

Interaction Design Process

Engineering Success

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1: Requirements Analysis

Degree Outline

Program: Engineering

Requirements:

- OSSD or equivalent
- Minimum of six 4U or M courses
 - Including 4U :
 - Advanced Functions || Calculus and Vectors
 - Chemistry || Physics || Biology || Earth and Space Science

Personas & Scenarios:

New Student: A student yet to have enrolled in one or more classes. A new student would likely use this tool in order to plan the courses they wish to take in their major. An alternative reason for new students to use the app is if their degree is undeclared or they wish to explore the course offerings of other majors. The new student could be timid, nervous, or even excited about planning for their future because they want to be certain that what they plan would actually bear fruit rather than wasting time and having to change programs or career goals midway the course of their degree. So to give them the opportunity to look at the different programs gives them a sense of control over their lives because they can plan and look at possible outcomes. At the same time, they don't know if post-secondary is right for them as they could be satisfied with just attaining their diploma and getting a job.

Scenario: Now this student can be just starting secondary or they could have a few years into it, but in either case they would be thinking about what they want to do after graduation. Now whether if they take a year off to prepare themselves or dive right into post-secondary, they'll probably want to know what's out there and what fits with them. So let's suppose they start looking at Carleton's Engineering program, they would navigate to the University's page, select Admissions, look for Engineering, but at that point they would be flooded with a series of different specializations. But let's say this user is pretty determined and they just look at the general requirements, they'll notice that they would need to take a minimum of 6 courses in the 4U/M level including specific courses in the

Maths and Sciences. At the same time, they'll be curious about admission rate and recommended GPA because they don't want to take all these courses and find out that only 1% or some small percentage actually makes it in. From there, the user takes that information and starts making it part of their plan for future courses to take to meet that requirement.

Current Student: A student who has completed at least one course. A current student may be in the position of wishing to either explore the upcoming courses they need to enroll in for their major or explore other majors. Such a student may also wish to see pass to fail ratio statistics for a given course, helping them to decide whether to delay enrollment in it. This student can be feeling stress or a sense of relief after completing their previous semester depending on the outcome of their exam. Because of that outcome, they would want to have an idea to say what will come next and will I be able to handle it as well as I did with my previous courses. In either case, looking at this information gives the user assurance to make an informed decision after what the next step would be.

Scenario: Suppose this student has just finished his first year of classes in University, but he's curious about what he may have to take next year. He would have to navigate to the undergrad calendar for Engineering and look at his stream and look at the list of all the courses he would take. Now this would be a pain from a visual standpoint, as the user would have to go through and parse which courses are relevant to his second year, does he have the prerequisites, is there courses that prevent him from taking others. Sadly, the only way of

knowing the answer to all the questions would almost open the course description and read all information which wastes a lot of the user's time because they probably want to enjoy his break/vacation or he has other work to attend to and only wants to allocate 5 mins of research. But let's say this user uses his time effectively, grabs all the information he needs, writes it down on a note and keeps that note in a safe place so that way when course enrollment rolls around he's ready to just pick courses early and not have to worry about picking the right courses.

Returning Student: A student who has not been enrolled for at least one semester in a University. Students who have taken time off may have done so to look after family members, to travel, or due to health or financial needs. In all cases, students in this position would need to add their completed courses in order to assess the academic road ahead. By understanding how they could plan out their remaining courses, they would get a sense of the time and financial costs associated with finishing their degree. This user would be feeling a sense of determination because they just want to complete their program with as little breaks as possible. Now as to why they want to finish quickly can depend on the situation why they took a break initially, they could've taken it to deal with family, health, or financial issues but in any case, they figure degree is the first step in helping with those issues.

Scenario: This would be similar to or a combination of a new student and a current student. This person wouldn't be curious about what the program is and how to prepare for it; they've already started for at least one semester and have

a feel for university workload and expectations. Similar to the current student, aside from the curiosity, they would want to know exactly what they need to take and how long it's going to take them to do it. They could have family issues at home that haven't been resolved and completing their degree could help with the situation or at the very least, get that off their mind so they can focus on the issues at hand. In this case, the user might favour courses that have a high success rate so that way even if they do take that course, then they can still partition time for other activities such as visiting family or finding a part-time job to help with financial needs.

Affinity Diagram(s):

What is important to students?	Factors that students consider when choosing courses.	Degree planning and progression strategies.	Difficulties that students face with their degree planning.	Significant factors that students must consider when planning their degree.
Work/life balance.	Difficulties.	Populate time table and rearrange plan each semester.	Wish they had more information of equivalencies.	When can I finish?
Fair even workload.	Professor, a professor can make or break a course.	Take four courses a semester instead of five, delaying graduation.	Time table conflicts.	That missing a course or dropping a course will not affect the chain of pre-reqs.
Good grades.	How many courses is this particular course a pre-req for?	Register for five courses, and drops one each semester.	Availability of classes.	
Electives that relate to core classes.	By semester availability? Is it only available one semester a year?	Taking summer courses to speed up the progression of the degree while ensuring that workload remains balanced.		
Centralized registration/planning system. (eg. Electives and engineering courses are in one place.)	Location.			

Features students look for in our degree planner design.	Concerns that students have in our degree planner design.	Features that students appreciate in our degree planner design.
Interactive	Clutter	Overload option.
Display useful information	Learning curve.	Class search.
Separate electives from degree courses.	Information overload.	Displaying the time table.
Getting pre-req information for each course.	More specific fields within the search are desired to minimize scrolling.	
Clean layout and design.	Elective selection tool.	
Colours to convey information.	Displaying and conveying how courses are interconnected on the main degree planner screen.	

Interviews:

Script:

1. What stream are you currently in? **OR** What was your stream when you were in engineering?
2. How many years of study have you completed in engineering? **OR** How many years has it been since graduation?
3. Did you deviate from your initially planned degree path during the course of your engineering studies?
4. If you could go back in time when you first planned your courses at the beginning of your university career, what is some choices that you would've made differently given the information you have now?
5. What do you regard to be the most challenging aspect of planning what courses you wish to take for the next academic year? What do you think

would make this easier? (Alternatively: What would you ask someone to design?)

6. What factors do you consider when picking each course?
7. Are there any courses that you wish that you took at a more optimal time in terms of your degree planning?
8. How often do you rearrange the semester plan, or move courses to a different semester?
9. Go over each of the four prototypes and ask;
 - a. Do you think this prototype enables you to access all of the relevant information with ease?
 - b. What do you think could be more clear with this prototype?
 - c. What do you like about this prototype, if anything? What features should we keep?
 - d. Do you have any suggestions or concerns about this prototype, if any? What features should we change?

Interview 1 - 2018-02-06:

1. Aerospace Engineering - Structures, Systems, and Vehicle Design
2. 4 years completed, currently in 5th year (4th year standing)
3. Changed from Communications Engineering.
Originally wanted to be in Aerospace, started with Communications to get into Carleton, then switched after first year
4. Take 4 courses per semester after first year. First year was easier, but in 2nd year and after, having 4 courses per semester was optimal for getting good grades and managing workload.
5. Scheduling in regards to class conflicts (classes offered at the same time), choosing professors.
Knowing further ahead of time when a class is scheduled for.
6. When the class is scheduled (what time), availability (is it offered this semester), location (where are the classes held), which professor is teaching the class, is the course required for a course I need to take next semester or next year.

7. There was one class I wanted to take in an earlier semester but there was a scheduling conflict with another course I also needed so I had to take it later.
8. Drop a course in most semesters (register for 5 courses, drop one course that is not a prerequisite for courses registered for next semester).
9.
 - a. Do you think this prototype enables you to access all of the relevant information with ease?
 - i. Prototype 1: Yes: its interactive, displays lots of useful information (professor name, class time, class search...).
 - ii. Prototype 2: Yes, displays same good info from prototype 1.
 - iii. Prototype 3: Yes, less cluttered, information is easily accessible.
 - iv. Prototype 4: Not as easy as previous prototypes, slightly more difficult to learn features but once learned would be very useful
 - b. What do you think could be more clear with this prototype?
 - i. Prototype 1: How to add classes to the planner (dragging classes to planner not intuitive)
 - ii. Prototype 2: How to choose between different sections for the same class (ENG 1000-A, ENG 1000-B)
 - iii. Prototype 3: How to add additional courses if you want to overload.
 - iv. Prototype 4: No, just requires a bit of time to learn features.
 - c. What do you like about this prototype, if anything? What features should we keep?
 - i. Prototype 1: I like having class search on the degree planner, selecting classes to view information about them.
 - ii. Prototype 2: Having next semester fill with courses that have prerequisites met and are available for registering in. I like the different sections for degree courses and electives.
 - iii. Prototype 3: I like clicking on a course, and getting prerequisite info, minor and double minor, options button, hovering over course to get details.
 - iv. Prototype 4: I like clicking to see prerequisites, the time-table, number of credits needed to complete degree.

- d. Do you have any suggestions or concerns about this prototype, if any? What features should we change?
- i. Prototype 1: How to register for courses, there should be something that allows you to register for courses that you have added to your planner.
 - ii. Prototype 2: Arrows between courses can get messy in Engineering. I like prototype 2 better than prototype 1.
 - iii. Prototype 3: Not really.
 - iv. Prototype 4: Not really. I liked this one the best.

Interview 2 - Lamis Al-Dib:

1. Computer Systems Engineering
2. 5 years to complete 4 year degree, done by June 2016
3. Remained in the same degree throughout, considered switching but thought against it
4. Course planning when starting university did not deviate much from the prerequisite tree provided, as there wasn't much wiggle room for course choice till the final year.

However, if I had the foresight I would have done the following:

- structured my courses in a way that would have helped me finish in 4 years: taking five instead of four per semester (although difficult with conflicts and heavier course load), more summer classes (though few were available)
 - being more selective with engineering electives, having more detailed information on equivalent courses (SYSC, COMP, ELEC) to find ones that count towards my degree as well as most useful for my field
5. Most difficult part is the availability of classes and getting around conflicts. It is difficult to shuffle a course that is only offered one semester a year and is a prerequisite. I would find myself planning the remaining courses around it.
 6. Primary consideration would be the prerequisite chain, as deviations can easily throw the course plan really off. Secondary is the professor teaching the class, as I found this makes or breaks the experience with the course.
 7. Yes, there are several courses I would take at a different time if I could go back. They are SYSC classes in my first two years where I could have built a better foundation, had I known which professors would have provided that. Besides that, wishing I took courses earlier if I knew how to fit them in and how the rest of the degree will play out.

8. I think each year of school I would have dropped and postponed one class to the following semester, or next year if unavailable.

9.

a. Do you think this prototype enables you to access all of the relevant information with ease?

