

## INTRODUCTION

The current Add/Drop/Swap & schedule planning systems are not connected. The fragmentation of online catalogs, Coursebook, and Galaxy/Orion causes frustration and poor user experiences. This disorganization of critical systems makes long-term schedule planning without human advisor assistance difficult.

This solution integrates models of degree plans and course pre/co-requisite chains with data from extant scheduling systems and student evaluations. The goal is to clarify the optimal order in which to take courses (and during which time slots with which professors). This should lead to lower advisor and student workloads.

## EXECUTIVE SUMMARY

CoursePlanner is an application designed to improve the advising experience, reduce time-to-graduation and eliminate friction in the course scheduling & registration experiences for students and advisors at the University of Texas at Dallas.

This improvement to degree-, course-, and schedule-planning will primarily be accomplished through creation of a database of courses & catalogs, and the development of application logic to leverage open-source libraries and users' browsers to display graphs of course prerequisite chains and clarify the optimized orders in which to take courses at UT Dallas.

The interface for users will be a progressively-enhanced web application which runs on devices as small as mobile phones, and exposes more features as screen spaces allow (up to lap- and desktop screen sizes), to support as many users as possible.

As a user-friendly web application extending the online Catalog, Coursebook, and Galaxy/Orion systems, CoursePlanner will improve the experience of students selecting which courses to enroll in & help them plan semesters in advance based on directed acyclic multigraph models of degree plans and degree plan catalogs with information provided by previously-submitted student evaluations and historical schedule data. This, in turn, will reduce time spent by advisors that would otherwise be spent giving the same or similar advice and instructions.

## DELIVERABLES DEVELOPED

Milestone 1: Proposal Memo - briefly pitching the idea

Milestone 2: Planning - comprised of:

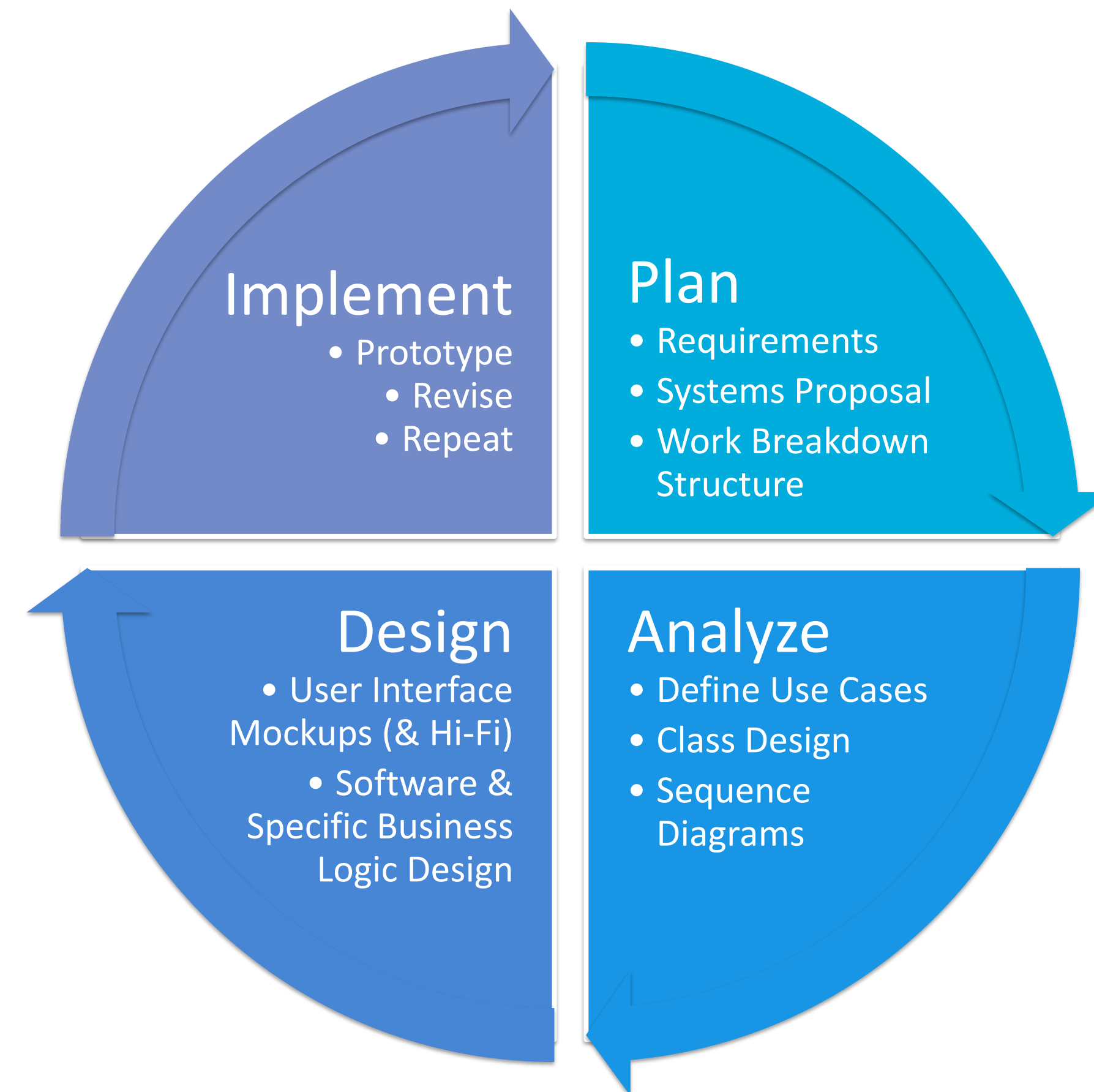
- Executive Summary, Project Charter, Scope Statement, Work Breakdown Structure

