make corrections to student registrations, or inform students to add or drop a course if required
- Approve any pending registrations (similar to what a course instructor would do)
- Track students' progress during the semester, or at the end of each semester and advise students about how they can do better

Given all of these points, it is important to consider the activities, goals and pain points of both these personas and design a portal that can accommodate all of these things.

5.2 User Personas

Two user personas were created, one being a faculty advisor and the other - a course instructor in IIT Bombay.

Dr. Priya Patel is a 35 year old faculty member in the Chemical Engineering department at IIT Bombay. Dr. Patel is the faculty advisor for B.Tech Chemical Engineering batch, 2022-2024.

Dr. Ravi Sharma is a 45 year old course instructor at IIT Bombay's CSE branch, with over 15 years of experience.

Let us look at the motivations, goals, pain points and activities of these two personas.

Persona 1 Name : Dr. Ravi Sharma

Age : 45 years

Background : Dr. Ravi Sharma has over 15 years of teaching experience at the institute. Dr. Sharma has a Ph.D. in Computer Science from IIT Bombay and an M.Tech in Computer Science from IIT Delhi.

- Dr. Sharma enjoys staying up-to-date with the latest research and developments in his field
- He frequently participates in professional development workshops and conferences
- He also enjoys spending time with his family, playing sports, and traveling.

Personality :

- Dr. Sharma is known for being a passionate and engaging instructor, who is dedicated to helping his students
- He is patient and approachable
- He is also organized and efficient, and is skilled at managing his time effectively to meet the demands of his teaching and research commitments.

Motivations and goals :

- Dr. Sharma's primary goal is to be an effective and engaging instructor, who is able to impart a deep understanding of the subject matter to his students. Therefore, he wants access to different types of **teaching materials and relevant CMS links**.
- Dr. Sharma wants to be able to float a course/s without going through too much back and forth with the senate
- He wants to **notify students** who are interested in his course/s **to register** and **monitor student registrations**
- He wants to keep track of relevant academic activities, and the corresponding action items throughout the semester
- He wants to inform students who are not eligible to drop out from his course/s
- He wants to view the academic details of any student
- He wants to share relevant learning materials to students to help them understand the subject better
- He wants to ensure that all the students feel that they have been graded fairly
- He wants to **monitor the performance** of students
- Dr. Sharma wants to improve his teaching methods by viewing and incorporating the feedback given by students

Pain Points :

- Dr. Sharma faces the challenge of keeping up with the ever-evolving field of computer science
- Dr. Sharma struggles with easily viewing and monitoring the status of student registrations, as well as the academic details of students
- Difficulty in engaging and reaching all students
- Dr. Sharma struggles with finding all the relevant teaching materials that were used during previous instances of when this course was offered
- Dr. Sharma does not get informed about any critical alerts, and action items on his end
- Dr. Sharma struggles with finding consolidated reports about student feedback, and insights into how he can improve his teaching methods

Persona 2 Name : Dr. Priya Patel

Age : 35 years

Background : Dr. Patel has a Ph.D. in Chemical Engineering from IIT Bombay and she is the faculty advisor of B.Tech Chemical Engineering batch, 2022-2024.

- Dr. Patel enjoys staying up-to-date with the latest developments in her field and participating in professional development workshops and conferences.
- Is responsible for providing academic guidance and support to students, helping them to make informed decisions about their coursework and career goals.

Personality :

- Dr. Patel also has industry experience, and is able to bring practical, real-world perspective to her academic work
- She regularly guides students about possible research and career prospects
- Takes time to get to know her advisees and is always available to offer guidance and support.
- Skilled at helping students navigate their academic and career paths, and is always willing to go the extra mile to help them achieve their goals
- She is organized and efficient, and tries her best to stay on top of academic activities, timelines and her action items

Motivations and goals :

- Dr. Patel is invested in the progress of her student advisees and regularly checks their **academic performance**
- Wants to stay on top of the semester-wise academic activities, and **notify students** about any action items
- Dr. Patel wants to be able to advise her students about what kind of courses they should take
- View the academic details of her advisees and check upon their performance
- Dr. Patel wants the registration process to happen as smoothly as possible
- Resolve any academic or registration related issues
- Wants to give her inputs regarding the academic timetable so that students can take up courses of their choice without any slot clashes
- Wants to organize seminars, project review sessions, special talks for her student advisees
- Wants to understand the challenges of poorly performing students and help them do better

Pain Points :

- Dr. Patel needs to check the registration status of each student individually to find out if everyone has registered
- Dr. Patel does not get any insights or alerts informing her about any drop in performance of her advisee students
- Struggles with keeping on top of all student registration related issues
- Does not receive any consolidated report of students' feedback, along with insights about potential improvement

5.3 Think aloud study

A think aloud study was conducted with 10 professors to understand how people use technology in their natural environment. Out of the 10 participants, 3 are active faculty advisors, while 1 participant has been a faculty advisor. All of the participants are course instructors in IIT Bombay. In the context of designing an academic portal for faculty, a think aloud study would involve observing faculty as they use the current academic portal and asking them to verbalize their thoughts and actions as they navigate the platform.

This study provided valuable insights into

- how faculty typically use the academic portal and what their needs and expectations are
- how do these needs and expectations vary - **pre semester**, **during the semester** and **post semester**
- which features are most frequently used and in what context are they used
- which features are used less frequently or not at all
- common workflows and patterns of use among faculty members
- any gaps or missing features in the current academic portal
- problems or challenges encountered by faculty and determine what features or functionality would be helpful to add to myapp.iitb to improve the user experience

The following features were found to be used most frequently -

- viewing feedback given by students for a course taught by the professor
- viewing and managing courses that are running
- viewing details of courses taught by the faculty member
- viewing details of students
- grading students

The following features on the portal were least used -

- view bulletin report
- viewing and managing students' attendance
- email interface
- missing faculty advisor

Some useful features missing from the current platform are -

- option to float a course. However floating a course is a lengthy process that goes through careful planning and scrutiny. A course cannot be floated just by following a set of steps on an academic portal. However, the process can be aided or optimized by well-thought-out features on the new academic portal
- analysis of the feedback received from students, both quantitative and qualitative
- well structured sorting & filtering capabilities
- a search option

Fig 7: Simple workflow showing various activities undertaken by a course instructor, right from offering a course to receiving final feedback

6. Scenarios

Through user interviews and think-aloud study, the relevant user personas, and their workflows were identified. There are differences in terms of the scenarios encountered by each of these personas pre semester, during a semester and post semester. A list was created - of the various tasks that a course instructor and a faculty advisor aims to perform during these different stages. The detailed list is shown in figure 8.

It is also important to keep in mind that a faculty advisor is also a course instructor, and the advisory role is an added responsibility that they have decided take up on top of their teaching roles and responsibilities.

Therefore, a faculty advisor has similar roles, goals and tasks as a course instructor - to a large extent. Both course instructors and faculty advisors need to monitor student registrations, view student academic details, view and monitor student performance and view students' feedback on the specific courses that the personas are offering.

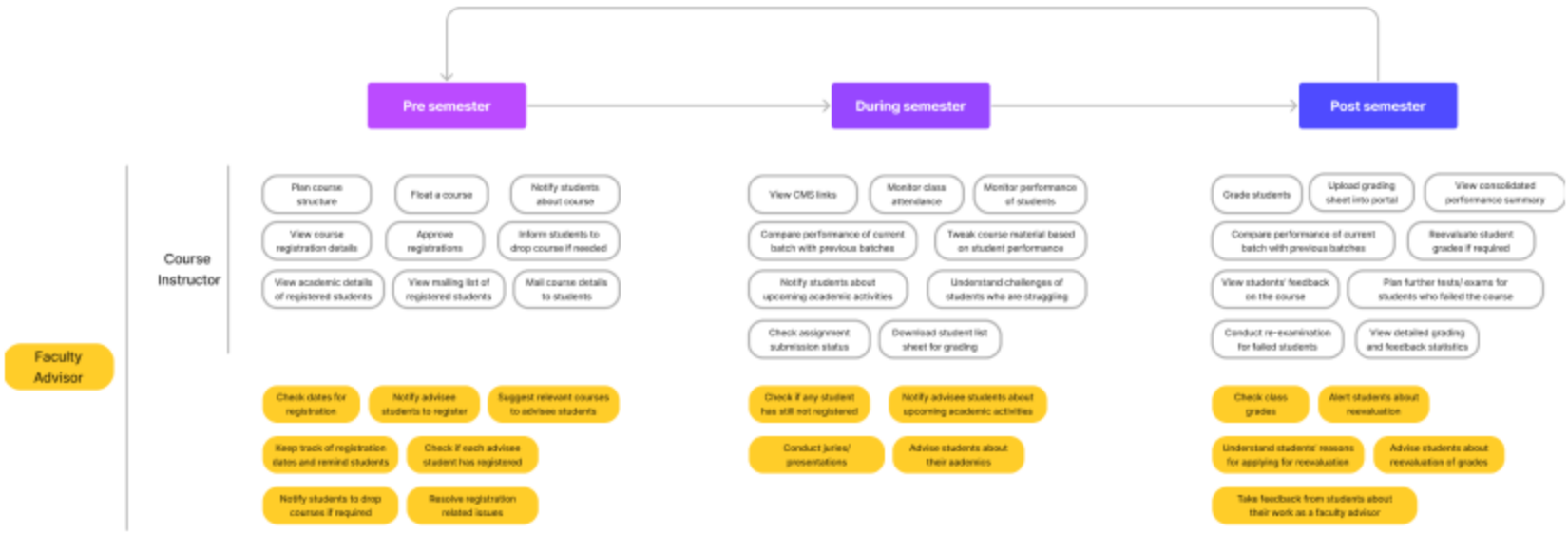

***Fig 8**: Pre, during and post semester tasks of faculty advisor and course instructors*

6.1 Pre semester

6.1.1 Scenario 1

Faculty advisor wants to check students' registration status

In the pre semester period, Dr. Priya Patel, a faculty advisor, is trying to make sure that all of her advisee students have successfully registered. She wants to communicate the timelines and remind students who have not yet registered to register for courses on the portal.

- Dr. Patel wants to know the timelines for registration
- She wants to know how many days are left for registrations and inform students about the same
- Currently, faculty advisor wants check the registration status of students to find out if there are any issues
- Alternatively, she can also reach out to the class representative of the batch of students she is advising - to understand if there are any issues with registrations
- She wants to view the registration details of students who have been struggling academically, and check what sort of courses they have registered for
- ***Dr. Patel needs a portal where she can view the registration status of her students, and easily notify unregistered students to register***

However, there are multiple challenges and issues that Dr. Patel faces during this scenario.

One such issue is that Dr. Patel must go through each student's registration status manually and that is a time and effort intensive process.

Fig 9: *Problems that a faculty advisor faces related to student registrations during the pre semester period*

Another pain point is that there are multiple communication channels that a faculty advisor uses (mailing, Whatsapp, calling etc.) in order to receive the required information and communicate any information to students. Fig. 9 contains a list of such challenges.

Once the student advisees have been notified, Dr. Patel is concerned about the course she is offering in the upcoming semester.

- She wants to know whether students have registered for her course
- She wants to check if there are any registration requests from students pending her approval
- Dr. Patel wants to be able to approve students' registration requests
- Dr. Patel also wants to be able to deny a student's request for registration - if the student is not eligible for the course that she is offering
- To do this, Dr. Patel must have easy access to students' academic details
- She wants to notify the student whose request she has denied, and ask them to take up some other course

Once Dr. Patel is done with this, she checks the registration status of her advisee students one more time and reaches out to the few unregistered students to understand if there are any issues with registering.

6.1.2 Scenario 2

Faculty advisor recommends relevant courses to student

Dr. Patel is approached by one of her advisee students, who seeks her advise on what sort of courses they should take up.

- Dr. Patel wants to help the student in the best way she can
- She looks up details about the courses that are being floated in the upcoming semester
- She also looks up the student's academic details to understand their strengths
- Upon learning the topics that the student is interested in, and where their strength lies - Dr. Patel recommends relevant upcoming courses to the student

6.1.3 Scenario 3

Course instructor wants to float a course

Dr. Ravi Sharma wants to float a course in the upcoming semester. He has planned the basic course content and has submitted an application to float his course. Dr. Ravi has to appear before a senate to defend the need of the course, and present a detailed plan of how he is planning to teach.

6.2 During semester

6.2.1 Scenario 1

Faculty wants to view and download a list of students who have registered for their course

Both Dr. Patel and Dr. Sharma want to view a list of students who have registered for their course.

- They need this list to keep a track of attendance, grade assignments and grade exams
- They also need a list of student email IDs so that they can easily mail them any information related to the course
- It would make the grading process much easier if they are able to upload the same sheet into the portal, and grades are read automatically by the portal

6.2.2 Scenario 2

Faculty wants to view and add CMS links

Both Dr. Patel and Dr. Sharma want to view resources and teaching material related to their coursework. They can access this information through CMS links in the academic portal.
They also want a list of quick access links, which may contain assignment submissions of previous batches, specific examples of good student projects or any other material that may help the current batch of students.

6.3 Post semester

6.3.1 Scenario 1

Faculty advisor wants to view the academic performance of the batch, and insights related to their performance

The semester has ended and Dr. Patel wants to know how the batch has performed.