- i. Prototype 1: Information is all on the page and clearly sectioned. Student may not require all that information in front of them at all times, preferably as needed
- ii. Prototype 2: Yes, displays same good info from prototype 1.
- iii. Prototype 3: The tool would focus its purpose to overall planning of courses in the degree, rather than enabling more granular selection of professors/sections/schedule. This is not a bad thing at all, giving it a defined functionality and removing clutter. However, there should be a way to navigate directly to registration/ timetable planner (can show a pre-populated schedule at first)
- iv. Prototype 4: Same thoughts as previous prototypes

b. What do you think could be more clear with this prototype?

- i. Prototype 1: It may make more sense to go from top to bottom, rather than vice versa. Better yet, left to right by rearranging it as a landscape layout.
- ii. Prototype 2: Compared to P1, additional sections make it feel more cluttered with the addition of the electives section. Some programs will benefit more than others with separating compulsory and elective classes (engineers have none :(). Maybe this can be an optional layout that can be enabled or disabled by the user.
- iii. Prototype 3: Clean design Follow the left to right, top to bottom arrangement which is a natural way to scan the page
- iv. Prototype 4: Scroll bar

c. What do you like about this prototype, if anything? What features should we keep?

- i. Prototype 1: Straightforward and intuitive in terms of design. Drag and drop is the way to go, but maybe also

- add an option to “add course” through an additional button on the class search box
 - Color legend is useful. Maybe distinguish different course departments through border colors
 - Prerequisite arrows help with visualization and decision making
 - ii. Prototype 2: An additional color to show registered courses. Students should be able to see what's already in progress.
 - iii. Prototype 3: Autogenerated schedule is a good feature
 - iv. Prototype 4: Use of scroll bar and collapsible sections is a great design choice, as it would only appear as required for the user's reference. Options to filter what is displayed gives flexibility and more control for user
 - d. Do you have any suggestions or concerns about this prototype, if any? What features should we change?
 - i. Prototype 1: Class search should have more specific fields (if you know the course number/section- >find directly)
Usage may require lots of vertical scrolling. The layout may not be friendly when in full screen. Suggestion is allowing the option to see the first 8 semesters as an overview, or zoom into subsections with the ability to scroll through the left half.
Student timetable looks like it would be squished, maybe that area can expand. Adding another state to color code for in progress courses
 - ii. Prototype 2: Can potentially be messy
 - iii. Prototype 3: Course info boxes would continuously cover parts of the page if the cursor moves slowly through (may be annoying and unsolicited). The information would also take up a lot more space than anticipated.
 - iv. Prototype 4: Navigation to course registration/timetable worksheet

Interview 3 - 2018-02-08:

Q1: Program info

I am in the computer Engineering Stream

I have been in for 2.5 years

Q2: what were the things that changed during your years of education

The path is pre planned to be linear, and if you run into issues for taking a course, you have a domino effect, making it such that now that you lack a prerequisite for a number of courses, you fall behind at least by a semester, if not a whole year in your educational trajectory. Courses for engineering are not offered over the summer thus compounding the issue

Q3: if you could go back in time, course decision wise, what would you do

All I would have done differently was to pick different extracurricular courses that would help towards making me a better student for my core classes.

Q4: what do you consider to make planning for your courses for the next year

- Some courses can only be registered through the engineering course portal, and some of the electives can only be enrolled through the regular CULean portal
- What would be really helpful in a new system is a centralized place where both engineering and elective courses could be viewed and enrolled in, allowing you to see the conflicts between the eng to non-eng courses.

Q5: Information needed on site:

- Give a reasonable estimate of course requirements.
 - More clear for group work for building a group
 - Double pass

Prototype questions

"I like prototype 1 and 2"

"Prototype 3 and 4 look too much like the tree given in engineering and as such doesn't like it"

I like 1 more than 2:

- *Only issues is with adding elective course. Suggestion is to add a sidebar for adding elective courses. Have a drop down of electives available that semester, query from carleton central, giving the type of elective and when it is offered.*
- *"I like to see how things are interconnected"*
- *"May want to have dashed lines to indicate concurrent taking of course*

Interview 4 - Ramya Peri:

1. Biomedical & Electrical engineering
2. 2015 - 3 years
3. Yes, it was a low gpa. I applied to aerospace eng and my gpa was too low for it, and same for biomed mech eng, so I stuck with elec. (On clarification) Not much. Went along with whatever they set it as.
4. I would have tried to do a minor, even if I had a full course load and had to take 6 so that I would have expertise in a variety of things when I graduate.
5. To be honest Carleton made it quite easy, as they pre-planned it especially for engineering. (With added questions). They should give more leniency, there was a lot of planning towards the first few years and towards the fourth year there was more leniency towards choosing courses. (What would make planning easier). Crn number was annoying, extra steps to register was annoying. It would be easier to see what courses I need together with where I want to add it. It was in a list form and I would prefer it was in a timetable form where it was colour coded.
6. 2 major things, were definitely the professor, would look up his rating on ratemyprofessor.com and then go about it, the 2nd thing was timing. Knowing myself I knew that if it was an early morning class I would most likely be late for it, or inclined to skip it. I learned this the hard way, through the first few years I tried to get everything done before 5 but I realized that as courses kept getting harder I needed a break in between just to process, read assignments or just eat lunch.

7. Yes, 2 courses. 1 course which I considered to be the hardest in my program that was offered at 8:30 in the morning. I would prefer to have taken it later on in the day. Part of the reason is that that particular semester or that whole year was so busy that having it during a later time in the day would have lessened the stress that I already had with the overload of the courses. There was this physics class in first year that I decided to take late at night around 8 pm, reason being I'm not an early morning person, but I realised that in this case I should have taken it in the early morning as the professor wasn't very good. I picked convenience over quality which I shouldn't have done. I do wish I took some of the courses in the summer. I have been told that courses in summer are quiet lenient and would definitely lessen the course load on me.
8. Quite a lot. Even though the courses were pre-selected for me I make sure that they fit my convenience. As long as the quality of the professors teaching is good. (On clarification) Availability was a big concern, course not being open for registration/full with a professor I wanted to take it with, especially in the first 2 years of engineering.
9.
 - a. Do you think this prototype enables you to access all of the relevant information with ease?
 - i. Prototype 1 & 2: For prototype 1 yes, my question is will I be able to register or just for my viewing. I would prefer to be able to register.
 - ii. Prototype 3: I feel like it does give me a lot of information, for someone who is more left brained who likes to look at information instead of pictures.
 - iii. Prototype 4: I like how it's not just courses, you have a box on to the right with the courses that are being added. 3 is the worst one I find.
 - b. What do you think could be more clear with this prototype?
 - i. Prototype 1 & 2: Not much. it gives me all the relevant information.

- ii. Prototype 3: I get it that you guys are going for a desktop version with number 3, but having all that information like program minor, double minor at the top is a little too much information to have. And why does your options icon look like cheese.
 - iii. Prototype 4: Same thing. If you look at most websites they mostly have the search bar to the top right corner, so having it in the middle does affect it even as a small detail.
- c. What do you like about this prototype, if anything? What features should we keep?
 - i. Prototype 1 & 2: I like how when I click on the a particular course it'll fill the information. Because a lot of people are visual learners.
 - ii. Prototype 3: Throw it away.
 - iii. Prototype 4: I like how one side is showing all the prerequisites and on the other side it's showing the course details timetable, details, I like that it's side by side. Another thing is I like how it's block form, this block is for timetable only this block is for student information. The main thing is that it's in block form that's for sure.
- d. Do you have any suggestions or concerns about this prototype, if any? What features should we change?
 - i. Prototype 1 & 2: Right now it's showing how the courses are connected to the prerequisites, I don't see anywhere where it shows all the timings available for the course, preferably like a timetable as well.
 - ii. Prototype 3: throw it away.
 - iii. Prototype 4: Change the cheese icon. Put the search bar on the right top corner. Keep courses drag and droppable

Interview 5 - Sagar:

1. Aerospace Engineering – System Structure (stream, confirm!)
2. 4th year standing, but in 5th year.
3. Originally was a communication engineer. Wanted Aero, got into the school as a communication engineer.
4. It would be nice to just take 4 courses per term, was a comment from him.
Once had to take 6 courses and an online co-op.
5.
 - a. Time scheduling and conflicts.
 - b. Choosing the best sections (the one with the best professors) is a must.
 - c. Wish they provided the semesters that each course is available.
6.
 - a. Schedule
 - b. Availability
 - c. Location
 - d. Also factor in pre-reqs.
7. Uniform courses in first year, just basic engineering courses for the most part.
8. His strategy is to fill up semester and drop courses later based on difficulty.

Part 2: Initial Design Alternatives

Design Alternative 1 Rationale

This design alternative is called the All-in-One design, the rationale being to attempt to incorporate everything a student would need or may find useful into a single window as opposed to navigating through a series of different windows while using the degree planner. The advantage of having everything in one window is that the user always has access to the general information without having to search for it by navigating through an application with different pages or windows. The problem with attempting to have so much information in one window, as learned through the interview process, is the planner could appear cluttered or the user could suffer from an information overload.

To avoid these problems, this design takes advantage of the minimizing and maximizing functions people have come to expect from all generic windows. Minimized versions of the Course Information, Class Search, and Student Timetable windows show enough detail to allow the user to understand what functionality those minimized windows provide while also being able to use some of the basic features of those windows while enjoying access to the rest of the degree planner at the same time. If a user wants access to more functionality or ease of use for one of the windows, they can maximize it to allow them access the information and features in a much less condensed format.

The primary way to add courses to the planner is to drag-and-drop from the class search window. Several students that were interviewed did not find this as intuitive as we had anticipated, so an “Add course” button was also added to the Class Search window to allow students to add classes by that method as well. A tooltip was also added to the empty class boxes which instructs the user to drag a course here, as well as a tooltip on the courses in the Class Search window telling students to drag them to the Degree Planner window.

The design also makes use of several different colours to indicate the state of courses on the degree planner. Several more colours were added from our initial prototypes due to positive feedback from the students interviewed on the use of colour and requests for several more colors to indicate other states they thought would be important to include.

One of the main advantages associated with this design rationale is the amount of information and features available while never requiring the user to navigate away from the main degree planner window. Students have access to everything they may need to help them plan their degree in one convenient location. Another advantage of this design is the multiple ways to add courses to the degree planner, through use of the drag-and-drop method or by clicking the Add Course button. Hovering over different parts of the degree planner cause tooltips to appear which also guide the user in the use of the planner.

