

INFO 4190 - Project Proposal

Please **type** and fill in the following form and all fields. Once completed then submit a electronic copy to **Moodle**. The fields provided in this template can be **extended** to accommodate your text.

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Supervisor	
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Project Details

General Subject Area

Keywords / Topic areas listed

(A broad topic area that defines the area of project and keywords that could be used in a search facility)

- * Machine Learning
- * Functional Programming
- * Class scheduling
- * Javascript
- * React
- * Node.js
- * Interactive GUI

Project Title :

A proposed title of the project - meaningful, succinct and clear as to the project undertaken.

KPU Course Scheduling System (CSS)

Abstract/Summary :

*Please provide some **background** about the project, topic, company, situation and overall summary as to the **nature of problem** and what **is required** (approx 500 words)*

- Course scheduling system designed for KPU
- Purpose: to help faculty schedule courses in a fast and efficient manner
- Current Issue: course scheduling is done manually by dept. chairs which is inefficient, prone to errors, and hard to use/learn
- Main focus is for the Cisy/BTech program with future plans to expand to other departments
- Strong emphasis on usability (friendly/intuitive user interface, easy to learn)
- Includes system-recommended scheduling optimizations

Aim and Objectives

Aim – what are we trying to achieve overall and the hypothesis being tested. List overall 7-10 objectives of the project. These should be measurable where possible and will be used in part assessment in determining the level of achievement of the project. These should reflect the Learning outcomes of the Module.

(Can be a breakdown of what you are trying to achieve and can be representative of activities/phases that are to be conducted in arriving at the project deliverables)

Aim

To create a user friendly and intuitive time scheduling application to help reduce the time it takes CISO/BTech dept. chairs to plan out and scheduling courses for the school term.

Objectives (5-7)

- Analyzing existing scheduling systems' data and the courses dependencies (room availability, instructor availability, class availability, etc.)
- Collecting and analyzing functional & non-functional requirements
- Research & design the system architecture
- Research & design intuitive and user friendly interface for the prototype demonstration
- Design a demonstrative prototype
- Demonstrate prototype to users (dept. chairs) to collect user review/assess user acceptance
- Develop the application with consideration to user feedback from prototype
- Research and implement a machine learning approach to assist with scheduling
- Testing the application for requirement adherence
- Evaluating the applications' functionality and user satisfaction

Project Outcomes/ Deliverables :

Provide a list of key outcomes of the conducted project (can be deliverables/outputs for each of the above objectives/ stages and these can be studies, reports, requirements, designs, plans, coding, recommendations etc)

- Software Requirement Specification
- System Design Document
- Software Quality Assurance
- Web based course management system
- Cloud based web server

Motivation - Why are you interested in the project ?

Provide a reason for your interest, what greater general interest it serves (In Industry or as part of Research) and who it could benefit (the target audience(s) that this project would be beneficial to)

Motivation

- Currently the time scheduling for courses is a manually done task which is highly inefficient.
- Benefit KPU faculty saving time and money to automate the time scheduling process

Client Details and extent of involvement:

- Providing sample/sanitized data of courses, employment count (average number of full time + contracting educational instructors), and course section occupancy
- Base functional requirements needed for the project to be deemed useful

What research methods do you intend to use to achieve your objectives / produce your deliverables?

(Discuss the nature of investigation considering the multitude of academic and Industry methods, with thoughts on qualitative and quantitative methods, and primary and secondary methods)

Detail (research or procedural) methods that you will use

Research Methods

Research will mainly be done through secondary academic research sources. Quantitative research analysis needs to be done with given sample data/past schedules to design an efficient scheduling algorithm.

Secondary research including:

- investigating existing scheduling tools/systems for reference
- research available web frameworks for front-end/back-end development
- look into database systems
- investigate machine learning tools used for schedule recommendations
- research cloud solutions for application deployment
- Study and review concepts of resource management with deep reinforcement learning, relational reasoning, and PDDL to help in designing a personalized predictive scheduling algorithm (nice to have feature). Along with determining the most appropriate/feasible approach for the project/timeframe

What primary and/or secondary data sources do you intend to use?

(for each of the above identified methods discuss the pool of sources of authentic and credible information giving examples, e.g. consider target audiences such as profiles of general public, company representatives, people with specialist knowledge and in specific positions, type and title of books, journals etc)

Primary Pool: Course scheduling and enrollment information; present/past from Mandeep, user feedback from stakeholders

Secondary Pool: Online resources (articles, research papers)

Project Schedule

Attach/ Embed a project schedule to this document (this can be a Gantt chart or **any form** of representation – MS project, excel, PowerPoint etc) which incorporates the phases of your project and activities to undertake, duration, start and end dates, any milestones/ deliverables and major dependencies.

Find included Microsoft Project file for Gantt chart.

- + Bi-monthly sprints based off of the Gantt chart dictating what we plan to accomplish during that specified timeframe.

Thank you for completing the form submit this online on the module by the deadline.

Dr. Mandeep Pannu

Dr. Pannu

Marking sheet for detailed Project proposal

	MAX MARKS
Degree of challenge and viability of project with respect to learning outcomes (see Below)	
Level of completeness of proposal and all fields completed with project schedule	

	Degree of challenge vs LO's	Level of completeness
>70%	<ul style="list-style-type: none"> - clearly considered project that fully satisfies the Learning outcomes for which there is a succinct and focused aim with an associated project question/hypothesis that is well above norm for final-year undergraduate project level (approaching Masters level for >80%); -Project involves improving or developing a complex programme /tool/ application or the enhancement of a theory/methodology or their application in new settings. Demonstration of innovation / creativity 	<ul style="list-style-type: none"> - All fields completed demonstrating a clear blueprint for the research process and including the necessary information with respect to the research dilemma - research methods are well-considered with clear reasoning for choice of those methods over others; -Appropriate level of detail in project schedule including realistic timescales that will allow student to successfully manage their own project and strongly linked to objectives, deliverables and research methods;

Threshold (40%)	<p>-Fairly standard project with some consideration to a greater context.</p> <p>-idea which lacks substance, context and scope for depth of analysis, but which is marginally acceptable against a threshold for final-year undergraduate projects;</p>	<ul style="list-style-type: none">- Completion of sections though very minimal with some cohesiveness and contextualisation-Sections demonstrating some understanding of the research process involved which loosely links with idea outlined (aim, key question/hypothesis, objectives);- Research methods are discussed but are obvious with little consideration as to whether they are the most appropriate and lack refinement and further detail.- Not all major tasks identified in project schedule with inappropriate timings (overly optimistic or generic);
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