- Dr. Patel wants to view the overall grade distribution across students (eg. how many students got AA grade, or AB grade and so on)
- She wants to know how the students have performed compared to their previous semester/ year
- Dr. Patel also wants to know how the current batch has performed compared to the previous batch for different courses
- She wants to know which students are struggling academically and suggest further steps to them

6.3.2 Scenario 2

Faculty want to view students' feedback on their course

Both Dr. Patel and Dr. Sharma want to view the feedback that students have given on their course. They want to view both the quantitative ratings that they have got, as well as the qualitative feedback that students have written. They also want to know how they have performed compared to last year.

7. Ideations

5 iterations of medium to high fidelity screens were created and shown to faculty members for feedback. Each new set of ideations was an improved version over the previous, and incorporated the feedback obtained from faculty.

The initial set of ideations (1, 2 and 3) were created as explorations to help finalize the UI elements, as well as the visual language. The layout and design of the portal was carefully considered to ensure that it is easy to navigate and use. This involved organizing the information into clear and concise sections, figuring out efficient ways of navigation, making action items/ buttons clear, taking into account the current mental model of users and enabling them to accomplish their tasks efficiently. Overall, the design of the portal aimed at prioritizing usability and accessibility for faculty members.

Information architecture was redesigned to make it more intuitive. Existing IA has dead-ends that don't lead users anywhere, and thus the new portal was designed in a way that tied up these loose ends.

Different types of views (tiles, templates etc.) and different ways of accessing information were explored in the initial ideations. UI must be designed in a way that is scalable too.

Ideation 4 was created with a mobile-first approach, based on the feedback from previous iterations.

Design of the new portal for faculty has been visualized keeping in mind the corresponding information changes that will be reflected in the portal for students as a result of actions taken on the faculty portal. Eg. if a faculty advisor broadcasts a message to students through the faculty portal, this message will be simultaneously reflected in the students portal as well.

7.1 Iteration 1

This was the first set of exploratory designs, and the key feedback received are as follows -

- It is important to design an academic portal that **helps users understand their location within the platform**. This can be achieved through the use of clear and consistent navigation, as well as through the use of breadcrumb trails or other types of location indicators.
- **Depth of information architecture must be reduced** to make the portal more user-friendly and easier to navigate, as it reduces the number of clicks or steps that users need to take in order to find the information they are looking for.
- It may be helpful to design the academic portal in a way that allows faculty to access all of the relevant actions they need to take **before**, **during**, and **after the semester** in one central location.

- Including **links to the CMS** (Content Management System) within the academic portal, to allow faculty to easily access and manage their course materials and other resources.
- Providing the **right amount of information** to meet the needs of faculty, without overwhelming them. Providing too much information can be overwhelming and confusing, while providing too little information can be frustrating.

7.2 Iteration 2

Iteration 2 displays details about courses offered by the instructor in a list view. Details such as course schedule, number of credits, co-instructor information and important actions/ links - are all included in the screens created during this iteration. Key feedback received -

- **Use available screen space efficiently** to display necessary content. This could involve using layout and design techniques, whitespace, appropriate font sizes and styles - to organize content into clearly defined sections. This would help break up the content, thus making it easier to read and navigate
- Resources and **information must be meaningfully categorized** - in a way that is logical and makes sense to the user. This could include organizing resources by subject area, type of resource (e.g. research papers, teaching materials etc.), or by audience (e.g. undergraduate students, graduate students, etc.)

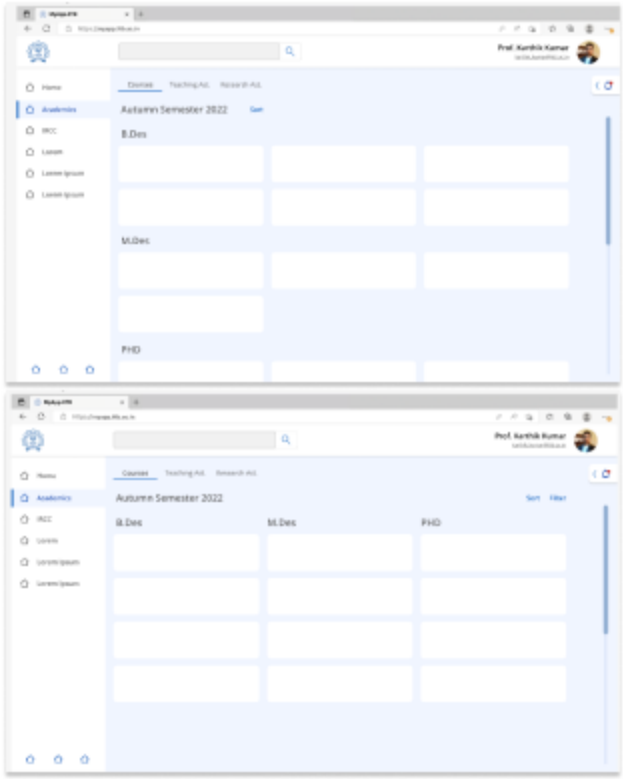

Fig 10 & 11: Iteration 1 - screens showing possible templates to display details about the courses offered by a course instructor

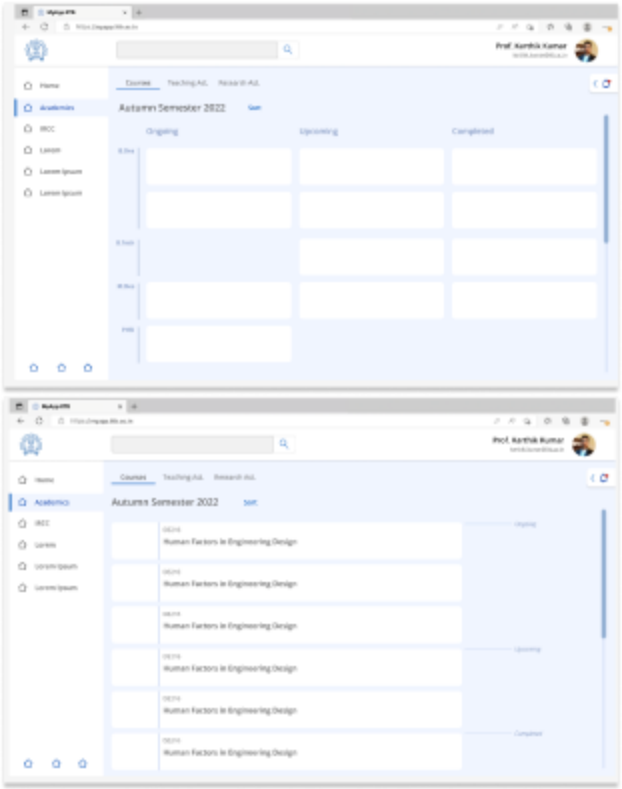

Fig 12 & 13: Iteration 1 - screens showing possible templates to display details about the courses offered by a course instructor

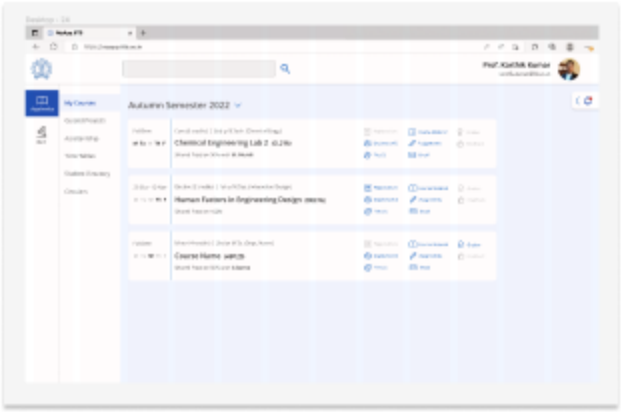

Fig 14: Iteration 2 - viewing course details

- **Using verb-based language** rather than noun-based language in the user interface of the portal. This means that the content must be presented as a list of verbs (e.g. "Download research papers," or "View course schedules"). This can help make the content more actionable and easier for users to understand and interact with.
- **Chunking of content** into more manageable sections in order to reduce clutter and make it easier for users to find the information they need. This can involve dividing the content into sections that are organized by topic or purpose, and presenting the content in a way that is easy for users to scan and understand.

7.3 Iteration 3

Iteration 3 displays details about courses offered by the instructor in a card view. Information is effectively packed into neat cards, and course related details are provided. User can filter out the courses that they want to view.

Key feedback received -

- Making the UI less overwhelming by removing unnecessary elements and making it easy for users to find the information they need or to complete tasks effectively
- **Avoiding mystery meet** by ensuring that users know what to expect when they click on a link or button. In an academic portal for faculty, this is done by clearly labeling links and buttons with descriptive text, and providing enough context for users to understand what will happen when they click on them. This can help to prevent confusion and frustration for users, and improve the overall user experience (UX) of the portal
- **Keeping a mobile first approach to design** by designing a user interface primarily for mobile devices, and then adapting it for larger screens as needed. This approach recognizes that many faculty members today access websites and apps on their smartphones and tablets - even the academic portal whenever possible
- **Whether a global search feature is necessary or beneficial in an academic portal for faculty**. A global search feature allows users to search for information or resources across the entire portal, rather than having to navigate to specific pages or sections to find what they need. This can be a useful feature for users who are looking for something specific and want to find it quickly. However, global search may not be necessary if the content of the portal is well-organized and easy to find, or if users are only interested in accessing a limited range of resources.

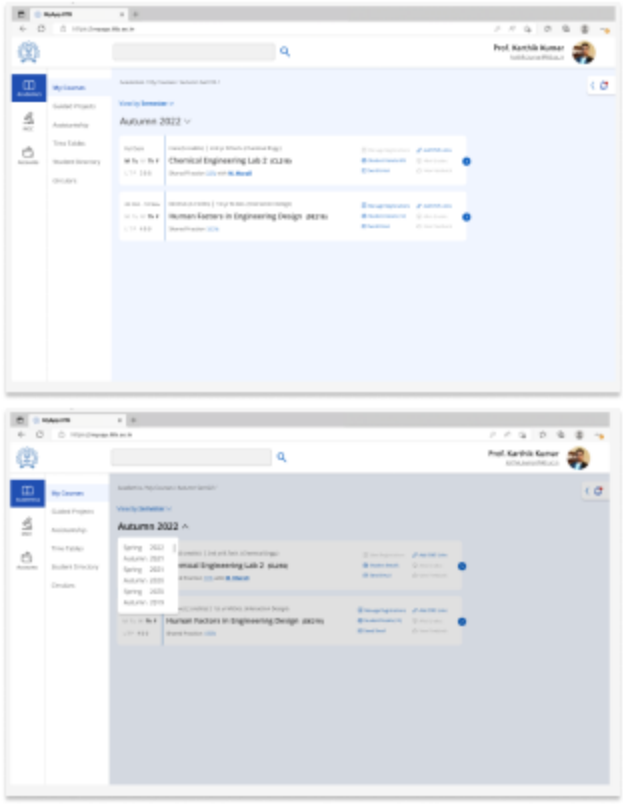

Fig 15 & 16: Iteration 3 - course details and semester wise filtering of courses

7.4 Iteration 4

Iteration 4 was created with a mobile first approach in mind. This set of ideations is aligned with the specific scenarios discussed in section 7.

6.1.2 Scenario 2

Faculty advisor recommends relevant courses to student

To achieve this goal, faculty advisor has to first view the student's academic details - to get a sense of their strengths and interests. In the current academic portal, a user needs to go through approximately 12 clicks and navigate 3 levels of IA.

Moreover, there are 4 different flows that can lead a user to a student's academic details. Two of these flows are -

Flow 1 : Clicks on Students --> Clicks on Students list/ info --> Selects Department, Program, Specialization, Status & Batch year --> Clicks on Get Report --> Student list appears --> Scrolls down --> Clicks on Student's name --> Student's academic details appear

Flow 2 : Clicks on Students ---> Clicks on Students list/ info ---> Searches by student's name or roll no. --> Student list appears --> Scrolls down --> Clicks on Student's name --> Student's academic details appear

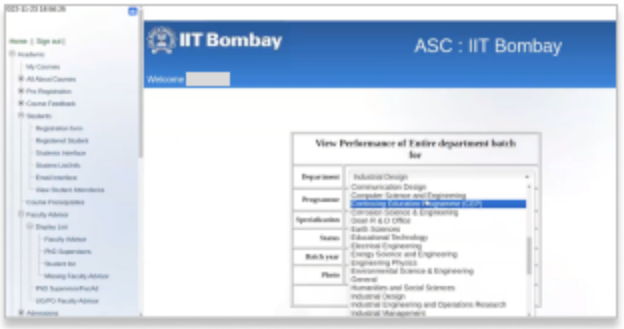

Fig 17: Viewing academic details of student in the current academic portal, by selecting department, batch and program

In the new portal, the faculty advisor can directly navigate to Student Directory from the top navigation menu, and search for the specific student using their roll number or name.