Low Fidelity Images

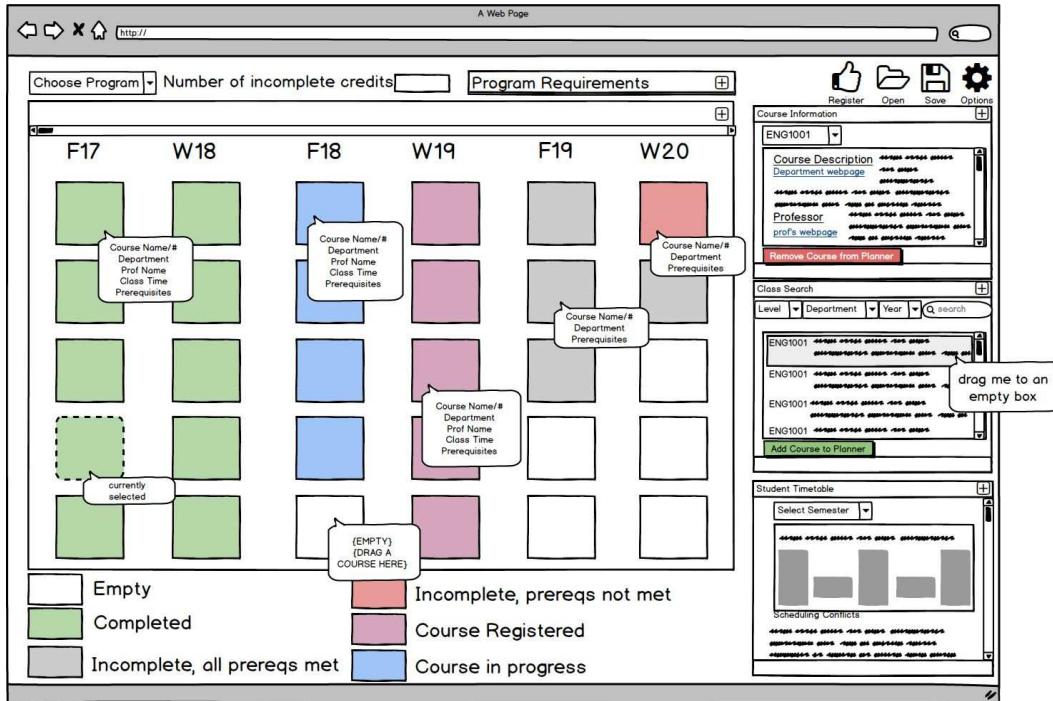


Figure 1. Main application window

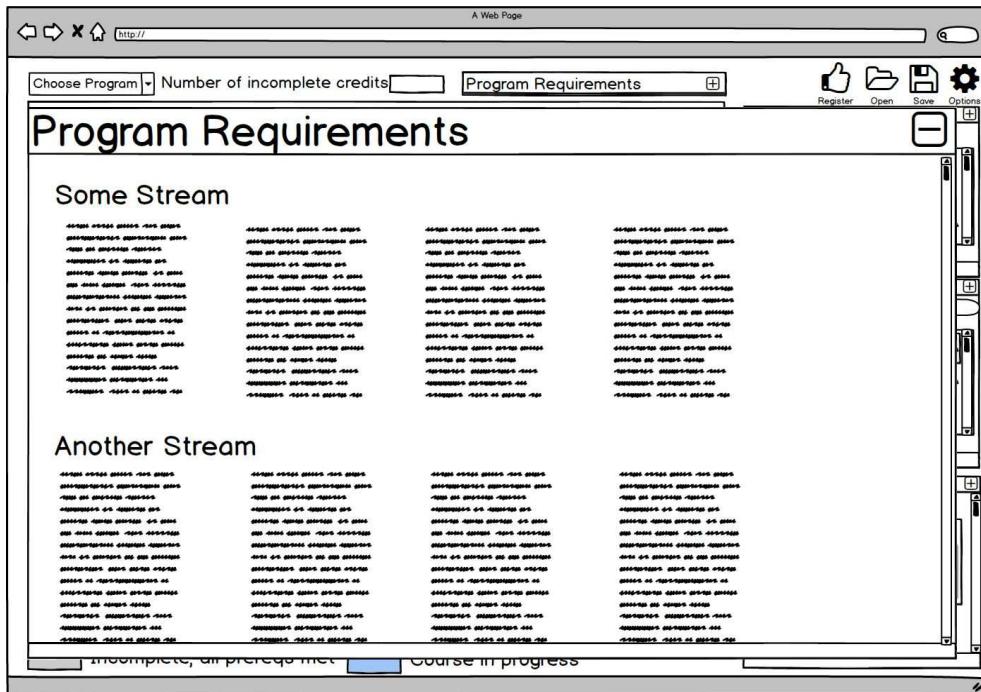


Figure 2. Program requirements window

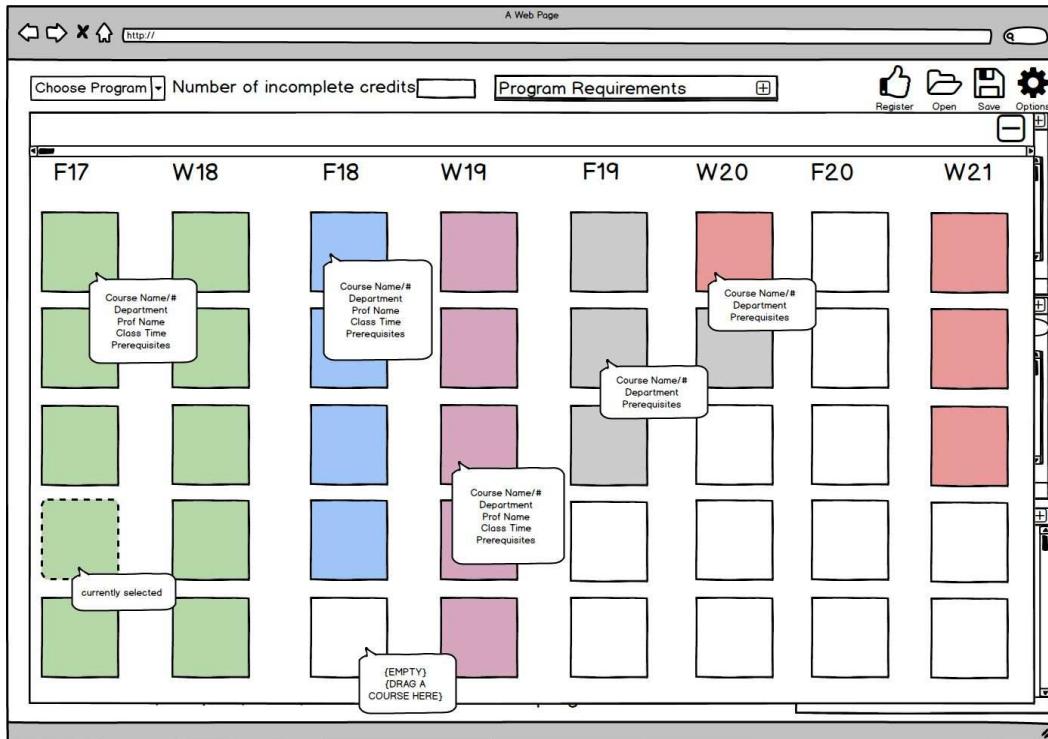


Figure 3. Degree planner window

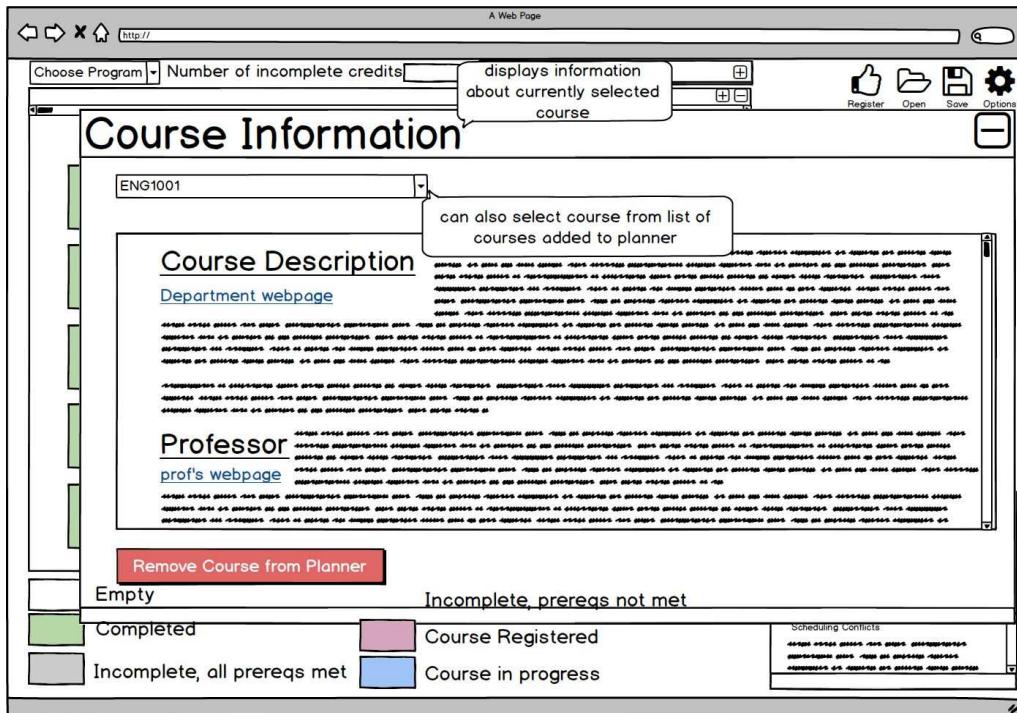


Figure 4. Course Information window

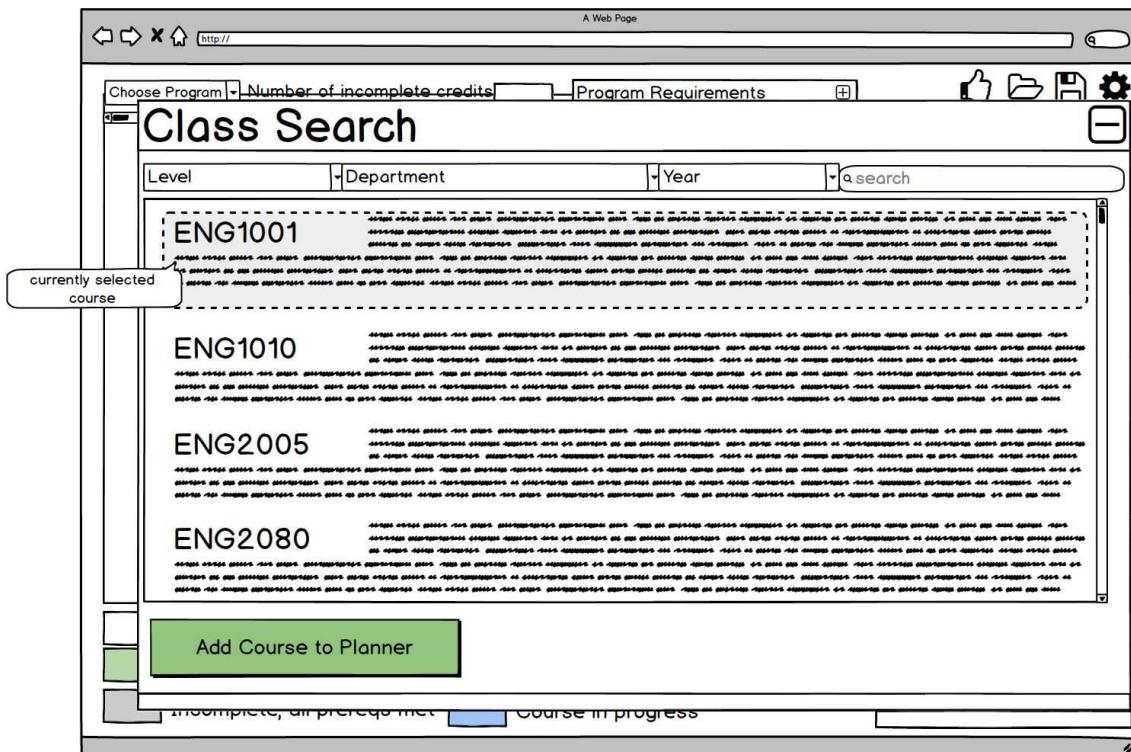


Figure 5. Class Search window

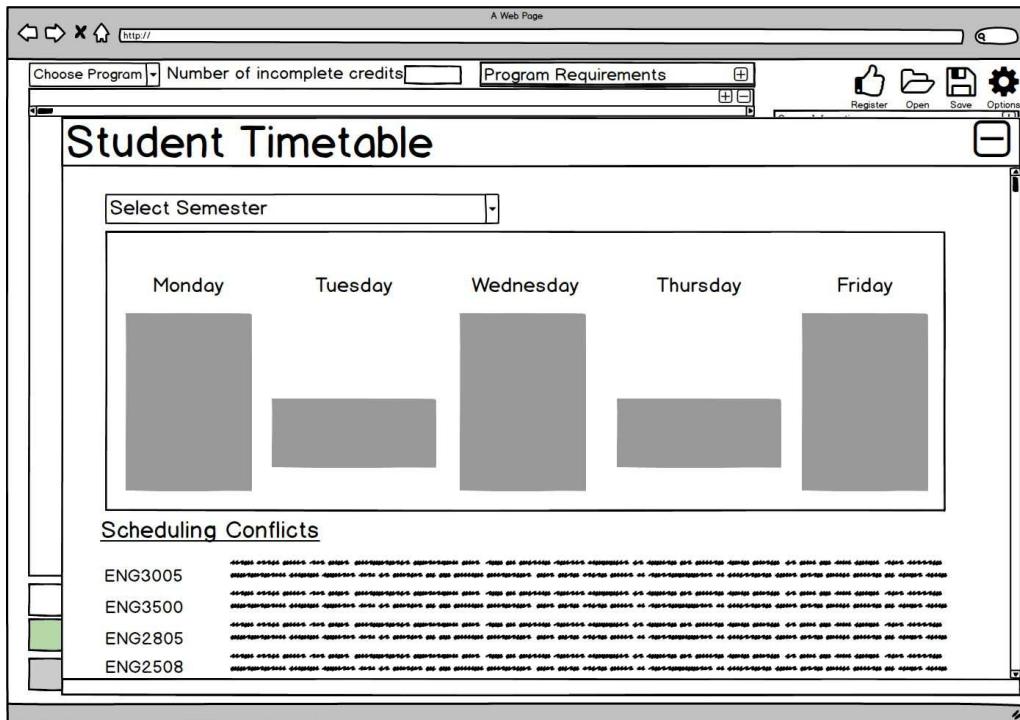


Figure 6. Student timetable window

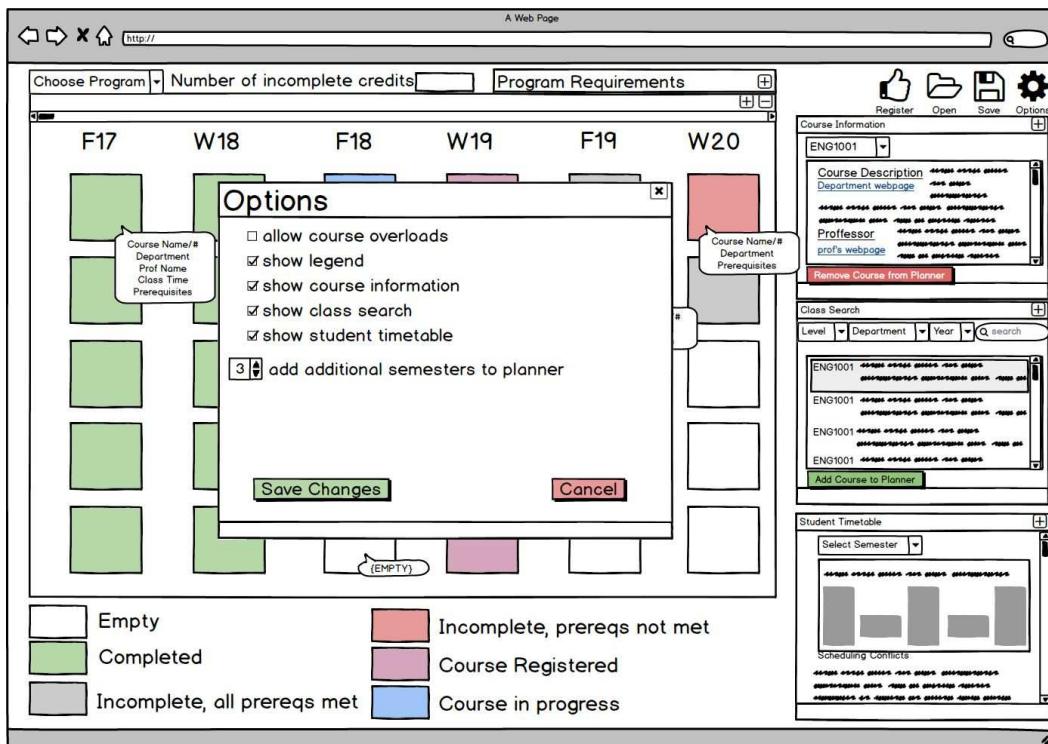
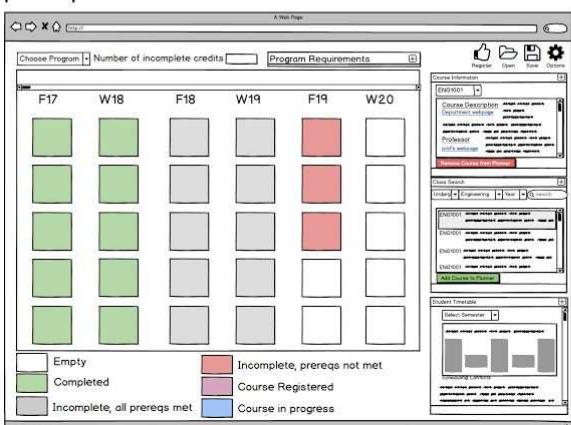
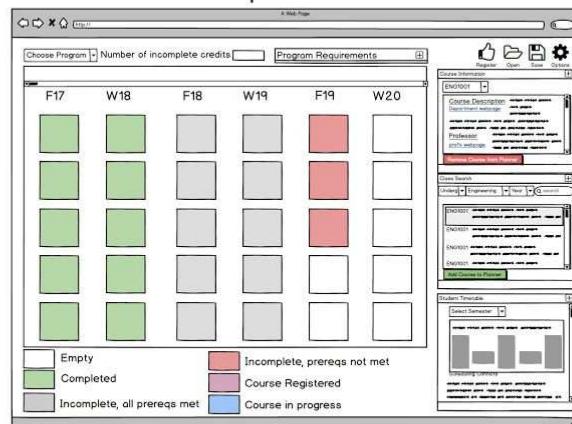