Milestone 3: Analysis - comprised of:

- User Stories, Requirements, Descriptions of Use Cases, Diagrams for Use Cases, Classes, and Sequences

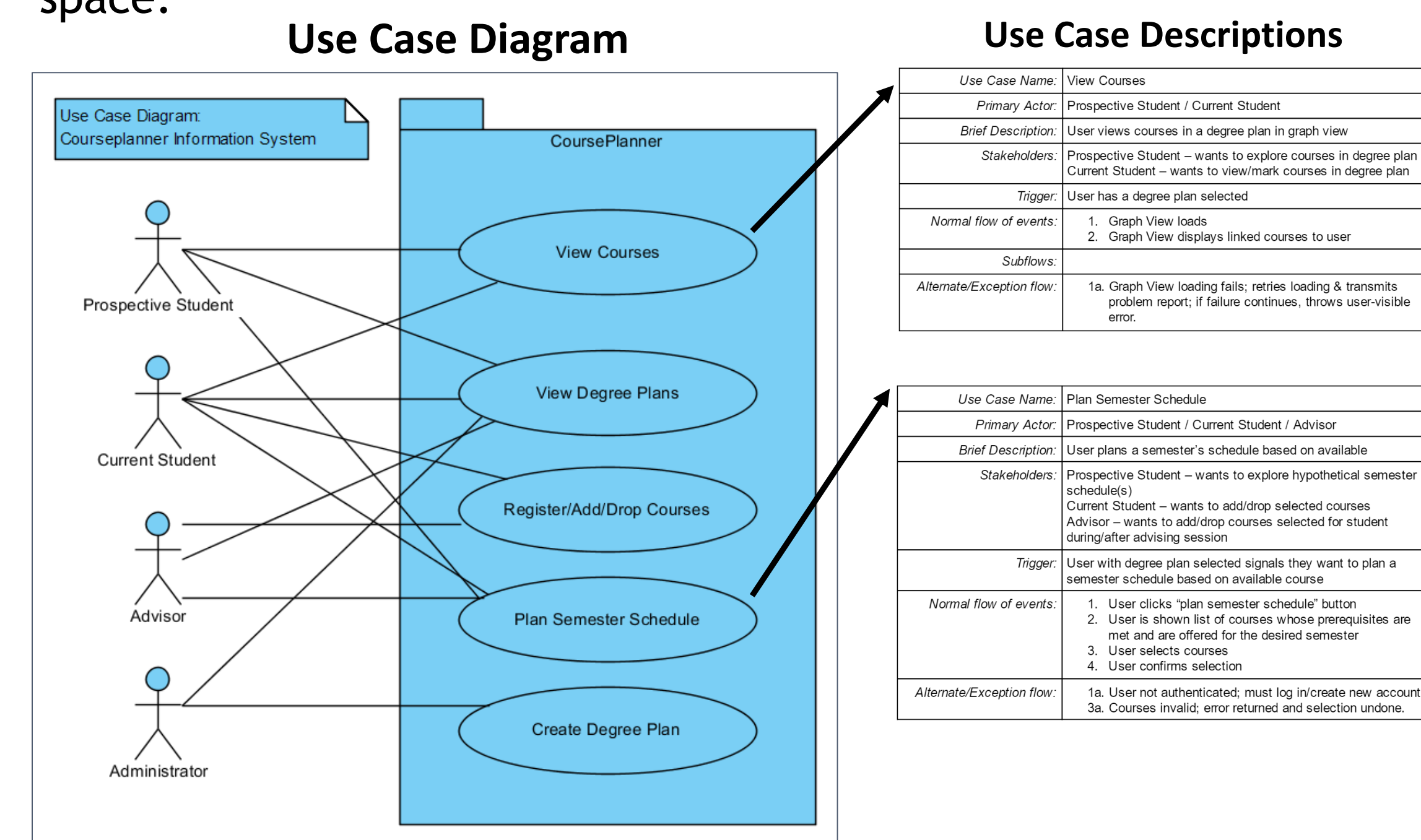
## METHODOLOGY & ANALYSIS

As in the Software Development Lifecycle:



Within the Systems Analysis and Design course, instruction and work