Key feedback received was -

- Font sizes are too small
- Essentially, the academic details of the student was shown through a tabular view, which is more suitable for desktops rather than mobile phones

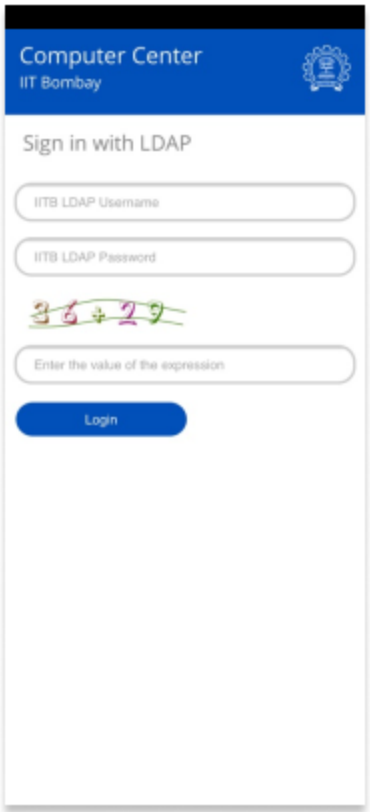

Fig 18: Log into the portal

Fig 19: Faculty advisor ends up on the My Courses page after logging in, which shows the courses that they are teaching

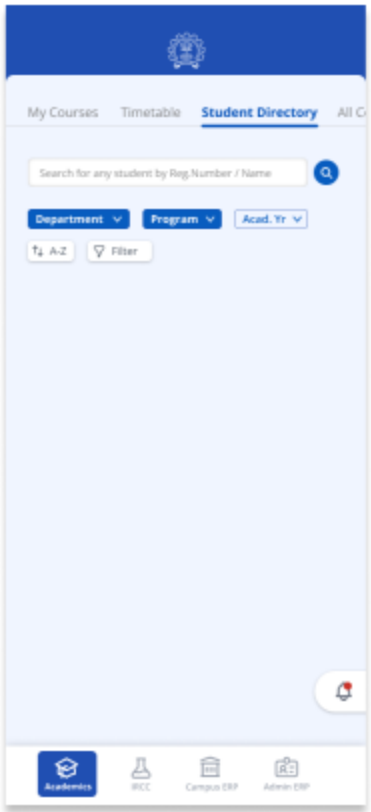

Fig 20: Faculty advisor clicks on Student Directory. They can search for student details, or filter by department, program etc.

Fig 21: Faculty advisor searches for the student by their name

Fig 22: Student's profile pops up

Fig 23: Faculty advisor clicks on student's profile and their academic details pop up

Next, faculty advisor has to view details of courses that are running in the upcoming semester - so that they can recommend a relevant course to the student. In the current academic portal, a user needs to go through approximately 12 clicks and navigate 3 levels of IA.

Moreover, there are 4 different flows that can lead a user to a student's academic details. Two of these flows are -

Flow 1 : Clicks on Students Registration Form --> Selects program name, specialization and batch year --> Clicks on Next --> Sees running courses --> Clicks on the course code to view course details

Flow 2 : Clicks on Academic --> Clicks on All about courses --> Clicks on Bulletin Report --> Selects batch year, program, year, semester and specialization --> Clicks on Get Report

In the new portal, the faculty advisor can directly navigate to All Courses page from the top navigation menu. Faculty advisor sees a list of courses. Relevant set of filters are applied in the app by default, which in this case are - department name and Running Courses filter. User can also see the total number of running courses for that particular department (12 in this case)

Fig 24: Viewing running courses in the current academic portal

Faculty advisor can click on any course to view further details such as course overview, pre-requisites, number of students who have registered for this course, grading statistics and course curriculum information. They can also share course information with a student through common messaging/ communication platforms.

Key feedback received was that the font sizes are too small.

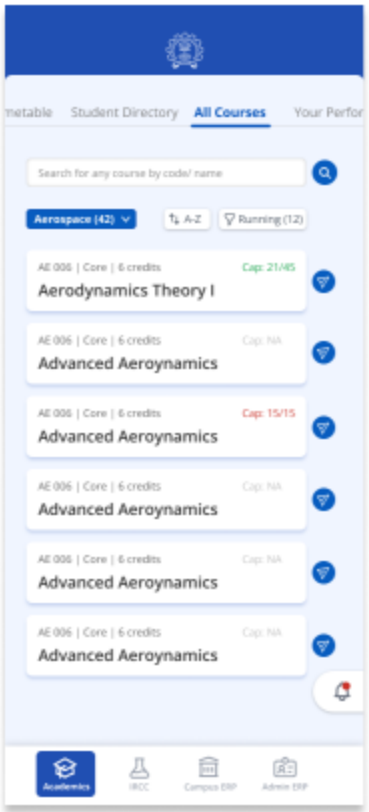

Fig 25: Faculty advisor clicks on All Courses. Default filters applied help her view relevant running courses.

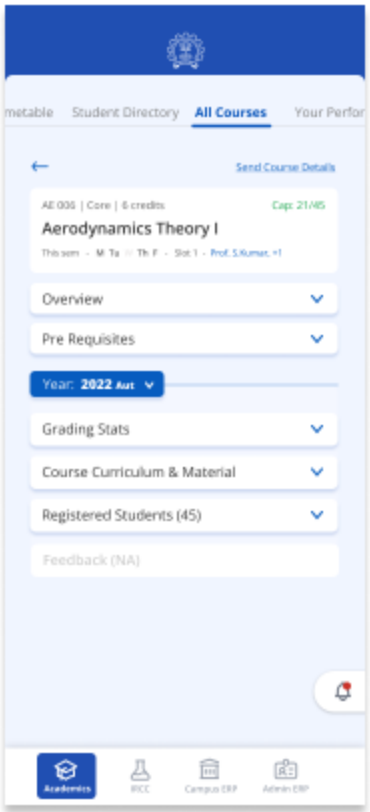

Fig 26: Faculty advisor clicks on a course to view details

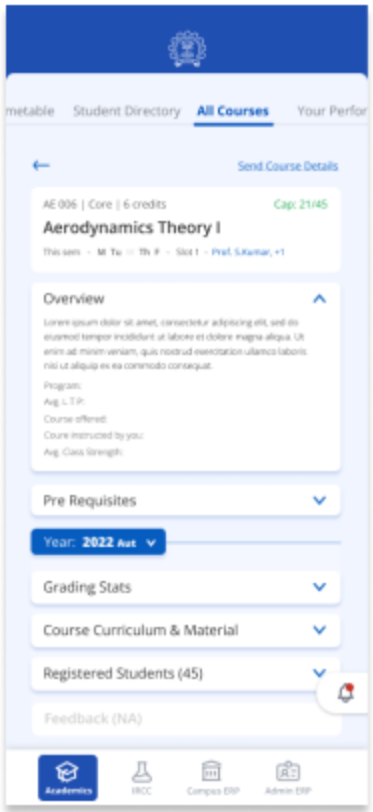

Fig 27: Faculty advisor clicks on Course Overview

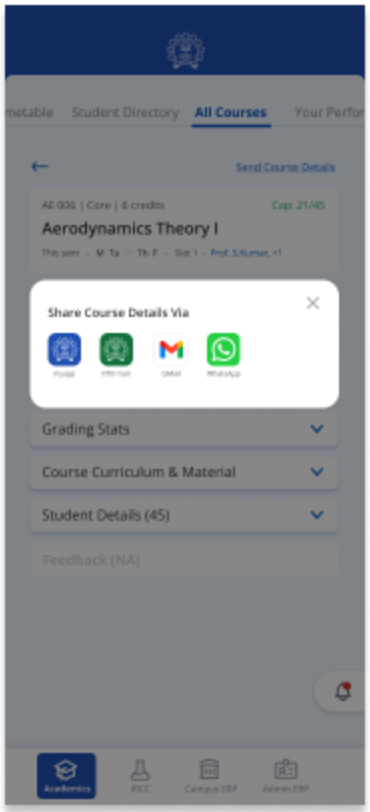

Fig 28: Faculty advisor shares the course details with the student

Fig 29: Faculty advisor enters relevant information and sends the details

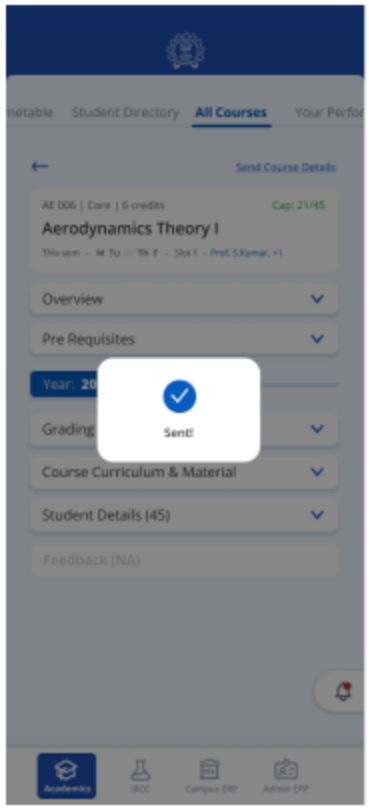

Fig 30: Course details have been sent to the student

7.4 Iteration 4

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6.1.2 Scenario 2

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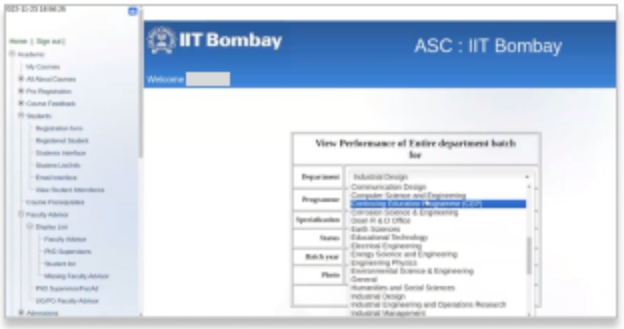

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- Essentially, the academic details of the student was shown through a tabular view, which is more suitable for desktops rather than mobile phones

8. UI Kit

The Mood-board consisted of Colours, Cards Typography, Buttons, Iconography and Menu. Also, the references of how the current IIT Bombay website uses fonts and colours were studied.

The **Colours** used were divided into three sections neutral, primary and alerts. The neutral colours consisted of different shades of grey. The primary colour consisted of tones and shades of blue, and the blue colour was selected as it is used in the IIT Bombay portal and the websites. These colours were used to highlight any call to action button to pop it further out. There are three accent colours to highlight important features or text for alerts.

Fig 13 & 14: Colour HEX codes, and how colors should be used on the UI; Card related details like size, shape, radius & shadow

Cards were visual representations of the details of any user. In the current portals, a list format is used; these cards provide a template in which the information is represented clearly and organized. These cards have a consistent style and layout and were used to group related content together.

Typography is an essential aspect of user interface (UI) design as it helps to establish the hierarchy and readability of the content on the screen. These were the guidelines followed for designing effective typography in a user interface:

- **Use of clear and legible fonts:** The fonts selected were easy to read, such as sans-serif.
- **Understanding the hierarchy:** Different font sizes, weights, and styles to were selected to create hierarchy and emphasis. For example, use larger, bolder text for headings and more diminutive, regular text for body copy.
- **Appropriate line spacing:** The line spacing (also known as leading) used is appropriate for the font size and width of the text block. Too little spacing made the text appear cramped and difficult to read, making it feel disconnected.
- **Use of white space effectively**: White space separated different text sections and gave the eyes a rest. This helped to improve readability and made the UI feel less cluttered.
- **Considering the context:** The purpose of the text and the context in which it will be read. For example, a small font size may be appropriate for a footnote but not for the main heading.
- By following these guidelines, an effective typography was created that enhanced the user experience and helped to communicate the message clearly and effectively.

Iconography is a collection of icons used consistently throughout a user interface (UI) design.:

- **Determining the purpose of the icons:** Before designing the icons, the purpose and context in which they will be used were considered. This will help you choose appropriate symbols and styles.
- **Establishing conventions:** Using widely recognized and understood icons rather than creating custom icons that may need to be clarified for users.
- **Keeping it simple:** Use simple, flat designs that are easily understood and recognized at a glance. Avoid using detailed or complex icons that may be difficult to parse.
- **Use of consistent styling:** A consistent style and colour scheme for the icons were used to create a cohesive look and feel to the overall design. This includes things like line thickness, the roundness of corners, and the use of colour.
- **Use of appropriate sizes:** The size of the icons is appropriate for the context in which they will be used. Larger icons were easier to see and interact with, but they may also take up more space on the screen.
- **Creating a clear hierarchy:** Use different sizes, colours, and styles to establish a clear hierarchy and emphasis within the icons.

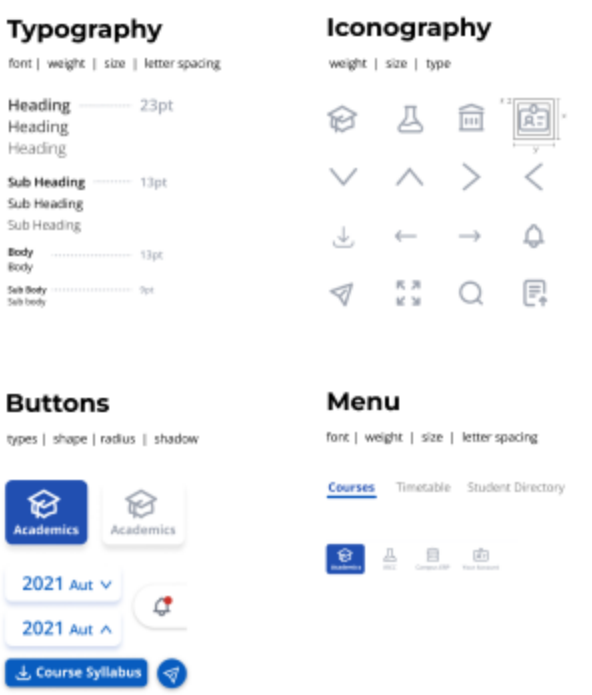


Fig 13: UI Library for typography, icons, buttons and menu items

Layout Library

Mobile view

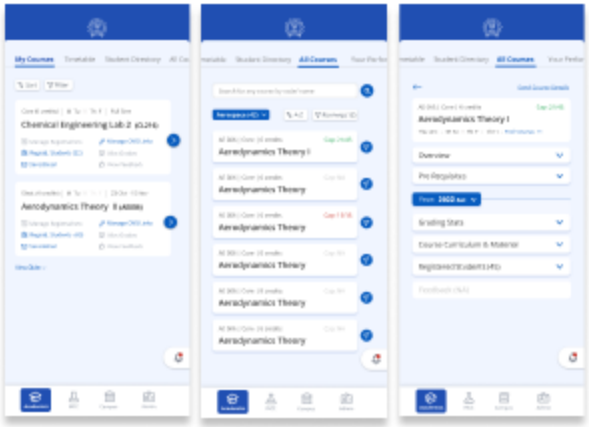


Fig 8 & 9: Sample screens showing the UI of the mobile app

A layout library was created for myapp.iitb's UI, keeping in mind both desktop and mobile app view. A lot of thought was put into how navigation within the app must work.