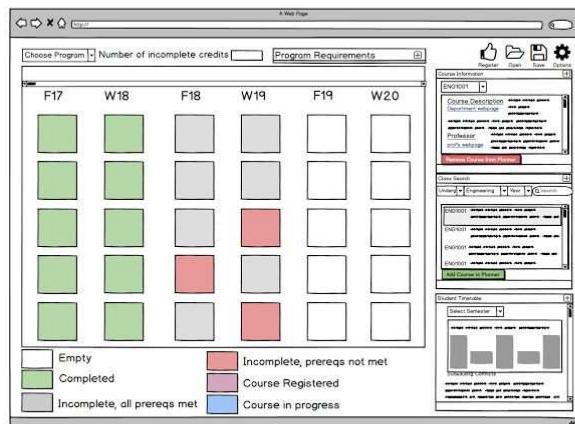
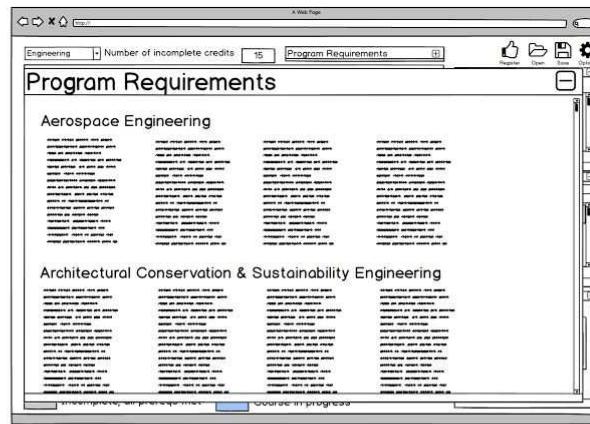
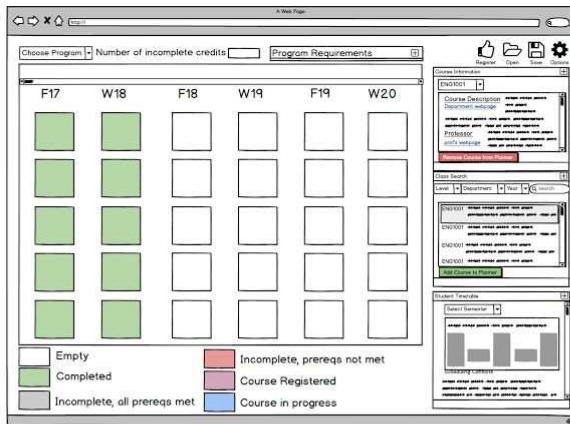


Figure 7. Options window

StoryBoard: Current Student Scenario



Design Alternative 2 Rationale

Personalizable Map

Through the interviews conducted it was found that the interviewees leaned towards either 1 and 2, or 3 and 4 from the basic prototype images. Design alternative 2 focused on taking the most liked features of 3 and 4 as well as input from the users as best as it could be included. Design 4 was the more cluttered of 3 and 4, but better liked for the feature of having a worksheet and collapsible windows.