takes place within three sprints (Planning, Analysis, and Design)

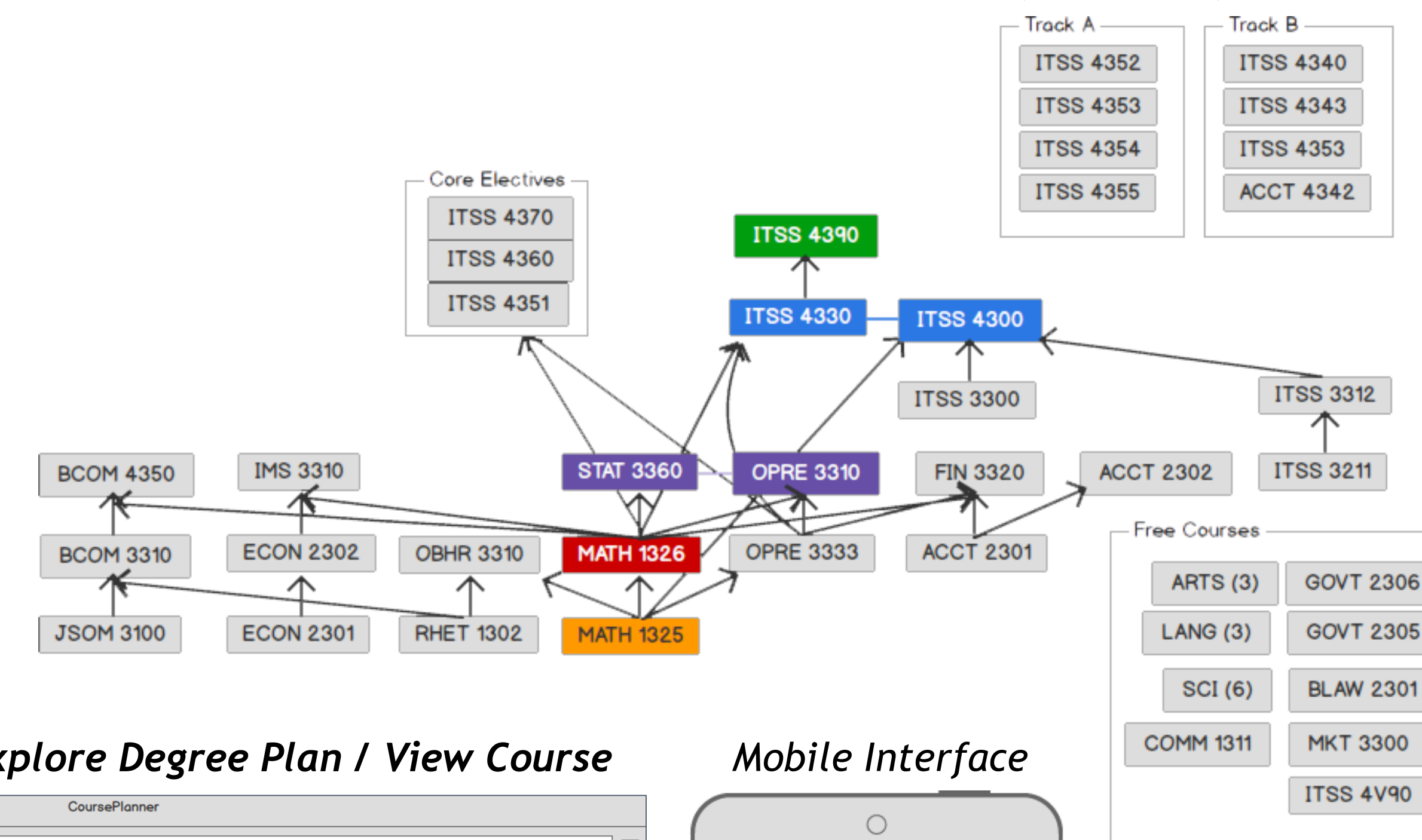
This project takes a systematic approach to analyzing a problem (planning the order in which to take courses at UT Dallas), exploring the solution space, and selecting & designing a solution within that space.