Desktop view

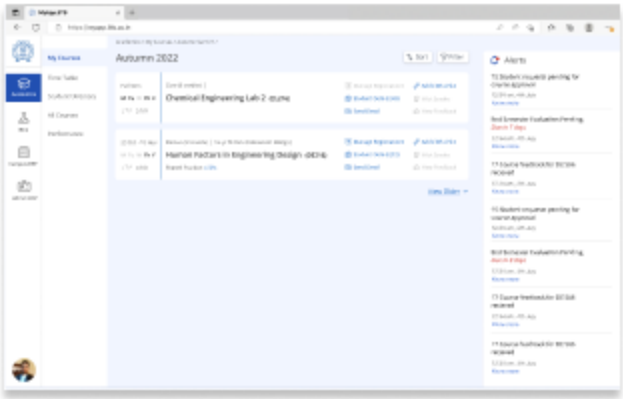


Fig 8 : Sample screen showing the layout of the desktop version

Icons, colors and menu items were designed keeping a consistent visual design in mind. Different types of views (cards, tiles etc.) were explored in order to effectively structure information.

9. Evaluation

The first stage of usability evaluation was conducted on **ideation 4 screens** and with **5 novice users** - to check if they are able to make sense of the interfaces, and if they are able to efficiently navigate these interfaces. The rationale behind this was based on the assumption that if a novice user is able to navigate the new interfaces, expert users will surely be able to do the same.

However, it was pointed found out that a large percentage of faculty have been using the ASC portal and can be considered expert users. Therefore, conducting usability evaluation with just novice users - was considered a limitation.

The **objective of the evaluation was to understand how users choose to navigate through student details**. Users were asked to carry out simple tasks, and talk through their process of completing these tasks. This was done to understand how users interact with the portal, and whether -

- users are able to discover features
- users are able to complete the tasks
- users are able to use the navigation intuitively

Task 1 - *Task was to find the SPI of a student named Ramesh K. Prasad for the previous semester*

Most users tended to search for students by their names or their roll no. They first navigated through the student directory and used the search option to search for the student. They also tried to filter the student name by applying filters on the department name. Overall the navigation found to be intuitive.

Task 2 - *Find details about Aerodynamics Theory 1 course*

Users 1, 3, and 5 did not realize that they could click on the list of courses and the specific courses within that list. Users tried to swipe and scroll, these interactions were intuitive, and the users could navigate adequately. Users did not understand why Spring 2022 and Autumn 2022 was written on the screen.

Task 3 - *The task was to share the details of Aerodynamics Theory 1 with the student (Ramesh K. Prasad)*

"Send Course Details" was easy to find. The user had to go to the student Registered to contact a student or multiple students.

Task 4 - *The task was to approve a student's Registration*

Users 3, 4, and 5 tried to go to "Registered Students" instead of "Manage Registrations", which was not the right path. It must be made clear how these two different actions are different. The red notification on "Manage Registrations" action made it clearer that users should click on that action. However, users also wanted to be informed as to why the student could not register in the first place, but he UI did not provide the reason.

Task 5 - *Check the feedback statistics for your course*

The users got confused between "Your feedback over the years" and "Feedback". The comparisons were challenging as these pieces of information were on different tabs. The purpose of 2022A was not clear. The user needed to figure out how to compare two years; they did not realize if they needed to select some years first.

Task	Feedback
To find the SPI of Ramesh K. Prasad in the previous sem	Most users had a tendency to search for students by name or roll no. Student Directory --> Search was the flow Also tried to filter by department Overall navigation was intuitive
To access the course details of Aerodynamics Theory 1	The list of subjects did not seem clickable to Users 1, 3 and 5 The user tried to swipe and scroll - meaning the interactions were intuitive Felt that Autumn 2022 button is not required, it gave the wrong idea
To share the details of Aerodynamics Theory 1 to Ramesh K. Prasad	"Send Course details" was obvious and easy to find Might want to go to Student Registered to contact a student, or multiple
Approve a student's registration	Users 3,4 & 5 tried to go to Registered Students instead of Manage registrations The links did not seem clickable The red notification dot made it clear that the links are clickable Why was the student not allowed to register in the first place - was not clear
Check the feedback statistics of your course	Was confused between "Your feedback over the years", and "Feedback" Comparison is not easy since they are not on the same tab Wasn't sure what is 2022A Was not sure how to compare two years, select years? etc.

***Fig 8** : Table showing the results of the first stage of evaluation*

Course Instructor User Persona

1. Dr. Ravi Sharma

- 15 years of teaching experience at the institute
- Ph.D. in Computer Science from IIT Bombay and an M.Tech in Computer Science from IIT Delhi.

Motivation and Goals

- Wants access to different types of **teaching materials and relevant CMS links**.
- Wants to be able to float a course/s easily
- Wants to **notify students** who are interested in his course/s **to register** and **monitor student registrations**
- Wants to view the academic details of any student
- Wants to **monitor the performance** of students
- Wants to improve his teaching methods by **viewing and incorporating the feedback given** by students

Pain Points

- Struggles with easily viewing and monitoring the **status of student registrations**, as well as the academic details of students
- Difficulty in **engaging and reaching all students**
- Does not get informed about any **critical alerts, and action items** on his end
- Struggles with **finding consolidated reports** about student feedback

Faculty Advisor User Persona

2. Dr. Priya Patel

- Ph.D. in Chemical Engineering from IIT Bombay
- The faculty advisor of B.Tech Chemical Engineering batch, 2022-2024.

Motivation and Goals

- Wants to stay on top of the semester-wise academic activities, and **notify students** about any action items
- Wants to be able to **advise her students about what kind of courses** they should take
- **View the academic details** of her advisees and check upon their **performance**
- Wants the **registration process** to happen as smoothly as possible
- Wants to understand the **challenges of poorly performing students** and help them do better

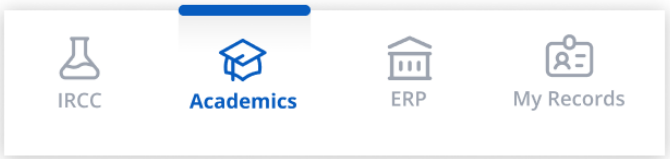
Pain Points

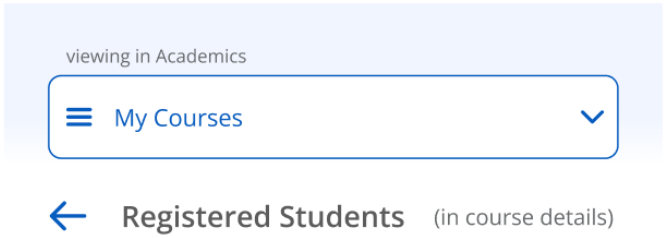
- Needs to **check the registration status** of each student individually to find out if everyone has registered
- Does not **get any insights or alerts** informing her about any drop in performance of her advisee students

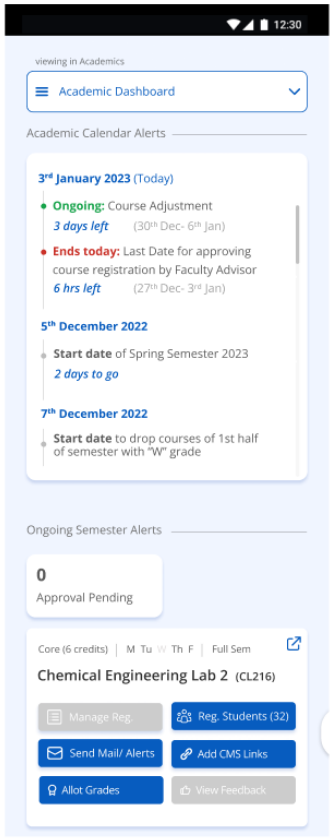
Design Considerations

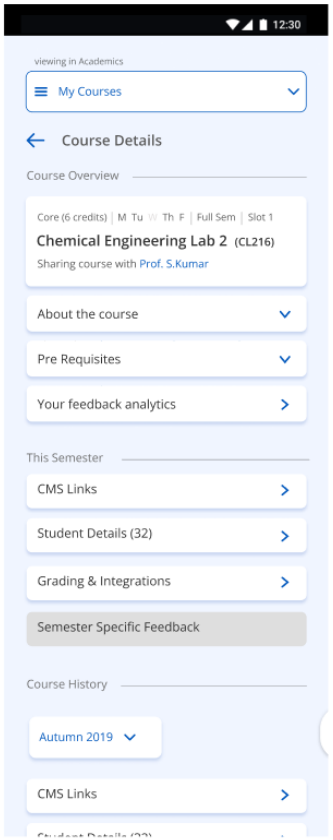
Designing for a rare yet critical use platform

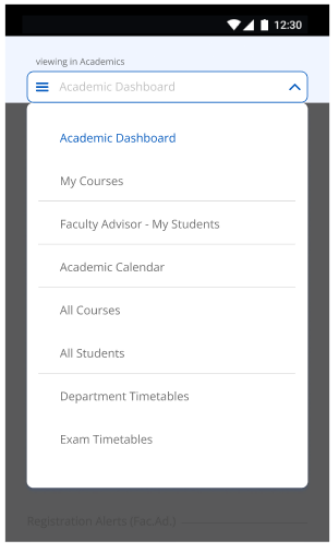
1. Template & Standardized Layouts
2. Quick actions and access
3. Dynamic yet Consistent
4. Mapping existing mental models
5. Meaningful Classification
6. Giving users context

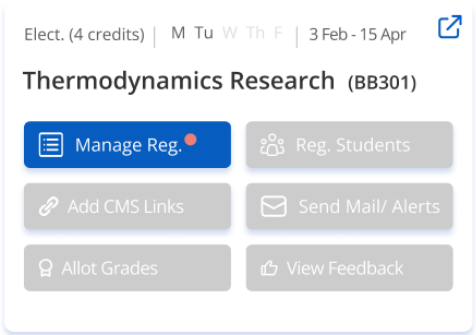




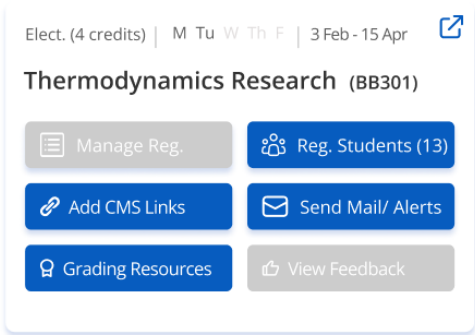

12:30
viewing in Academics
Academic Dashboard
Academic Calendar Alerts
3rd January 2023 (Today)
Ongoing: Course Adjustment
3 days left (30th Dec- 6th Jan)
Ends today: Last Date for approving course registration by Faculty Advisor
6 hrs left (27th Dec- 3rd Jan)
5th December 2022
Start date of Spring Semester 2023
2 days to go
7th December 2022
Start date to drop courses of 1st half of semester with "W" grade
Ongoing Semester Alerts
0
Approval Pending
Core (6 credits) | M Tu W Th F | Full Sem
Chemical Engineering Lab 2 (CL216)
Manage Reg.
Reg. Students (32)
Send Mail/ Alerts
Add CMS Links
Allot Grades
View Feedback


12:30
viewing in Academics
My Courses
Course Details
Course Overview
Core (6 credits) | M Tu W Th F | Full Sem | Slot 1
Chemical Engineering Lab 2 (CL216)
Sharing course with Prof. S.Kumar
About the course
Pre Requisites
Your feedback analytics
This Semester
CMS Links
Student Details (32)
Grading & Integrations
Semester Specific Feedback
Course History
Autumn 2019
CMS Links

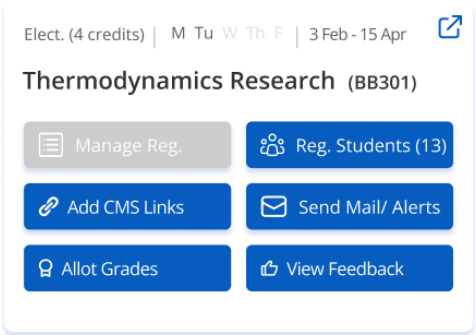

12:30
viewing in Academics
Academic Dashboard
Academic Dashboard
My Courses
Faculty Advisor - My Students
Academic Calendar
All Courses
All Students
Department Timetables
Exam Timetables