The compromise made comes in the form of collapsible tabs, accessible to the user at all times and only when they need. It was considered that the user may be focused on working on their earlier or later years in all likelihood for a period. Therefore collapsible tabs were made snappable to either side as they may want their working area of the semester map visible with their worksheet and course details open. This is a feature in addition to the scroll bar and the resizing of the tabs which they may also make use of. In addition Summer Terms were made available for expansion for the User to use at their own leisure depending on their individual situation. Course overloads are now implemented in the same manner instead of through options.

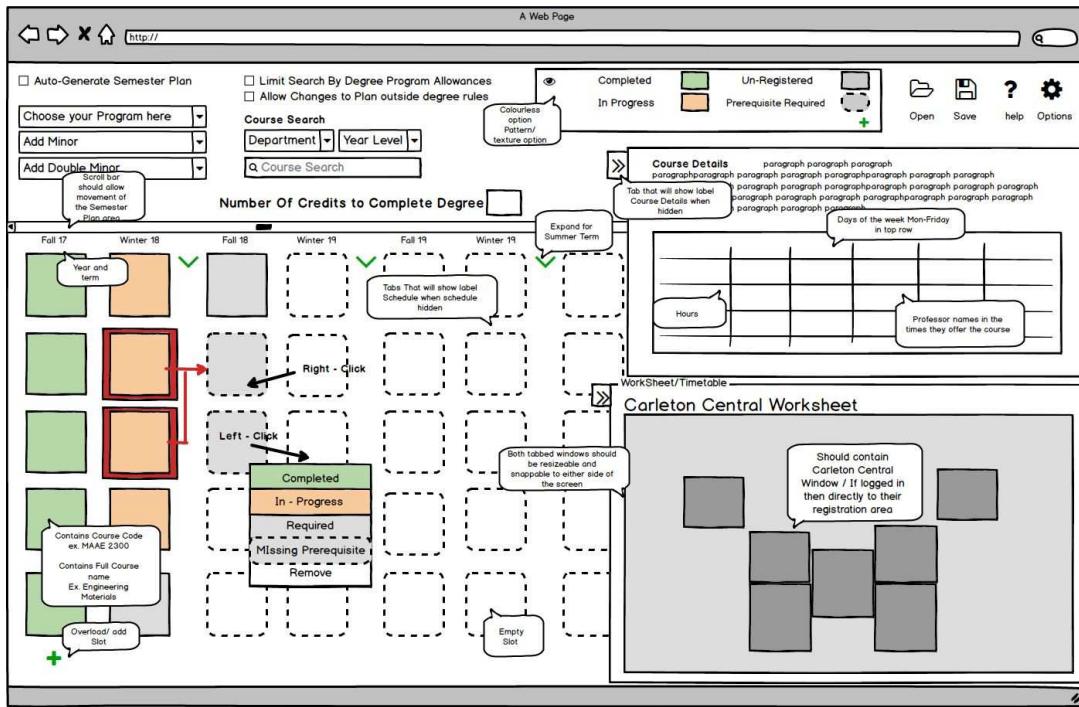
A focus was put on what the user may find most useful but also on playability in this alternative. An attempt was made for the user to feel that they can do more with this design than the main needs it tries to meet, through the various customization. There is a possible use for the custom labeling working similarly to a hashtag, in that in the future it may be allowed for them to see how certain courses have been custom labelled by other students anonymously. Ex. Courses marked as easy, or no exams, or heavy

reading. They could then use this as feedback from other students when deciding on a course, looking for a course, or just curious. The custom labels feature involves choosing the texture/line style of a course box and its colour as well. One consideration taken was Users who may have more difficulty perceiving colours and may wish to use textures, which would be allowed through the style box on editing labels.

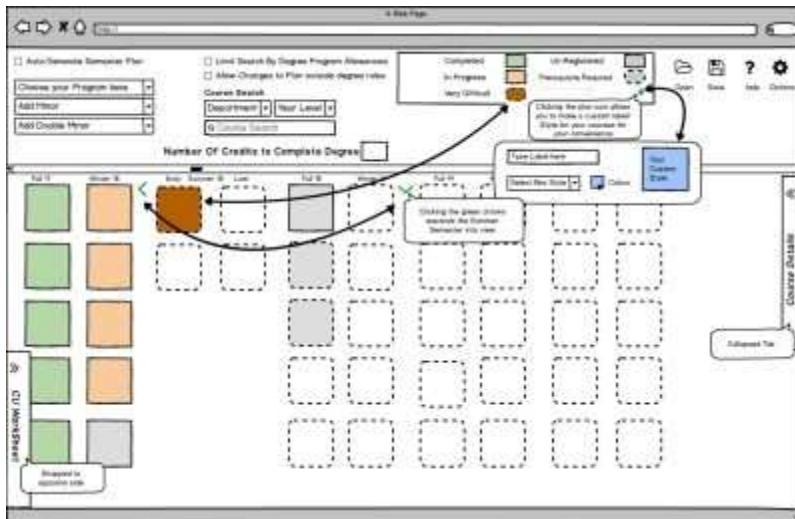
According to the interviews it seems the Users would appreciate to be able to clearly see what time a course is offered and by whom. This was incorporated in the form of a table in course details. Side by side with the worksheet this should allow for easier comparison with their actual Carleton Central worksheet. This would allow them to make the decision of whether the course is offered by professors and at a time where they find it works for their schedule.

The Options window is where the User may make use of less used features and or capabilities. Some more used options are put near the top of the window in the form of checkboxes. These include auto-generating schedules, disabling or enabling program rules (which would put a lock on what you can add and not to the map, and a course search limit. The course search limit was added because it was indicated through anecdotal evidence and hearing complaints from students about the Carleton Central search including all courses available and or courses they're not allowed to take within their degree program. The features that were well liked were mainly kept the same, with some cleaning up and moving around. All in all, this design alternative would be suitable for users looking for customization options as well as convenience.

Low Fidelity Images



*Note: The tooltips provided in this image are to understand the use of the features, on making the WebApp these would be worded differently and there would be more.



Custom Labels/Boxes

This screenshot shows the expanded view of course details. At the top left, there are search filters: 'Auto-Dimension Semester Plan' (unchecked), 'Link Search By Degree Program' (unchecked), 'Choose your Program here' (dropdown menu), 'Add Major' (dropdown menu), 'Add Minor' (dropdown menu), 'Degree Name' (dropdown menu), 'Department' (dropdown menu), 'Year Level' (dropdown menu), and 'Current Semester' (radio button). Below these are sections for 'Number Of Credits to Complete' (grid) and 'Courses Details' (table).

Courses Details

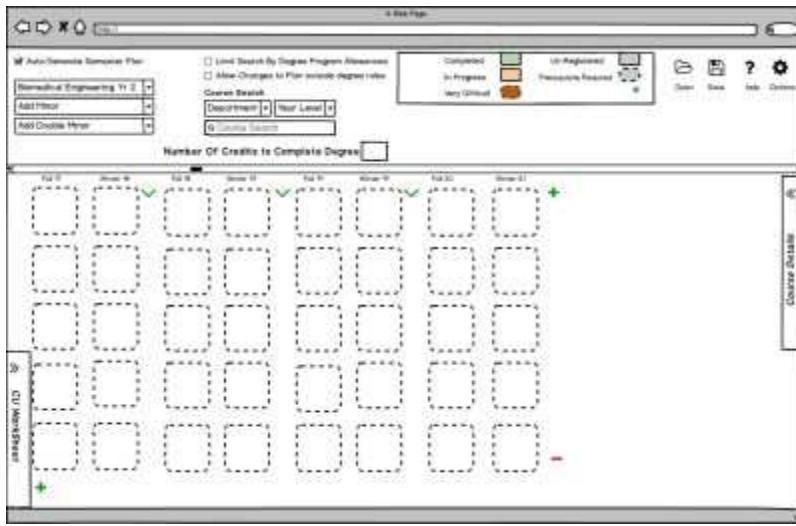
CODE	NAME	HOME	TUITION	WIDENEN	TRIMMED	FRESH
630-X00:	Professor Y Sac					
100-122	Professor Y Sac					
430-150	Professor Y Sac					
1100-10-0	Professor Z Sac					
1200-10-0	Professor Z Sac					
1110-11-00	Professor Z Sac					
11-00-10-0						
12-00-10-0						
13-00-10-0						
140-150						
150-200						

Course Details Expanded

This screenshot shows the 'Options' pop-up menu. It includes sections for 'General Options' (checkboxes for 'Use terms for auto-completed courses', 'Use custom LOR types', 'Right Click mouse hover highlights until right click again', 'Allow original LOR edit', and 'Link option for course codes to plan'), 'Feedback' (text input field 'Give us your feedback here' and 'Send' button), and 'Help' (link 'Get help on this feature'). A callout bubble points to the 'Feedback' section.