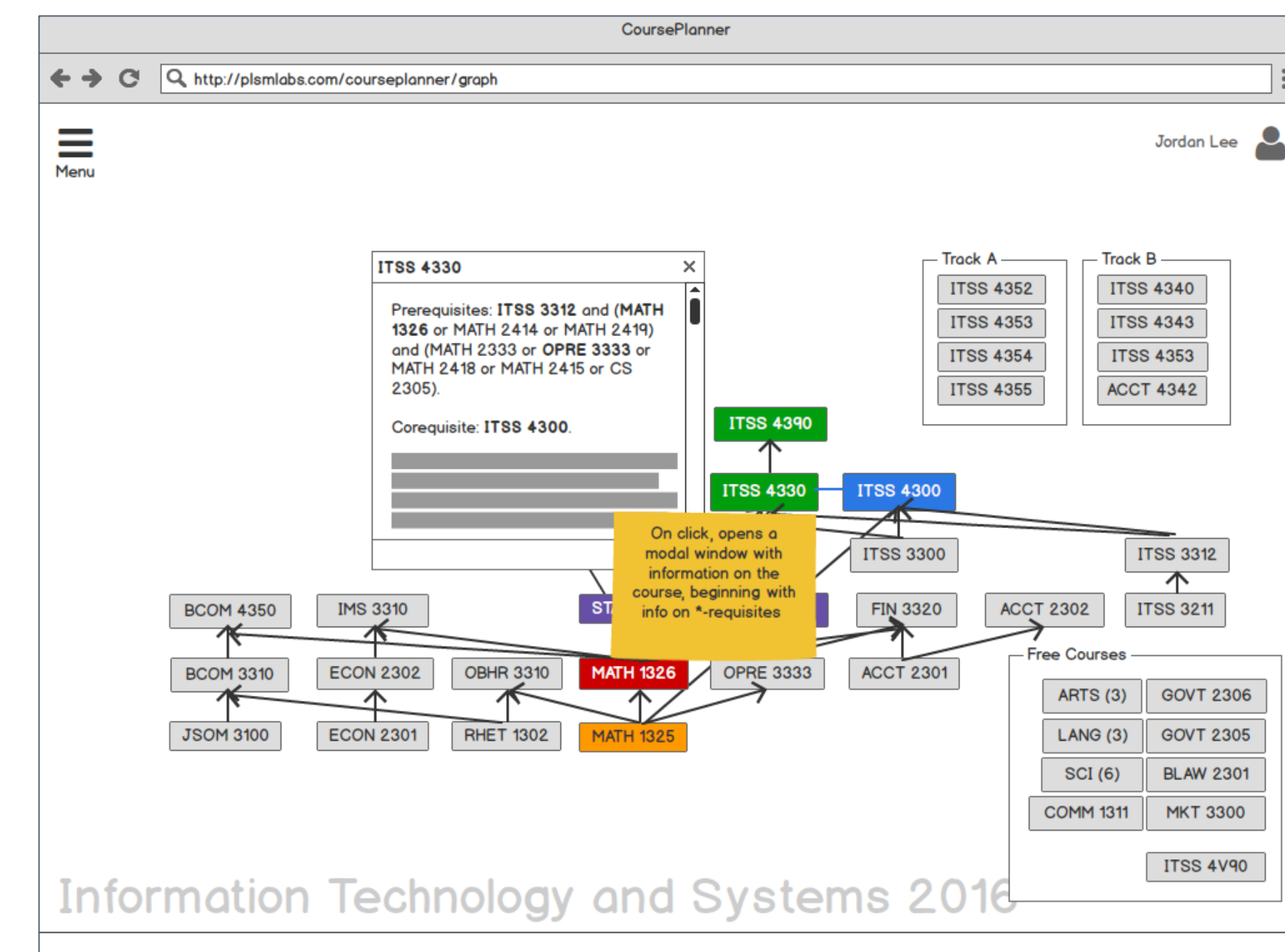
## DESIGN

User Interface Wireframes (high-fidelity mockups) of user interactions explore