Pre Semester



During Semester



Post Semester

Scenarios

Course instructor approves student's **request to enroll** in an elective

Faculty advisor wants to **view registration status**, **alert students** who are yet to register

Course instructor wants to **download list of students** who have registered for the course

Course instructor wants to **share important resources** and links with students

Faculty advisor wants to **view** an **academically struggling student**, and provide guidance

Course instructor wants to manually **allot grades** to students and **publish** them

Course instructor wants to **view and compare feedback** for a particular subject

Scenario 1 : During registration

Course instructor approves student's request to **enroll in** an **elective**

Context

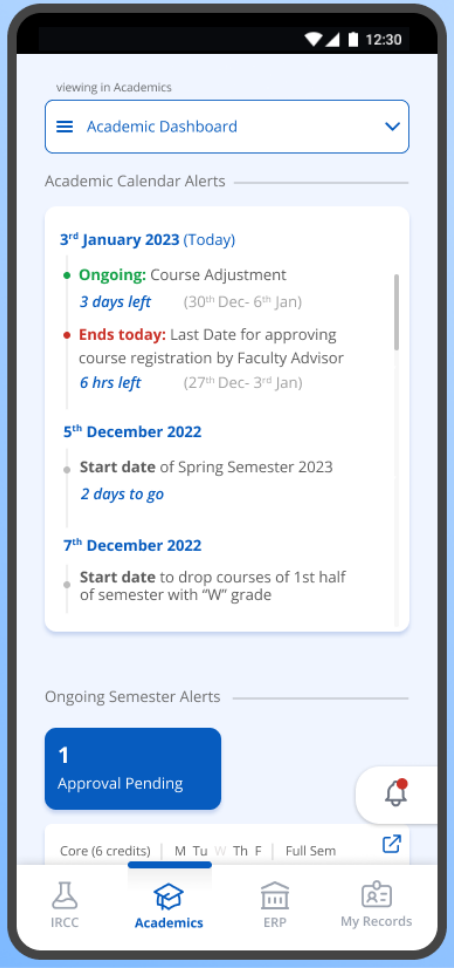
- Frequency - **Once** in a semester
- **Rare but Critical -** Required for **electives** mostly.
- Faculties are usually **quite active** for such approvals at this time.

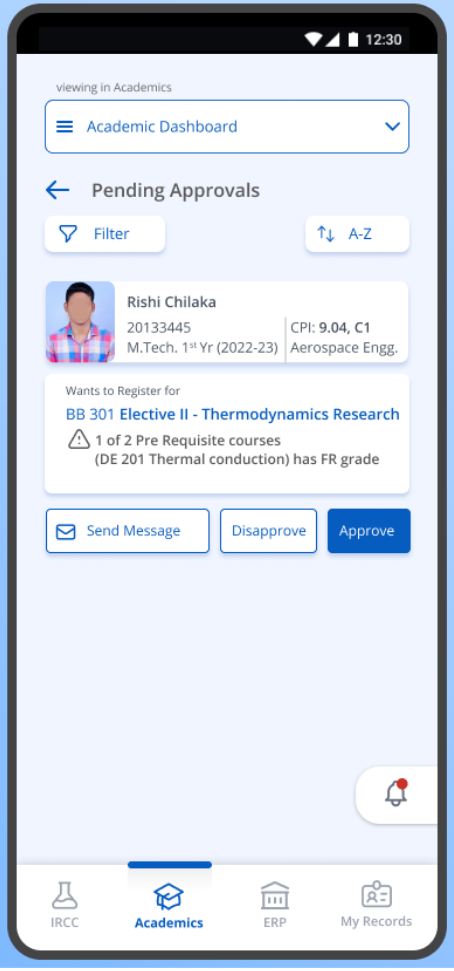
Pain points of Course Instructors

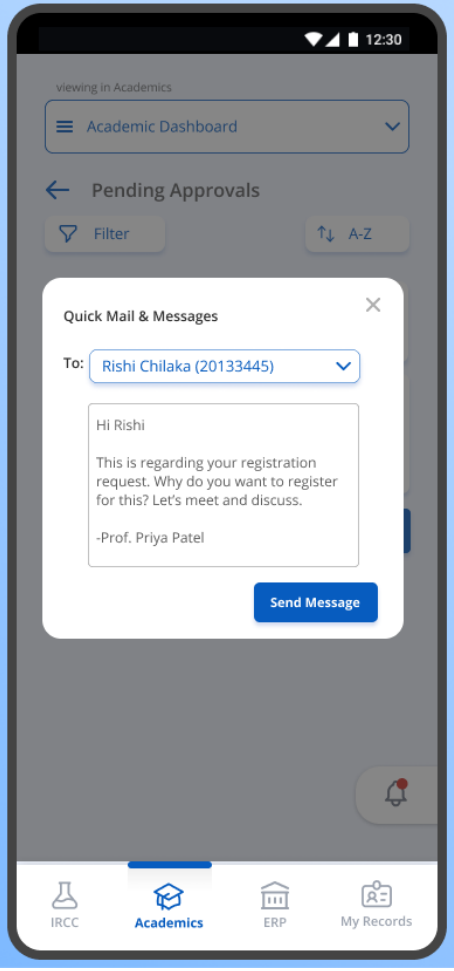
- **Unaware of why students** are **not able to register**
- Lots of **back and forth** between instructor, students and dean to approve student's request
- Pending approvals are **emailed** or **nested inside ASC** - **difficult to find**
- Needs student's **information** in order to approve request
- Has to find each student's **email** ID, and then **mail them individually** to discuss next steps

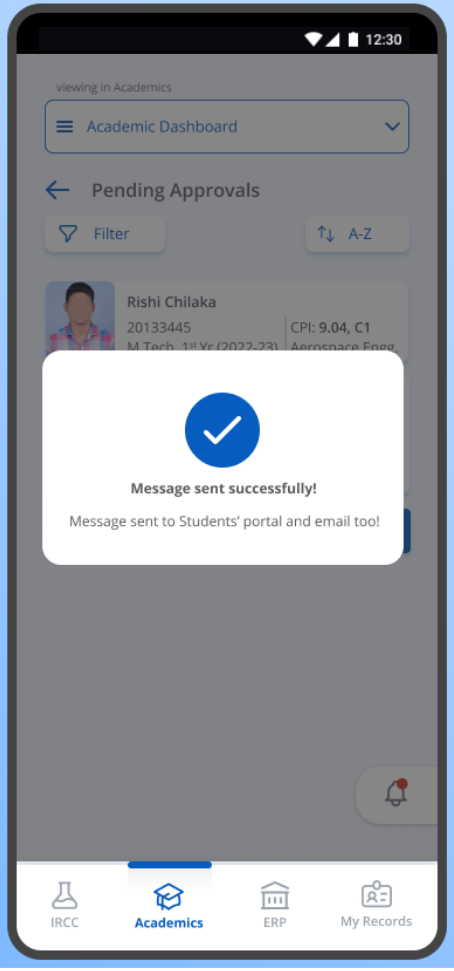
Design Ideas

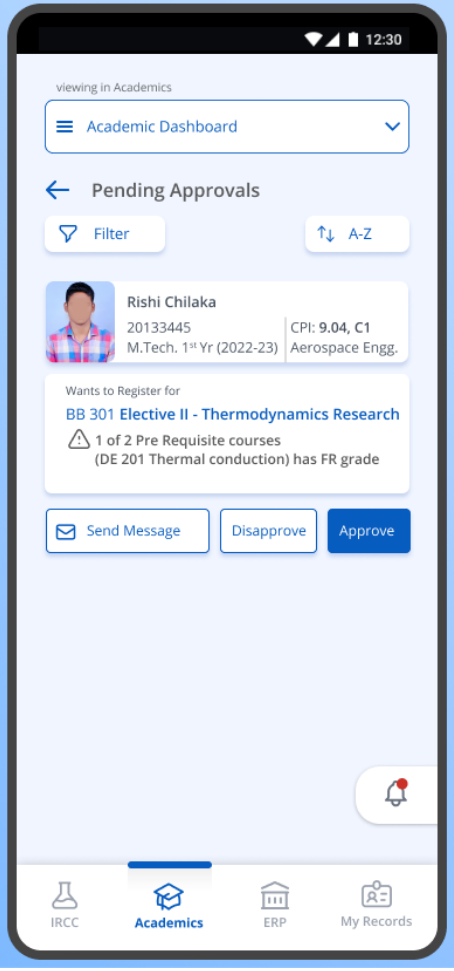
- Allow faculty to **easily discover pending requests** in the portal
- View **course info**, **student info** and the **reason** why they are not able to register
- Allow faculty to **communicate with students easily**
- **Approve** student's **request** to register - **easily**

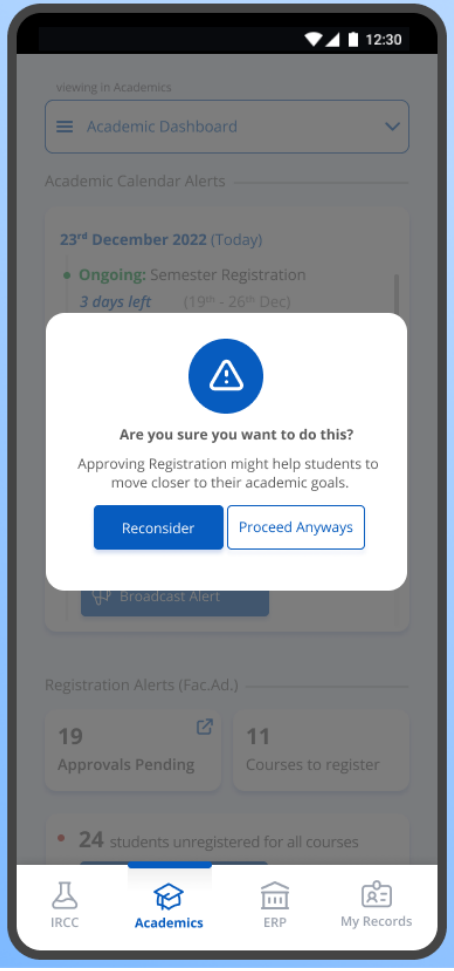

12:30
viewing in Academics
Academic Dashboard
Academic Calendar Alerts
3rd January 2023 (Today)
Ongoing: Course Adjustment
3 days left (30th Dec- 6th Jan)
Ends today: Last Date for approving course registration by Faculty Advisor
6 hrs left (27th Dec- 3rd Jan)
5th December 2022
Start date of Spring Semester 2023
2 days to go
7th December 2022
Start date to drop courses of 1st half of semester with "W" grade
Ongoing Semester Alerts
1
Approval Pending
Core (6 credits) | M Tu W Th F | Full Sem
IRCC
Academics
ERP
My Records

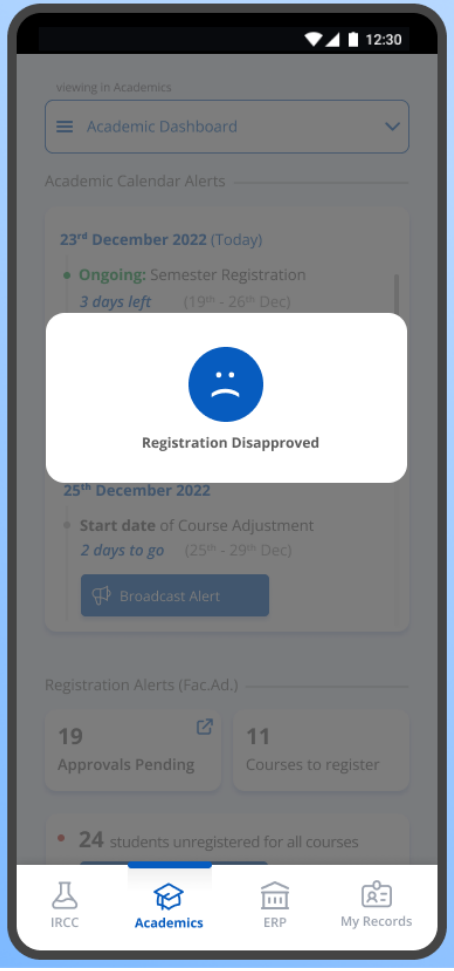

12:30
viewing in Academics
Academic Dashboard
Pending Approvals
Filter
A-Z
Rishi Chilaka
20133445
M.Tech. 1st Yr (2022-23)
CPI: 9.04, C1
Aerospace Engg.
Wants to Register for
BB 301 Elective II - Thermodynamics Research
1 of 2 Pre Requisite courses
(DE 201 Thermal conduction) has FR grade
Send Message
Disapprove
Approve
IRCC
Academics
ERP
My Records