Options pop-up

StoryBoard



Storyboard 1 - Returning

student chooses program and year from program drop down box and student has checked Auto-Generate semester plan



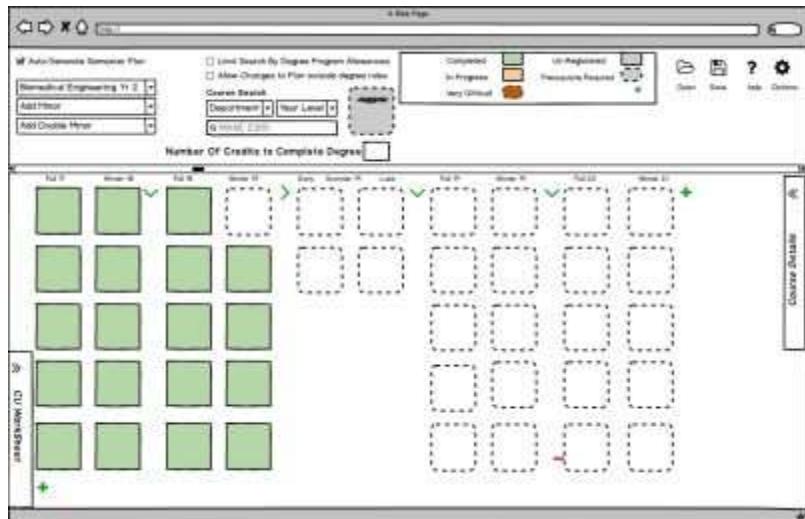
Storyboard 2 - The map

auto-populates with generated semester plan based on program and year



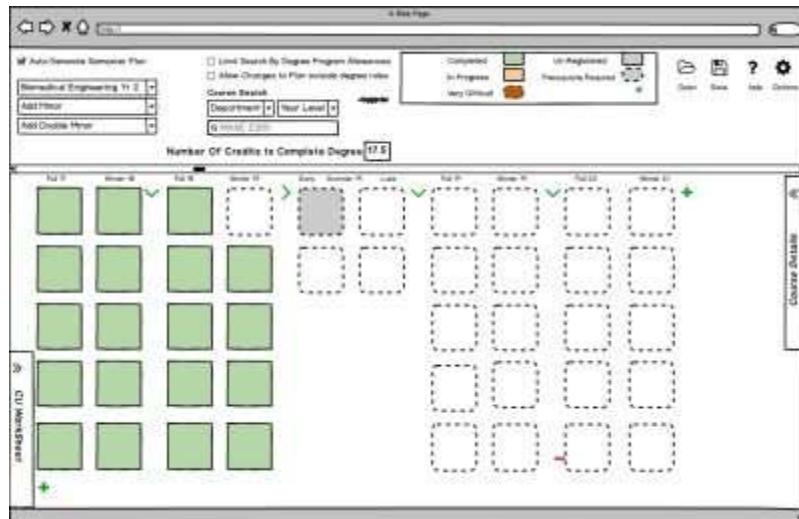
Storyboard 3 - Student

removes course he/she hasn't done from the map



Storyboard 3 - Student

searches for course from course search



Storyboard 4 - Student drags appearing box to snap in place on map (Note: box should have had solid and not dotted line)

appearing box to snap in place on map (Note: box should have had solid and not dotted line)



Storyboard 5 - Student

left-clicks course to see what prerequisites it requires (Note: see Storyboard 4)

Storyboard: Returning Student Scenario

*Note: The tooltips provided in these images are to understand the use of the features, on making the WebApp these would be worded differently and there would be more.

3: Prototype Evaluation and Iteration

All-in-One Cognitive Walkthrough

Tasks:

Identifying courses needed in program/stream

- User should know: What program/stream they are interested in
- User learns: which courses are required
- User clicks on icon to expand program requirements, uses scrollbar to navigate to their stream and sees list of required courses
- No problems with usability or learnability encountered, same for all personas

Adding courses to degree planner

- User should know: What courses are needed in program/stream
- User learns: how to add courses, through using button or dragging courses
- User clicks on icon to maximize Class Search window, searches for class, can either click button or minimize window and drag class to empty box
- No problems with usability or learnability encountered, same for all personas

Moving courses around on the degree planner

- User should know: Are there any courses that do not have prerequisites met? Would they like to have more/less courses in a semester?
- User learns: how to move courses
- User can drag courses around, as shown by tooltip from hovering over course box
- New students may not intuitively understand how to drag courses around, Current and Returning students should be able to remember this from having used it before

Checking course prerequisites

- User should know: Which course they wish to know prerequisites for
- User learns: how to learn where to find prerequisite information for a course
- User clicks a course to select it, expands Course Information and sees the prerequisites (method used by new user)
- Current or Returning students that have used the planner before may know to hover over a course on the planner to get prerequisite information

Checking course information (prof, location, time)

- User should know: Which course they need information about
- User learns: how to check information about a course
- User clicks a course to select it, and expands the course information window to see the relevant information
- No problems with usability or learnability encountered, same for all personas

Checking for time conflicts

- User should know: Is the degree planner for the current year filled with the courses they want
- User learns: if any courses have time conflicts
- User clicks on icon to expand user timetable, and scrolls down to view if there is any scheduling conflicts underneath the timetable
- new students may not know that course conflicts exists or that they would be found in the Student Timetable window, Current/Returning students would be familiar with the system

Is the current degree planner plan valid for registration? (prereqs met?)

- User should know: Is there any missing prerequisites for courses in the degree planner for the current year
- User learns: if current planner is valid for registration
- User checks to make sure no time conflicts (as shown above) and then looks at the Degree Planner window to see if there are no red courses added to the current year
- No problems with usability or learnability encountered, same for all personas

Registering for courses on planner

- User should know: If the courses in the degree planners current year are valid for registration
- User learns: how to register for courses
- User clicks on the register button in the top right corner
- Same for all personas, problems may occur with linking the degree planner to the Carleton Central website to allow the degree planner to fill the worksheet and register for the student

Saving degree planner

- User should know: If they want to save to current degree planner
- User learns: how to save the current degree planner configuration
- User clicks the save icon

- No problems with usability or learnability encountered, same for all personas

Opening a saved degree planner

- User should know: If they have a previously saved degree planner they wish to open
- User learns: how to open a previously saved degree planner
- User clicks the open icon
- No problems with usability or learnability encountered, same for all personas

Allowing course overload option

- User should know: If they are able/eligible to do a course overload
- User learns: how to enable course overload
- User clicks on options to open options window, clicks checkbox “allow course overload”, and hits “save changes” button

No problems with usability or learnability encountered, same for all personas

Design Alternative 2 Cognitive Walkthrough

Tasks:

Identifying courses needed in program/stream

- User should know: What program/stream they are interested in
- User learns: which courses are required
- User clicks Auto-generate semester plan box to fill degree planner
- Problems: Not intuitive, New user may only want to see first year courses, Current or returning students may have courses already completed

Adding courses to degree planner

- User should know: What courses are needed in program/stream
- User learns: how to add courses, through using button or dragging courses
- User types in course name in class search textbox...
- Problems: user needs to actually see a list of classes and how to add them to worksheet once they completed a search

Moving courses around on the degree planner

- User should know: Are there any courses that do not have prerequisites met? Would they like to have more/less courses in a semester?
- User learns: how to move courses

- User can drag courses around, as shown by tooltip from hovering over course box
- No problems with usability or learnability encountered, same for all personas

Checking course prerequisites

- User should know: Which course they wish to know prerequisites for
- User learns: how to learn where to find prerequisite information for a course
- User right clicks a course to get a menu, and clicks the missing prerequisites menu option
- New students may not intuitively try to right click a course to get a menu

Checking course information (prof, location, time)

- User should know: Which course they need information about
- User learns: how to check information about a course
- User clicks a course to select it, and expands the course information window to see the relevant information
- Problems: may want to add a maximize button to the window to allow the user to better view the text in

Checking for time conflicts

- User should know: Is the degree planner for the current year filled with the courses they want
- User learns: if any courses have time conflicts
- Not supported
- Needs some way to indicate classes in the current year have any time conflicts if they exist

Is the current degree planner plan valid for registration? (prereqs met?)

- User should know: Is there any missing prerequisites for courses in the degree planner for the current year
- User learns: if current planner is valid for registration
- User checks if there are no courses with dashed boxes added to the current year (no way to check for time conflicts)
- No problems with usability or learnability encountered, same for all personas

Registering for courses on planner

- User should know: If the courses in the degree planners current year are valid for registration
- User learns: how to register for courses

- Not supported

Saving degree planner

- User should know: If they want to save to current degree planner
- User learns: how to save the current degree planner configuration
- User clicks the save icon
- No problems with usability or learnability encountered, same for all personas

Opening a saved degree planner

- User should know: If they have a previously saved degree planner they wish to open
- User learns: how to open a previously saved degree planner
- User clicks the open icon
- No problems with usability or learnability encountered, same for all personas

Allowing course overload option

- User should know: If they are able/eligible to do a course overload
- User learns: how to enable course overload
- User clicks on green “plus” icon in bottom left corner of degree planner to add a 6th course to the planner
- No problems with usability or learnability encountered, same for all personas

Rationale For Choosing Design Alternative

The design we chose to proceed with was design alternative 1, the All-in-One design alternative. This was due to the design providing access to features like registration, which link the degree planner to the carleton central website and allow the user to automatically add courses on the planner to a worksheet for registration.

Another reason we chose the first design alternative was that we found it to be more intuitive than the second design. Although they both implemented most of the same features, usability and learnability were slightly better for the first design. There were several features of the second design that were very useful but took some time to

understand how they were to be used. The fact that all of the information was available at all times in the main application window was another reason we chose the first design. From our interviews, we learned that several of the students liked the designs that were least like the degree plans given to them by the Engineering department. They particularly liked the fact that these designs were interactive and had all of the information contained in one spot, which played a role in us choosing design one.

Wizard of OZ - Iteration 1

Current Student : Student finished first year, wants to know what to register for next year

Choose program from dropdown menu

- (Successful?): YES
- (Difficulties?): NO
- (User satisfied with how they accomplished action?): YES

Click on program requirements → opens window

- (Successful?) YES
- (Difficulties?) NO
- (User satisfied with how they accomplished action?) YES

Navigate to stream using scrollbar

- (Successful?) YES
- (Difficulties?) YES: need way to visualize stream requirements next to degree planner
- (User satisfied with how they accomplished action?) YES

User expands class search window

- (Successful?): YES
- (Difficulties?): NO
- (User satisfied with how they accomplished action?): YES

Course added to planner via drag and drop/button

- (Successful?)

- (Difficulties?): Add auto generated button to quicken manual process of adding each course into planner from the stream window
- (User satisfied with how they accomplished action?) YES

If red courses, where prerequisites not met, move them into subsequent semesters

- (Successful?) YES
- (Difficulties?) NO
- (User satisfied with how they accomplished action?) YES

Clicks timetable and views it for any scheduling conflicts

- (Successful?): Partially
- (Difficulties?) YES: If there is a conflict, there is no easy way to fix it. Solution is the display of alternative sections used to resolve conflict
- (User satisfied with how they accomplished action?) YES

User saves changes made to lock in work done. If registration available, user can enrol.