designs within the solution space

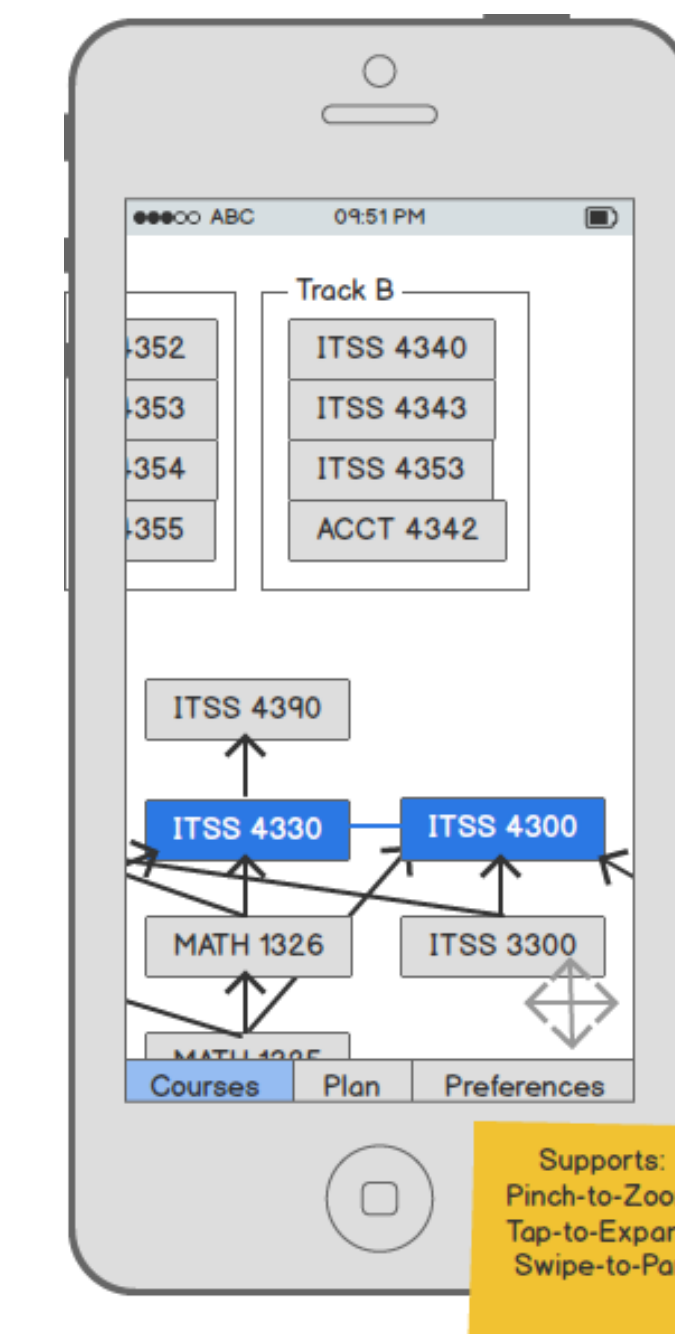
Directed Acyclic Graph: ITSS 2016 Catalog (simplified)