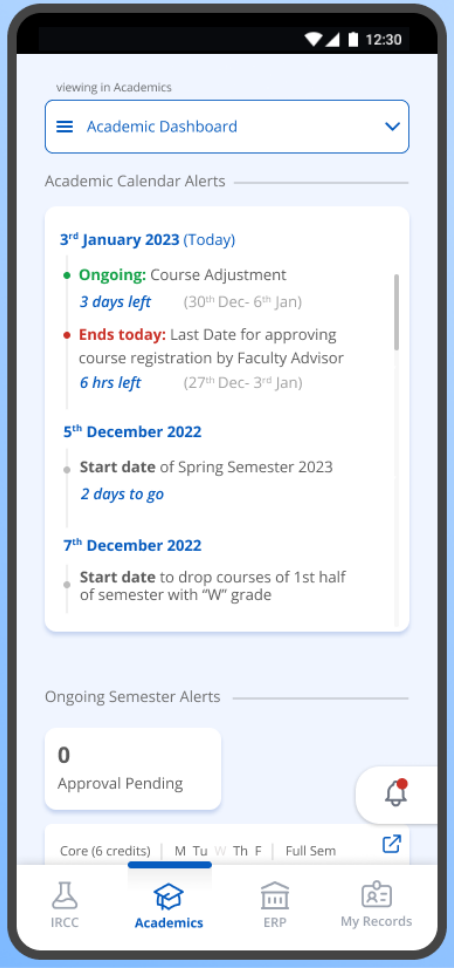

12:30
viewing in Academics
Academic Dashboard
Pending Approvals
Filter
A-Z
Quick Mail & Messages
To:
Rishi Chilaka (20133445)
Hi Rishi
This is regarding your registration request. Why do you want to register for this? Let's meet and discuss.
-Prof. Priya Patel
Send Message
IRCC
Academics
ERP
My Records


12:30
viewing in Academics
Academic Dashboard
Pending Approvals
Filter
A-Z
Rishi Chilaka
20133445
CPI: 9.04, C1
Message sent successfully!
Message sent to Students' portal and email too!
IRCC
Academics
ERP
My Records


12:30
viewing in Academics
Academic Dashboard
Pending Approvals
Filter
A-Z
Rishi Chilaka
20133445
M.Tech. 1st Yr (2022-23)
CPI: 9.04, C1
Aerospace Engg.
Wants to Register for
BB 301 Elective II - Thermodynamics Research
1 of 2 Pre Requisite courses
(DE 201 Thermal conduction) has FR grade
Send Message
Disapprove
Approve
IRCC
Academics
ERP
My Records


12:30
viewing in Academics
Academic Dashboard
Academic Calendar Alerts
23rd December 2022 (Today)
Ongoing: Semester Registration
3 days left (19th - 26th Dec)
Are you sure you want to do this?
Approving Registration might help students to move closer to their academic goals.
Reconsider
Proceed Anyways
Broadcast Alert
Registration Alerts (Fac.Ad.)
19
Approvals Pending
11
Courses to register
24 students unregistered for all courses
IRCC
Academics
ERP
My Records


12:30
viewing in Academics
Academic Dashboard
Academic Calendar Alerts
23rd December 2022 (Today)
Ongoing: Semester Registration
3 days left (19th - 26th Dec)
Registration Disapproved
25th December 2022
Start date of Course Adjustment
2 days to go (25th - 29th Dec)
Broadcast Alert
Registration Alerts (Fac.Ad.)
19
Approvals Pending
11
Courses to register
24 students unregistered for all courses
IRCC
Academics
ERP
My Records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viewing in Academics
Academic Dashboard
Academic Calendar Alerts
3rd January 2023 (Today)
Ongoing: Course Adjustment
3 days left (30th Dec- 6th Jan)
Ends today: Last Date for approving course registration by Faculty Advisor
6 hrs left (27th Dec- 3rd Jan)
5th December 2022
Start date of Spring Semester 2023
2 days to go
7th December 2022
Start date to drop courses of 1st half of semester with "W" grade
Ongoing Semester Alerts
0
Approval Pending
Core (6 credits) | M Tu W Th F | Full Sem
IRCC
Academics
ERP
My Records

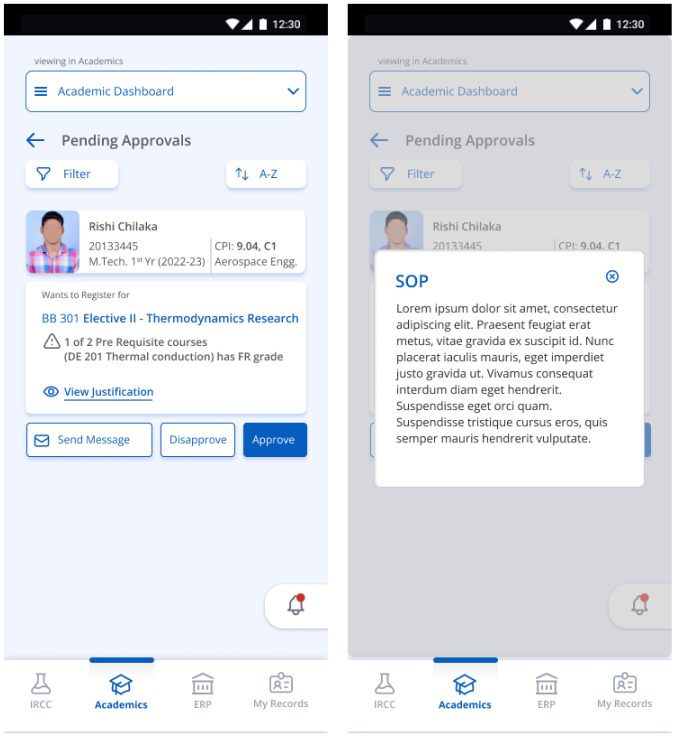
Evaluation & Feedback

5 faculties, 10 novice users

- Lot of users found this extremely convenient
- It is **nice** to have a '**View Justification**' option that shows the reason of joining the course.
- 'Send Message' is also nice as this would **reduce** much back and forth.

Label Evaluation

Label	UI Context Shown
Reg. Student	Label Only
Manage Reg	Label & Card
One approval pending	Label & Card



Scenario 2 : During grading period

Course instructor wants to manually **allot grades** to students and **publish** them

Context

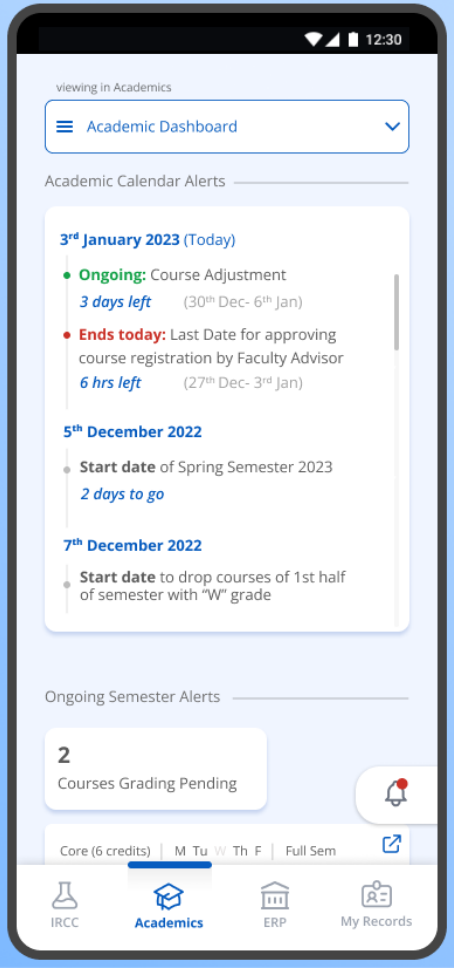
- Usually done **once**, after semester ends
- Grades **revisited for corrections**/ **upgradations**
- Manual grading done for **smaller class** (20 students)

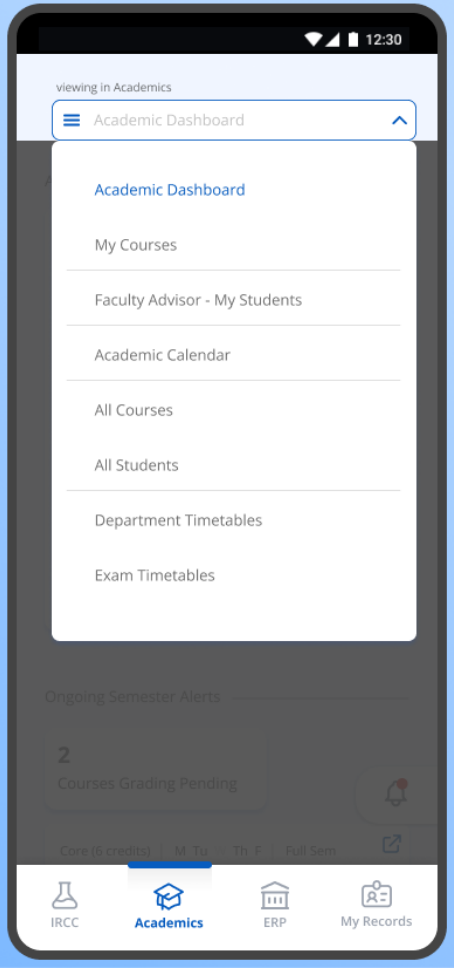
Pain points

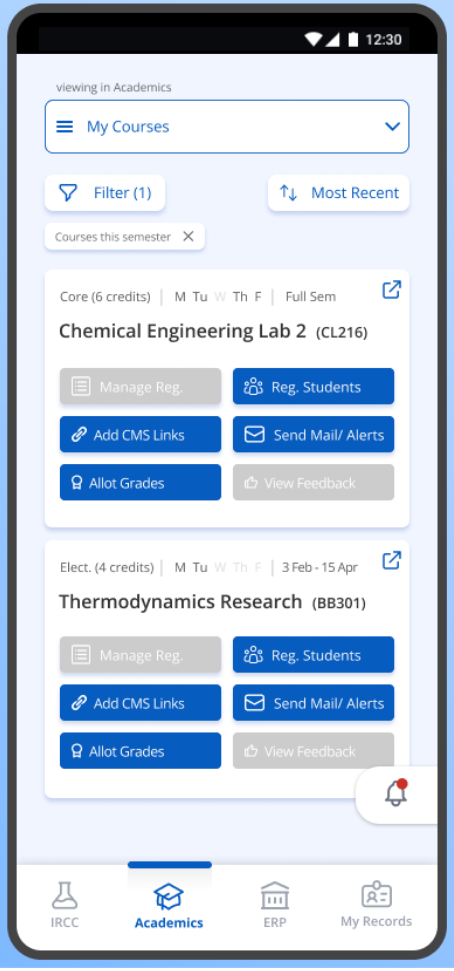
- Grades **cannot be saved** as **draft**, must be re-entered
- Manually to be done for each student, **lots of issues**
- Sometimes **wrong grades** get **updated**
- Faculty prefer to **maintain** a **separate CSV for grading**, and upload this, **lesser errors**
- Once **grades** are entered, **correcting** them is a **painstaking** process

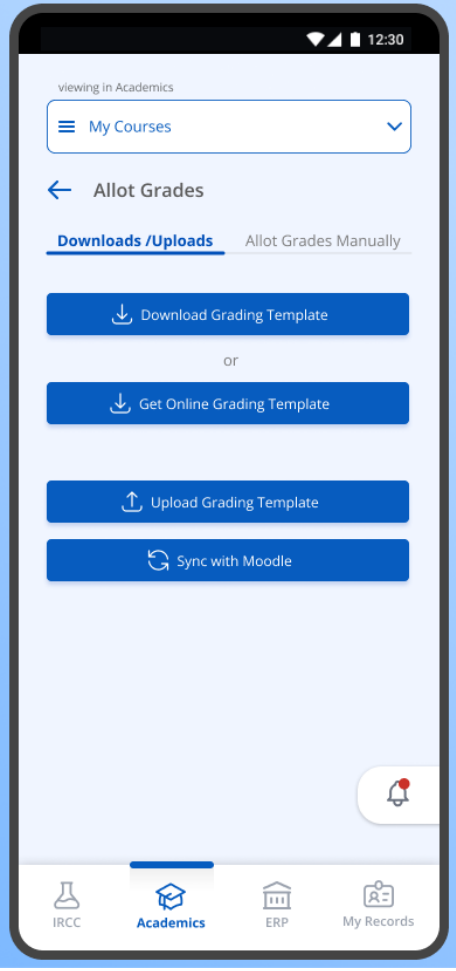
Design Ideas

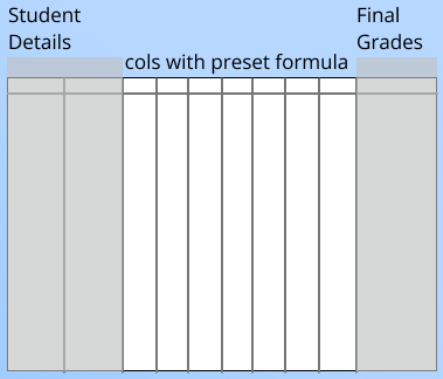
- Option to **download** a **spreadsheet with** student details and **all grading related formula** pre-entered
- **Enter** necessary **values** and **re-upload** same **spreadsheet**
- **Save grades** as draft
- Grades **can be corrected** multiple times **before publishing**