- (Successful?) YES
- (Difficulties?) NO
- (User satisfied with how they accomplished action?) YES

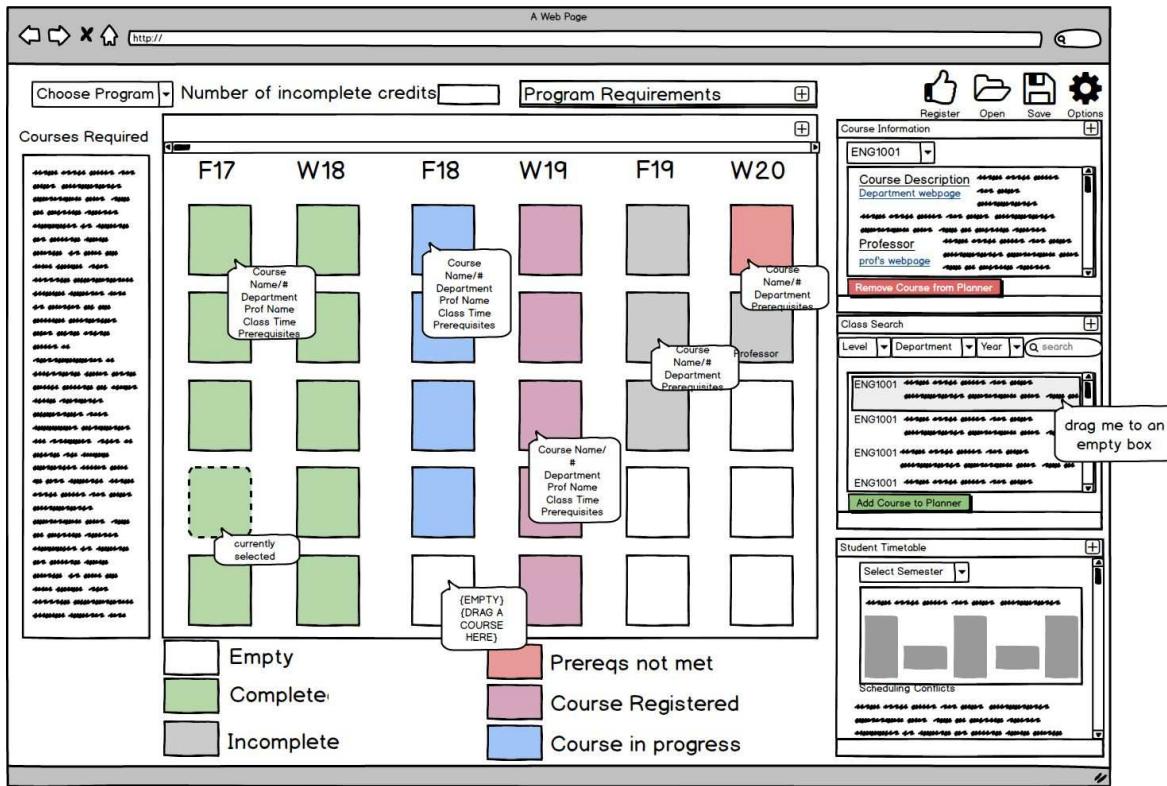
Changes made to Improve Design

-Add auto generate button to quicken manual process of adding each course into planner from the stream window

-Need way to visualize stream requirements next to degree planner

-If there is a conflict, there is no easy way to fix it. Solution is the display alternative sections used to resolve conflict

New Visual Elements



The motivation for this change was to allow the user to have an easy to view list of courses that are required. In the old design, the user would have to view required courses in the program requirements window, minimize the window to return to the degree planned while remembering the courses, then search for them. With this change the user can easily see the courses they need to add in the same window as the class search and degree planner.

This change allows users to automatically populate their degree planner with the required courses. We found this to be useful for new students who wanted a template to use as a starting point or for returning students who wanted to automatically fill in all of their completed courses in the degree planner.

This change allows students to actually do something about scheduling conflicts. In the previous design, they were only able to see if a conflict was occurring. With the addition of this feature, users now are presented with a list of alternative sections for the courses that have conflicts and a button to allow them to add them to the degree planner in place of the current course with the conflict.

Wizard of Oz - Iteration 2

Returning Student : Student finished first year, took a semester off, wants to know what to register for next year

Click auto generated planner: Populates all needed courses, and colors courses as they need to be : green complete, grey indeterminate, red lacking prerequisites

- (Successful?): YES
- (Difficulties?) NO
- (User satisfied with how they accomplished action?) YES

Recognizing being behind, user opts for course overloading on main menu

- (Successful?) YES
- (Difficulties?) NO
- (User satisfied with how they accomplished action?) YES

User drags courses for next semester into the current semester.

- (Successful?) Partially
- (Difficulties?) Yes, tedious to check for conflicts
- (User satisfied with how they accomplished action?) : Need a feature to auto detect course conflicts

User views degree planner for any missing prerequisites (red block)

- (Successful?): YES
- (Difficulties?) NO:
- (User satisfied with how they accomplished action?) YES

User views student timetable window for any scheduling conflicts

- (Successful?): YES
- (Difficulties?) NO:
- (User satisfied with how they accomplished action?) YES

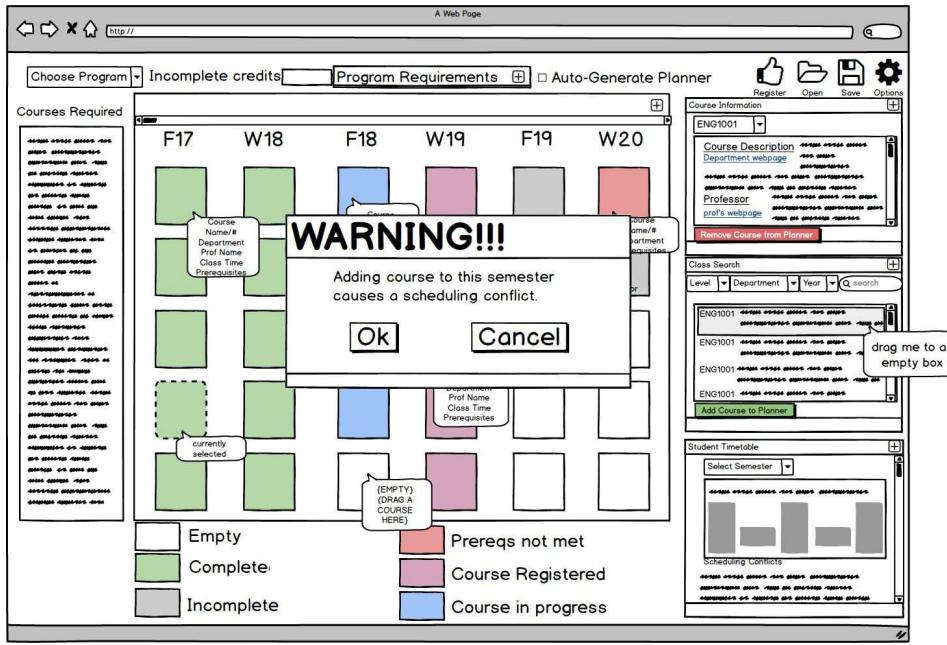
Save it and register for courses

- (Successful?) YES
- (Difficulties?) NO
- (User satisfied with how they accomplished action?) YES

Changes made to Improve Design

- Added a feature to auto detect course conflicts

New Visual Elements



The motivation behind this change was the fact that there was no warning system indicating a scheduling conflict when adding a course or dragging it from one semester to another on the degree planner. In the original design, users would no know about scheduling conflicts unless they checked the student timetable, and may have to expand the window if there were several to see them all. With this change, the user is notified immediately if any scheduling conflict occurs and enables them to take the desired action.

4: Usability Inspection Evaluation

Heuristics : Scale from 1 - 10, where 1 is least severe, 10 most severe

Sammy

1. Visibility of system status. (Provide Feedback)

The tool provides a means by which users can see errors in their course planning, using coloring where red equates to missing prerequisites and course conflicts.

Severity of 1

2. Match between system and real world. (Speak the User's Language)

The tool besides modelling the process by which students proceed through their education, also has an auto generate feature, taking users inputs and registering them for courses.

Severity of 1

3. User control and freedom (Clearly Marked Exits)

Users are presented with a save button, giving them the control to save a given state and leave the tool. Control is fully provided to users to arrange their schedule as they please.

Severity of 1

4. Consistency and standards (Be Consistent)

Throughout the use of the tool, there may be ambiguity of which next steps to take based on visual presentation of the tools sections. Overall though there is consistent logic in the tool

Severity of 3

5. Error prevention. (Prevent Errors)

The tool using a conflict checker and being integrated with CULearn ensures that errors are caught, and student are not inappropriately enrolled.

Severity of 2

6. Recognition rather than recall.(Minimize Memory Load)

Through displaying the course schedule alongside the degree planner, a user does not need to memorize the time table while adding courses to their degree planner.

Severity of 2

7. Flexibility and efficiency of use. (Provide Shortcuts)

Through allowing each student to examine a given degree offering in the initial use of the tool, flexibility is offered to see different options

Severity of 2

8. Aesthetic and minimalist design. (Why?)

The tool includes the bare minimum features needed to meet the goals of its users

Severity of 2

9. Help users recognize, diagnose, recover from errors. (Why?)

By coloring conflicts with the color red, users immediately are shown errors. Description of the error is not explicit, but instead implicit.

Severity of 6

10. Help and documentation. (Because you can't predict everything)

There is no documentation currently.

Severity of 10

Frerik Drumm

1. Visibility of system status. (Provide Feedback)

The current state of the degree planner dominates the main window. Colours in degree planner allow user to easily identify the state of courses on the planner.

Severity of 1

2. Match between system and real world. (Speak the User's Language)

The tool allows students to gather information from Carleton University resources, arrange courses, and to use the register function to add a semester's courses to a worksheet on carleton central for easy registration

Severity of 1

3. User control and freedom (Clearly Marked Exits)

User has the ability to add, remove, and arrange courses as they please. They also can use the auto-generate function to fill the planner to use as a starting point.

Severity of 1

4. Consistency and standards (Be Consistent)

The design takes advantage of minimizing and maximizing windows throughout most of the feature windows.

Severity of 2

5. Error prevention. (Prevent Errors)

There isn't much error prevention in this design. The focus is more on identifying errors and recovering from them, as opposed to preventing them. The course conflict warning window does allow user to cancel an action.

Severity of 4

6. Recognition rather than recall.(Minimize Memory Load)

Since there is a large amount of information coming at the user at once, this design relies on features being intuitive and easy to learn to have users understand the function of a feature just by looking at it rather than having to memorize how it works.

Severity of 2

7. Flexibility and efficiency of use. (Provide Shortcuts)

This design features icons that can be used to efficiently accomplish tasks. Having multiple ways to add courses (button or drag and drop) adds flexibility for users to choose the method that they prefer

Severity of 1

8. Aesthetic and minimalist design. (Why?)

Unfortunately this design isn't very aesthetic or minimalist. The approach is to include as much information in one place. The use of minimizing and maximizing windows mitigates this problem to some extent.

Severity of 7

9. Help users recognize, diagnose, recover from errors. (Why?)

Features like the course conflict warning window when adding or dragging a course into a new semester and the course boxes turning red help the user recognize and diagnose errors. In the Student Timetable window, the feature showing a list of other sections to register for if there is a conflict allows users to recover from errors.

Severity of 1

10. Help and documentation. (*Because you can't predict everything*)

Users can take advantage of many different tooltips that appear when hovering over different elements of the design, which indicate how these elements can be used. There is no official documentation for the design.