Desktop Interface: Explore Degree Plan / View Course



Mobile Interface



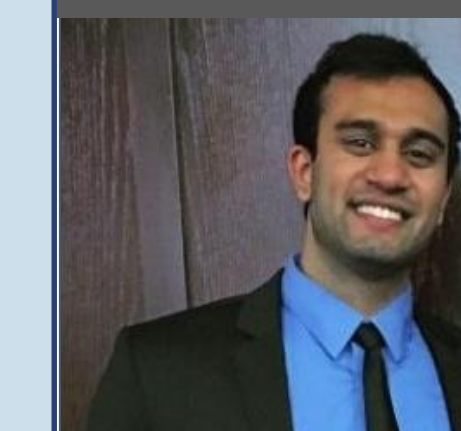
## NEXT STEPS

1. Create databases of current degree catalogs, courses offered (based on publicly-available online resources)
2. Develop minimum viable product (web frontend with database & graphing functions)
3. Enhance MVP (add schedule planning, user accounts)
4. Develop ETL solution for future catalogs and courses as well as backlog of previous years' catalogs & courses.

## LESSONS LEARNED

- "Communication is key. Communicating early, often, and making sure everyone on the same page is crucial."
- "The importance of good documentation and planning cannot be understated; they are critical to the success of IT projects everywhere."
- "It is important to use the four stages of the system development lifecycle (Plan, Analyze, Design, Implement) to achieve success in developing systems."
- "Time invested in properly planning pays off severalfold; having to go back and re-plan (or worse, throw everything out) costs more time and effort later."

## TESTIMONIALS



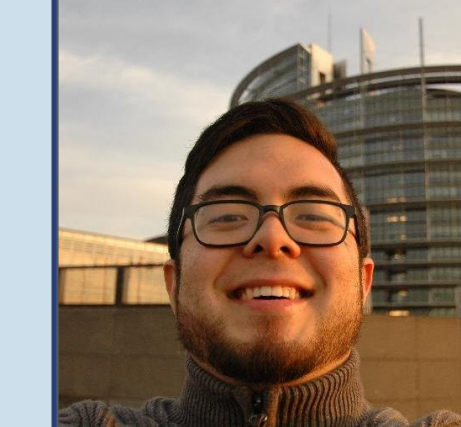
"Dr. Owens has taught me so much this past semester. I hope to show how I utilized all the material through my contributions to this project."  
-- Parth Badhiwala



"Dr. Owens has instilled values and lessons during her classes that will be carried on into my professional life, pursuing a career as a project manager."  
-- Logen Starkey



"Dr. Owens has helped me realize that I want to become a project manager in the future, and has taught me the necessary tools to achieve this goal."  
-- Stephen Abraham



"Over the course of the semester, Dr. Owens has demonstrated a consistent commitment to excellence in instruction, providing many opportunities for students to learn & grow."  
-- Matthew Cocco

## CONTACT

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