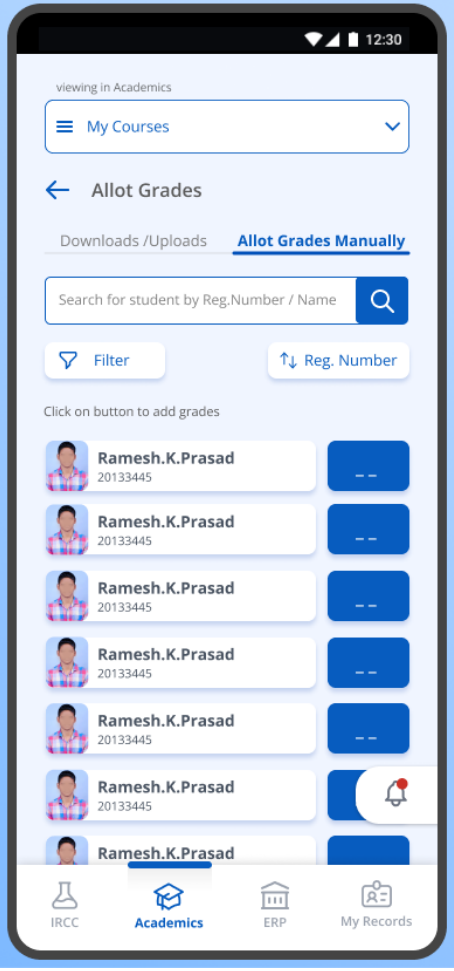

12:30
viewing in Academics
Academic Dashboard
Academic Calendar Alerts
3rd January 2023 (Today)
Ongoing: Course Adjustment
3 days left (30th Dec- 6th Jan)
Ends today: Last Date for approving course registration by Faculty Advisor
6 hrs left (27th Dec- 3rd Jan)
5th December 2022
Start date of Spring Semester 2023
2 days to go
7th December 2022
Start date to drop courses of 1st half of semester with "W" grade
Ongoing Semester Alerts
2
Courses Grading Pending
Core (6 credits) | M Tu W Th F | Full Sem
IRCC
Academics
ERP
My Records

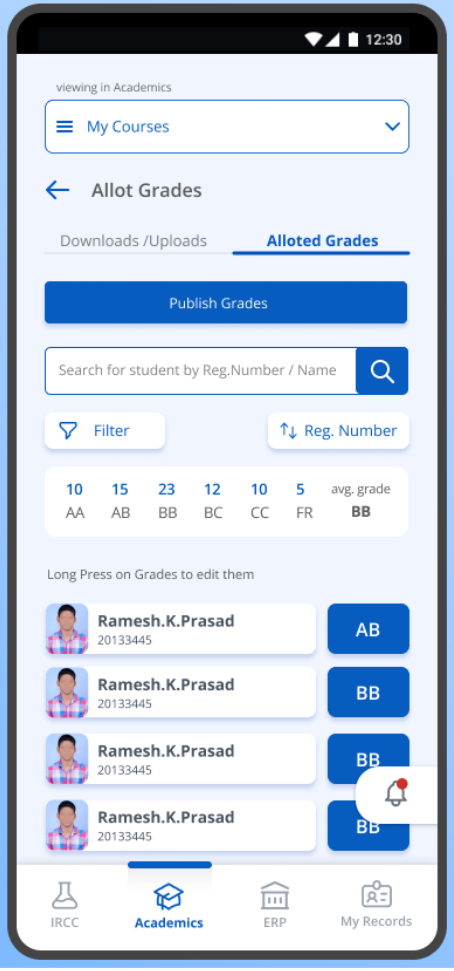

12:30
viewing in Academics
Academic Dashboard
Academic Dashboard
My Courses
Faculty Advisor - My Students
Academic Calendar
All Courses
All Students
Department Timetables
Exam Timetables
Ongoing Semester Alerts
2
Courses Grading Pending
IRCC
Academics
ERP
My Records

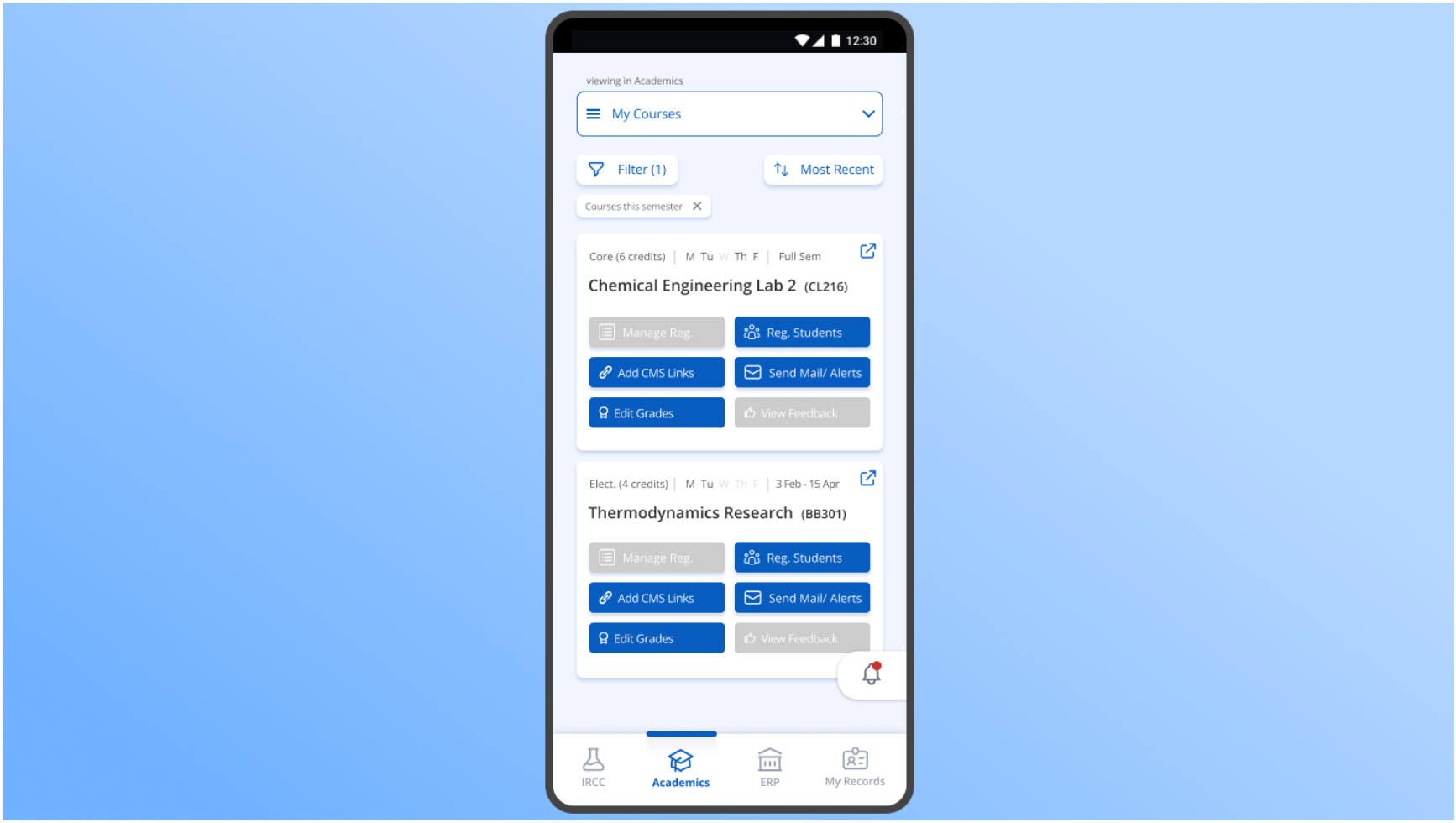

12:30
viewing in Academics
My Courses
Filter (1)
Most Recent
Courses this semester
Core (6 credits) | M Tu W Th F | Full Sem
Chemical Engineering Lab 2 (CL216)
Manage Reg.
Reg. Students
Add CMS Links
Send Mail/ Alerts
Allot Grades
View Feedback
Elect. (4 credits) | M Tu W Th F | 3 Feb - 15 Apr
Thermodynamics Research (BB301)
Manage Reg.
Reg. Students
Add CMS Links
Send Mail/ Alerts
Allot Grades
View Feedback
IRCC
Academics
ERP
My Records


12:30
viewing in Academics
My Courses
Allot Grades
Downloads /Uploads
Allot Grades Manually
Download Grading Template
or
Get Online Grading Template
Upload Grading Template
Sync with Moodle
IRCC
Academics
ERP
My Records

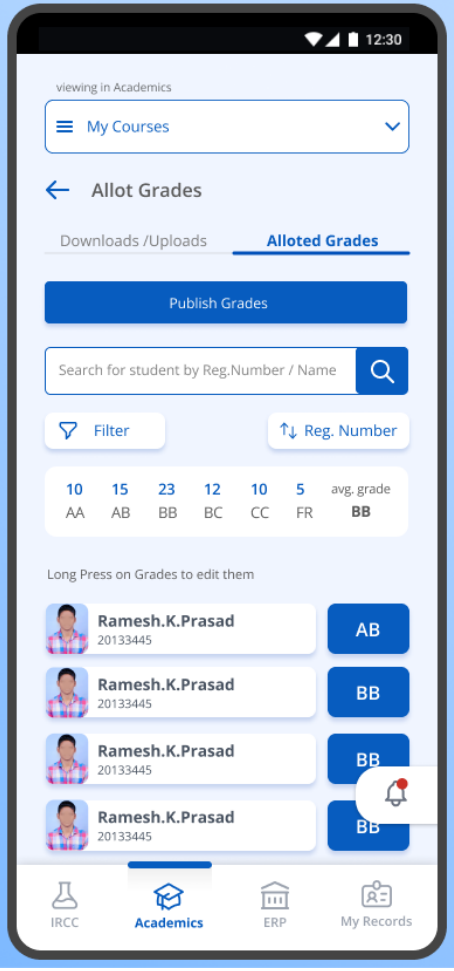

Student Details
cols with preset formula
Final Grades

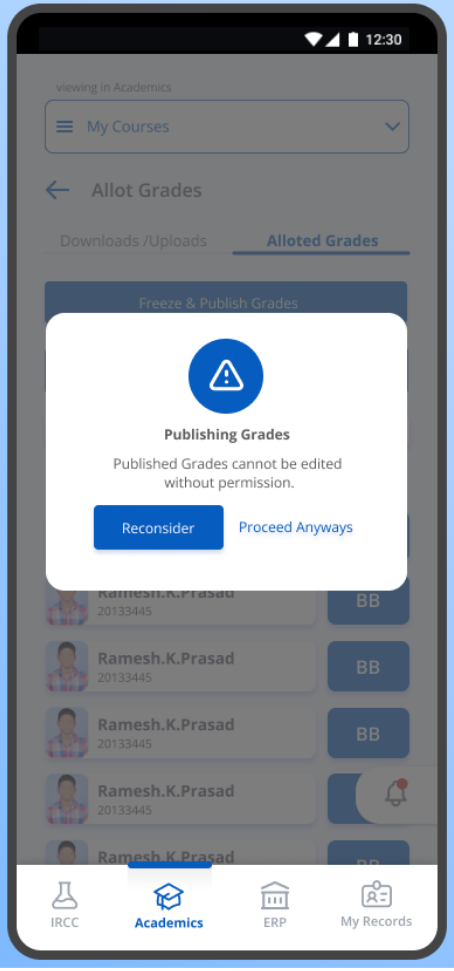

12:30
viewing in Academics
My Courses
Allot Grades
Downloads /Uploads
Allot Grades Manually
Search for student by Reg.Number / Name
Filter
Reg. Number
Click on button to add grades
Ramesh.K.Prasad
20133445
--
IRCC
Academics
ERP
My Records

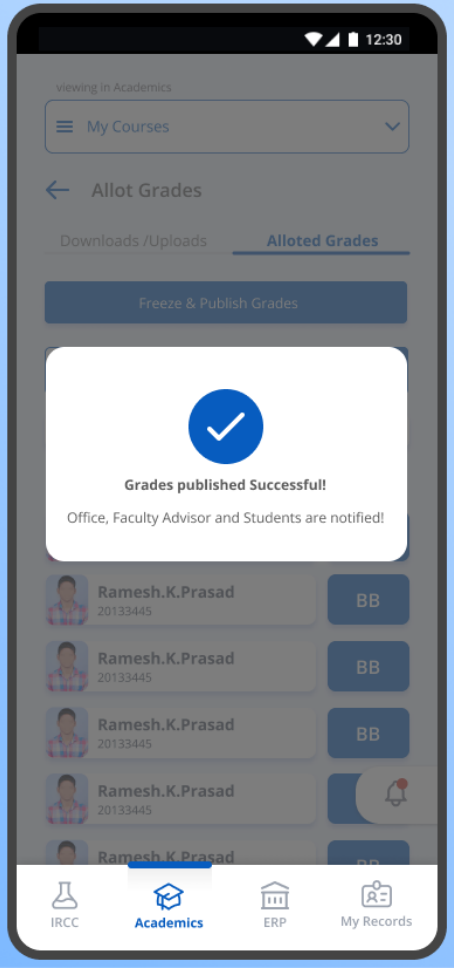

12:30
viewing in Academics
My Courses
Allot Grades
Downloads /Uploads
Alloted Grades
Publish Grades
Search for student by Reg.Number / Name
Filter
Reg. Number
10 AA
15 AB
23 BB
12 BC
10 CC
5 FR
avg. grade BB
Long Press on Grades to edit them
Ramesh.K.Prasad 20133445
AB
Ramesh.K.Prasad 20133445
BB
Ramesh.K.Prasad 20133445
BB
Ramesh.K.Prasad 20133445
BB
IRCC
Academics
ERP
My Records