Severity of 5

Ryan

1. Visibility of system status. (Provide Feedback)

This system alerts users about errors in their course planning, using red coloring that signifies danger or warning, in regards to course/prerequisite conflicts.

Severity of 1

2. Match between system and real world. (Speak the User's Language)

The system allows an auto generate feature which takes users' input and registering them for courses as well as model the process of a student's registration.

Severity of 1

3. User control and freedom (Clearly Marked Exits)

There is a 'Save' button allowing the user to step away from the current state and the ability to revisit that instance at a later period leaving them a sense of control over planning.

Severity of 1

4. Consistency and standards (Be Consistent)

Throughout its use, there may be ambiguity of next steps to proceed because of the visuals of the tools menu. However, we expect that familiarity with other products will provide consistent logic when applied to the tool

Severity of 2

5. Error prevention. (Prevent Errors)

Using a conflict checker and using an API that integrated with CULearn's moodle ensures that errors are caught, and student are not inappropriately enrolled based on their information.

Severity of 2

6. Recognition rather than recall.(Minimize Memory Load)

Since there is a lot of information presented to the user, this design relies on features being natural and simple to learn to have users understand the function of a feature just by observation and intuition.

Severity of 2

7. Flexibility and efficiency of use. (Provide Shortcuts)

This design features icons that can be used to efficiently accomplish tasks.

Providing alternative ways to add courses (button or drag-and-drop) adds flexibility for users to choose the method that they prefer rather than being restricted to specific actions/movements.

Severity of 1

8. Aesthetic and minimalist design. (Why?)

Sadly, we didn't want there to be too much lacking in simplicity and minimalism.

The approach was consolidate as much information in one place. The use of minimizing and maximizing windows mitigates this problem to some extent.

Severity of 7

9. Help users recognize, diagnose, recover from errors. (Why?)

Features like the course conflict help the user recognize and diagnose errors with visual cues shifting to danger or caution themes. In the Student Timetable window, the feature of showing a list of other sections to register for is to help users recover from such conflict errors.

Severity of 1

10. Help and documentation. (*Because you can't predict everything*)

There is no official documentation available at this moment.

Severity of 10

Heela Bangash

1. Visibility of system status. (Provide Feedback)

The colours clearly signify the state of the courses on the map. There are some feedback pop-ups. Save button.

Severity of 2

2. Match between system and real world. (Speak the User's Language)

Clear to understand and clear to use, not much room for guesswork, meets basic user needs.

Severity of 2

3. User control and freedom (Clearly Marked Exits)

There is an open and save sign clearly visible allowing a sense of beginning, end, and continuation.

Severity of 1

4. Consistency and standards (Be Consistent)

The windows to the side are all in the same for, you are able to minimize them. The design flows left to right.

Severity of 2

5. Error prevention. (Prevent Errors)

The design accounts for when there are student conflicts. There is no confirmation for clicking register.

Severity of 3

6. Recognition rather than recall.(Minimize Memory Load)

There is not much to recall, all elements seem to be presented in a way where you can not mistake their use. There is a lot of information.

Severity of 2

7. Flexibility and efficiency of use. (Provide Shortcuts)

There are different ways of adding courses. There's an auto-populate option.

Severity of 1

8. Aesthetic and minimalist design. (Why?)

There is a lot for the eye to take in immediately. Information heavy consistently.
Severity of 5

9. Help users recognize, diagnose, recover from errors. (Why?)

The design itself works to help the user visually with problem areas through colour, as well as feedback pop-ups, and features to change that.

Severity of 1

10. Help and documentation. (Because you can't predict everything)

There are tooltips available.

There is no official documentation available at this moment.

Severity of 7.

Alex

1. Visibility of system status. (Provide Feedback)

The main display of the degree planner tool is the current state of the degree plan. It is designed in such a way that users can easily identify the state of their respective courses within the planner, and the errors in their course planning. Furthermore, color palettes are used to identify the various states, such as missing pre-reqs, of the chosen courses that are placed within the planner. However, using colour palettes may pose an accessibility issue for colour blind users.

Severity: 3.

2. Match between system and real world. (Speak the User's Language)

The tool enables user to provide information and it couples it with essential information from Carleton University. This allows the students to make informed decisions when planning on when to take and which courses to take to get them through their academic career with ease.

Severity: 1

3. User control and freedom (Clearly Marked Exits)

Our users have total control over their planners, they have the options to save their current degree plan, add, remove, and arrange their courses to their liking. Furthermore, they also have the option to use the auto-generate feature to fill the planner and use that as a starting point towards building a fully robust degree plan.

Severity: 1

4. Consistency and standards (Be Consistent)

There is an overall consistency to our program however, the design lacks total user thought flow. This might confuse some users as there may be some ambiguity in the order of steps they should take.

Severity: 2

5. Error prevention. (Prevent Errors)

This design makes the user aware of what errors are present, however it has little to no error prevention methods. This may or may not be a good thing, as the absence of error prevention enables the users to explore options that they may have not been aware of otherwise.

Severity: 3

6. Recognition rather than recall.(Minimize Memory Load)

Displaying information alongside the main degree planner interface enables the user to identify necessary bits of information at glance while modifying and tweaking their degree plan.

Severity: 2

7. Flexibility and efficiency of use. (Provide Shortcuts)

This tool is flexible and enables students to examine their options and consider the best degree path available. The controls straightforward since they simple drag and drop manipulations and use common design elements to present useful features within our degree planning tool.

Severity: 2

8. Aesthetic and minimalist design. (Why?)

The design presents it's features in a simple and straightforward fashion, however the layout can be cluttered as we attempted to provide as much information as possible in one place. This can possibly be problematic as the user may become overloaded and overburdened with information and struggle to identify and focus on the meaningful details.

Severity: 6

9. Help users recognize, diagnose, recover from errors. (Why?)

We have an implicit system, that may pose accessibility issues, in which we use colours to indicate potential errors such as time table conflicts, and missing pre-reqs. This may cause some confusion for first time users who then will have to identify the nature of the error by consulting the colour legend. However, in the case of time table conflicts, we provide alternative sections for the user to choose from to aid them in resolving the error.

Severity: 3

10. Help and documentation. (*Because you can't predict everything*)

The design is intuitive in nature, employs recognizable elements that are expressed in many other applications and user interfaces, this makes it so there is a minimal learning curve with our tool. However, the lack of documentation can be problematic for the more complex procedures and tasks that the user may wish to carry out such as resolving time table conflicts.

Severity: 7

Consolidation:

Heuristic	1)	2)	3)	4)	5)	6)	7)	8)	9)	10
Average Severity	1.6	1.2	1	2.2	2.8	2	1.4	5.4	2.4	7.8

Report:

As made apparent in the table above, the two sections of our heuristic evaluation that displayed the greatest severity are “Aesthetic and minimalist design(8)” and “Help and documentation” (10). The result of this consolidated heuristic clearly indicates the necessity for our next iteration to heavily focus on developing a tool that is more minimalistic and aesthetically pleasing in its interface. Additionally, we also see that there is an extreme lack of documentation available in the tool. We need to arrive at various solutions to solve this problem and not compromise the minimalist design we will be simultaneously striving towards.



Carleton University, School of Computer Sciences
COMP3008: Human-Computer Interaction, Winter, 2018

Interaction Design Project User Debriefing Form

Instructor: Prof. Robert Biddle

Office: HP5169, Tel. Ext. 6317, Email: robert.biddle@carleton.ca

COMP3008 Student Names:

Alexandra, Sammy, Enrich, Heela, Ryan

Note: This project was reviewed by the Carleton University Research Ethics Board (CUREB-B), which provided clearance to carry out the research: (Clearance #105985).

If you have any ethical concerns with the study, please contact Dr. Andy Adler, Chair, Carleton University Research Ethics Board-B (by phone at 613-520-2600 ext. 4085 or via email at ethics@carleton.ca)

Study Purpose: This project is to enable students in COMP3008 to experience working with potential users to better understand user requirements and usability of a proposed interactive computer system. Working with potential users is considered best practice in the design of interactive computer systems, and is identified in international standards such as ISO 9241-210:2010 — Human-centred design for interactive systems. Part of the process is first obtaining informed consent from prospective participants, and that is the reason for this form.

Study Procedure: In the project, the proposed system is a new system to help students plan their degree programs. For example, it might explain degree requirements, check course pre-requisites, and suggest alternative courses.

The study will be conducted as if was part of a real project to design a degree planning system. Two common data collection methods will be followed.

First, we may ask you general questions about degree planning, for example about how you choose courses and consider alternatives, and your goals for completing your degree program.

Second, we may ask you to pretend to plan a degree, choose a course, or a similar activity, using materials or a prototype system we provide. We will suggest an imaginary context, and ask you to think aloud as you work.

Risks, Benefits, Compensation: We are not aware of any risks associated with this study. The benefits are that COMP3008 students gain experience in this aspect of Interaction Design, and that you may gain some insight about the processes involved in designing usable computer systems. There will be no financial compensation for your participation in the study.

Consent and Withdrawal: We require your consent before you can participate in the student, which you may indicate by signing your initials in the space provided below. You may choose to withdraw from the study at any time and without explanation, in which case any collected data will be discarded.

Anonymity and Confidentiality: The study involves gaining better general understanding of how students plan their degree programs, but does not involve asking you any specific personal information, nor any specific details of your degree or courses. We do not record or even ask your full name. We will not record or divulge any personal information about you.

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Initials:

SR

Date:

02.06.17



Carleton University, School of Computer Science
COMP3008: Human-Computer Interaction, Winter, 2018

Interaction Design Project User Debriefing Form

Instructor: Prof. Robert Biddle

Office: HP5169, Tel. Ext. 6317, Email: robert.biddle@carleton.ca

COMP3008 Student Name:

Hela, Ryan Ferstek Alexandra Sammy

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Initials:

JN

Date:

20.06.17



Carleton University, School of Computer Science
COMP3008: Human-Computer Interaction, Winter, 2018
Interaction Design Project User Debriefing Form

Instructor: Prof. Robert Biddle
Office: HP5160, Tel. Ext. 6317, Email: robert.biddle@carleton.ca

COMP3008 Student Name:

Alexandra, Sammey, Ferich, Heela, Ryan

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AC

Date:
02.06.17



Carleton University, School of Computer Science
COMP3008: Human-Computer Interaction, Winter, 2018
Interaction Design Project User-Debriefing Form

Instructor: Prof. Robert Biddle
Office: HP5169, Tel. Ext. 6317, Email: robert.biddle@carleton.ca

COMP3008 Student Names:

Alex Ryan Sammey Ferisch Heela

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Initials:
KP

Date:
02.06.17