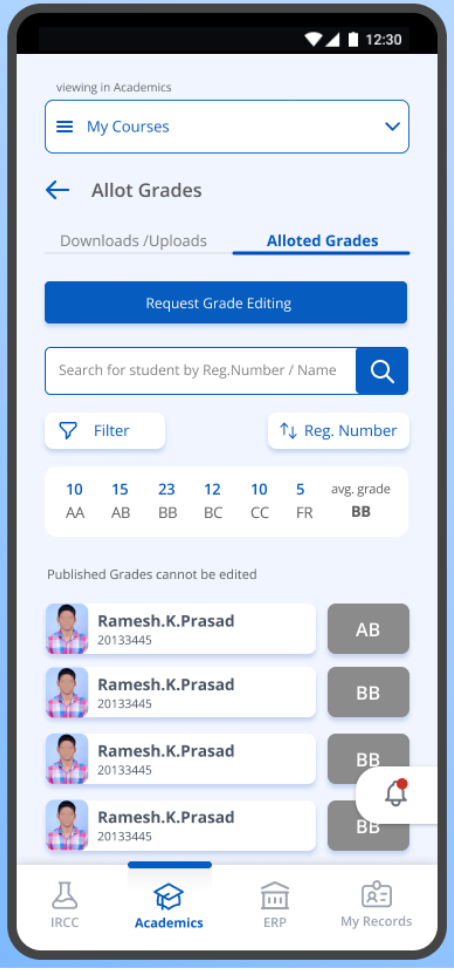

12:30
viewing in Academics
My Courses
Filter (1)
Most Recent
Courses this semester
Core (6 credits) | M Tu W Th F | Full Sem
Chemical Engineering Lab 2 (CL216)
Manage Reg.
Reg. Students
Add CMS Links
Send Mail/ Alerts
Edit Grades
View Feedback
Elect. (4 credits) | M Tu W Th F | 3 Feb - 15 Apr
Thermodynamics Research (BB301)
Manage Reg.
Reg. Students
Add CMS Links
Send Mail/ Alerts
Edit Grades
View Feedback
IRCC
Academics
ERP
My Records

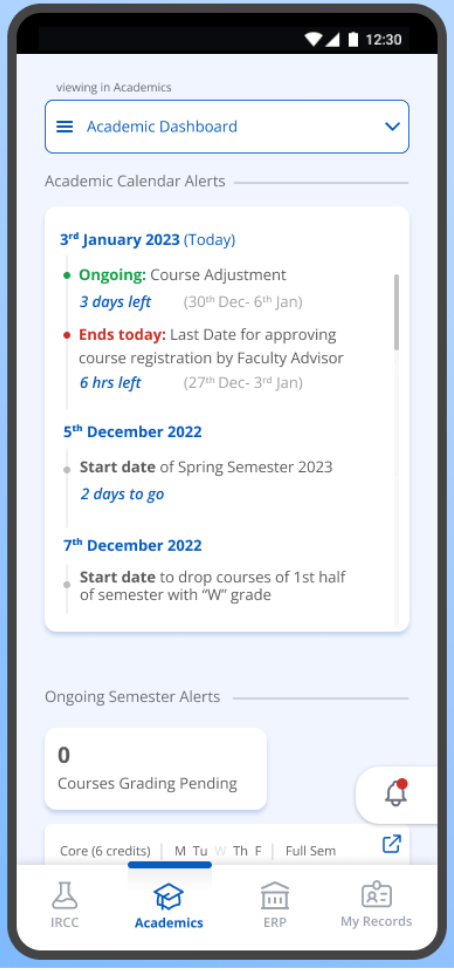
V


12:30
viewing in Academics
My Courses
Allot Grades
Downloads /Uploads
Alloted Grades
Publish Grades
Search for student by Reg.Number / Name
Filter
Reg. Number
10 AA
15 AB
23 BB
12 BC
10 CC
5 FR
avg. grade BB
Long Press on Grades to edit them
Ramesh.K.Prasad 20133445
AB
Ramesh.K.Prasad 20133445
BB
Ramesh.K.Prasad 20133445
BB
Ramesh.K.Prasad 20133445
BB
IRCC
Academics
ERP
My Records


12:30
viewing in Academics
My Courses
Allot Grades
Downloads /Uploads
Alloted Grades
Freeze & Publish Grades
Publishing Grades
Published Grades cannot be edited without permission.
Reconsider
Proceed Anyways
Ramesh.K.Prasad
20133445
BB
IRCC
Academics
ERP
My Records


12:30
viewing in Academics
My Courses
Allot Grades
Downloads /Uploads
Alloted Grades
Freeze & Publish Grades
Grades published Successful!
Office, Faculty Advisor and Students are notified!
Ramesh.K.Prasad
20133445
BB
Ramesh.K.Prasad
20133445
BB
Ramesh.K.Prasad
20133445
BB
Ramesh.K.Prasad
20133445
IRCC
Academics
ERP
My Records


12:30
viewing in Academics
My Courses
Allot Grades
Downloads /Uploads
Alloted Grades
Request Grade Editing
Search for student by Reg.Number / Name
Filter
Reg. Number
10 AA
15 AB
23 BB
12 BC
10 CC
5 FR
avg. grade BB
Published Grades cannot be edited
Ramesh.K.Prasad
20133445
AB
Ramesh.K.Prasad
20133445
BB
Ramesh.K.Prasad
20133445
BB
Ramesh.K.Prasad
20133445
BB
IRCC
Academics
ERP
My Records


12:30
viewing in Academics
Academic Dashboard
Academic Calendar Alerts
3rd January 2023 (Today)
Ongoing: Course Adjustment
3 days left (30th Dec- 6th Jan)
Ends today: Last Date for approving course registration by Faculty Advisor
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Start date of Spring Semester 2023
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7th December 2022
Start date to drop courses of 1st half of semester with "W" grade
Ongoing Semester Alerts
0
Courses Grading Pending
Core (6 credits) | M Tu W Th F | Full Sem
IRCC
Academics
ERP
My Records

Evaluation & Feedback

- Overall feedback was **positive**
- Showing **grade distribution** and class **avg grade** - helpful
- Hence, faculty are **discouraged to grade on Moodle -** Faculty download excel sheet with marks, add grades to the sheet and re-upload as csv in ASC portal
- Comfortable with this method since errors are less
- **Limitation** - **Relative grading**, analytics using absolute numbers is pointless

Label Evaluation

Download grading template	Never Understood
Allot grades manually	Label Only
Upload/ download	Label & Card
Publish grades	Label Only

Scenario 3 : Semester has ended

Course instructor wants to **view** and **compare feedback** for a particular subject

Context

- Checked mostly **once**, or a few times
- View both qualitative and quantitative feedback
- Would like to **compare feedback over years**, for **same subject**
- Faculties teach same course max. 4-5 times in their academic tenure

Pain points

- No way to **compare feedback over years**
- Have to **read through each comment**
- **No segregation** of good and bad comments
- Most comments are **gibberish** (:-), NIL, .)

Design Ideas

- **Compare feedback statistics** over years for same course
- Filter out gibberish comments
- Sentiment analysis to **segregate +ve and -ve comments**
- A template view to select a multiple semesters and view analysis of feedback (for a course)

Evaluation & Feedback

- Liked the idea
- Segregation of +ve and -ve comments - not necessary
- Faculty generally go through all comments
- Initially visualization was in tabular format, but users highly recommended a visualisation as it is easier to spot trends

Label Evaluation

Quantitative Analysis	Entire Screen
Qualitative Analysis	Entire Screen

Scenario 4 : During registration

Faculty advisor wants to **view registration status** and **alert students** who are **yet to register**

Context

- Done **multiple times** during registration
- Done until all students are registered
- Done manually for ~30 students

Pain points

- Need to **manually check** registration status of each student - to find out **how many are yet to register**
- **Informing students** to register - tedious process
- Difficult to **mentally keep track** of **remaining days for registration**, or other academic activities
- **Communicating with students** who are yet to register - **is painstaking**

Design Ideas

- **Number** of students who have registered/ are yet to register - is **shown upfront**
- **Inform students to register** with one click
- Timeline scale helps **track** important **academic activities**
- Easily **find** and **reach out to** those who are yet to register

Evaluation & Feedback

- Terminology - yet to register instead of unregistered
- Enroll for course, and register for semester
- Courses to register - **not understood**
- Students registered for some courses - irrelevant

Label Evaluation

Approval pending	Label & Card
Broadcast alert	Label Only

Scenario 5 : During registration, and during semester

Faculty advisor wants to view an **academically struggling student**, and provide **guidance**

Context

- Done **multiple times** during registration - to see **no. of credits**
- Registration related details are viewed at the start of semester
- More **concerned about struggling students** than well-performing students

Pain points

- Multiple clicks required to view students' academic details
- No consolidated view that provides this information
- No analytics about whether student has clear required no. of credits for graduation
- No analytics about student's academic performance

Design Ideas

- **Academic information** of students must be easily **accessible**
- **Alerts about progress** of struggling students
- **Keeping track of completed credits** - of academically struggling students

Evaluation & Feedback

- Dropped courses - shown as a **Dropdown** - which can can contain **other types of courses**, apart from dropped courses
- **Grade summary toggle** - not well understood
- Comfortable to view **tabular view** - as shown in ASC

Label Evaluation

Elect. courses	Label & Card
Pinned/ unpinned	Entire Screen

Scenario 6 : Semester has started

Course instructor wants to **download list of students** who have registered for the course

Context

- **Active** throughout semester, but generally done once
- Aim is to **communicate** important **info**, or **share resources**

Pain points

- In the existing platform the process is fairly simple, however,
  - It is **not a single click step**
  - It takes a **lot of scrolling** to access the button
- The list is hence saved carefully to avoid revisiting the portal

Design Ideas

- **Intuitively discover** the **list** of students
- **Download** list of students easily, **through quick actions**
- Similar list can be downloaded as a spreadsheet and used **for grading**
- Graded sheet can be uploaded and automatically read by the portal

Evaluation & Feedback

- Fairly simple
- Users figured it out in the first go
- Analytics were found useful

Label Evaluation

Download Spreadsheets Label & Card

Scenario 7 : Semester has started

Course instructor wants to share important resources and links with students

Context

- Repository **created once** in a semester, **edited multiple times**
- Information **shared multiple times**
- Course specific

Pain points

- **Cannot integrate LMS** platforms (except Moodle) with ASC
- **No repository** of CMS links
- **Uploaded links** often get **lost**
- Links are mostly shared through other platforms (like email, Google Classroom)
- Links get **lost in emails of students**

Design Ideas

- Providing an option to **integrate** any LMS
- **Create repository** of important links in the portal itself
- **Share** important links through the portal itself
- Repository can be **easily discovered**, and reused/ re-shared

Evaluation & Feedback

- Despite having this provision, some faculties **might not use** it as they are very comfortable with their websites.
- Some faculties had **difficulty** understanding the word CMS- suggested using LMS or complete form instead.
- They **rarely** share individual links; they are one-drive links or classroom links.

Label Evaluation

On going Semester reg	Label Only
Add CMS links	Label & Card
Manage CMS links	Label & Card

Learnings

Faculty portal - **new domain, challenging**

Iterative design approach vs traditional design methods

Learning by designing

Less scared of complex architectures now

10. Learnings & Reflections

Designing a portal for IIT Bombay faculty, where they can access and manage all academic-related information and tasks, was a challenging yet rewarding project to work on. Especially because it is a completely new domain for me.

- One of the key learnings from this process was the importance of an iterative design approach, which involves prototyping, testing, and refining the design multiple times.
- This approach proved to be more effective than traditional design methods in certain ways, owing mainly to its flexibility and "learning by designing" approach
- I gained experience in working with complex architectures - and this added a lot of value to my skill sets as a designer.
- While it was initially intimidating to work with complex systems, the experience of designing an academic portal helped build confidence and familiarity with these types of architectures
- Visualization was also a challenging aspect of design, especially when working with stakeholders who may not have a design background
- These challenges were overcome through the use of tools and techniques such as wireframing and mockups to help stakeholders understand and visualize the proposed design
- In addition, the process of designing an academic portal involved a sudden jump from designing for desktop to designing for mobile, as more and more users have begun accessing the portal from their smartphones and tablets
- This proved to be a significant challenge, as the design needs had to be optimized for different screen sizes and user experiences
- Concepts around UX writing (using verbs instead of nouns), and interaction design best practices were brushed up, thanks to this project

Finally, the process of designing an academic portal was a great opportunity for self-reflection and the development of new skills. It was extremely helpful to seek out feedback from colleagues and stakeholders throughout the design process, as it helped identify areas for improvement and ensure that the final product is of acceptable quality.

11. Future Scope

The outcome of this project is - high fidelity screens created to satisfy the most important academic workflows for faculty advisors and course instructors. Relevant workflows and personas were identified through user research. Going forward, the goal is to fully implement the design solution with the help of developers and deploy it for use by IIT Bombay faculty.

This will involve :

- obtaining the corresponding code of the designed screens and prototypes through relevant software - to help the web team to develop and implement the solution
- providing clear requirements for the functioning of the platform, to the web team
- overseeing the development process end to end
- evaluating the effectiveness of the solution once it is deployed
- If necessary, adjustments can be made based on user feedback to ensure that faculty members are able to easily conduct their academic activities through the platform.

In addition to academic tasks, the solution should also be extended to include research-related workflows and campus-related tasks such as hall booking and managing medical procedures. By providing a comprehensive, easy-to-use portal for all of these activities, the goal is to streamline and simplify the work of IIT Bombay faculty, enabling them to focus on their core responsibilities and achieve their goals more efficiently.

12. References

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