STUDENT COURSES MANAGEMENT PLAN

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EXECUTIVE SUMMARY

Planning is a matter that will not run from everyone life, it include students. Students always make plan for whatever they do. Does something without planning may cause the outcome not as expected. All students in UMP have the power to control their study course path. But not all the student uses it with well and organized. It will become more problem to the student if they have fail subject in their course study. With this study, a system will be developing where it enables student to plan and manage their courses path systematically during their study. During the development the system, the Iterative and Incremental Development model will be used as a guideline for the process phases. The system will be a web base application where it will use the apache server and SQL for database language. This study expected will be successful systems that help students in manage their course path. To conclude it all, students can enjoy their campus life with the extra-curricular without worry as their plan of the course study is establish.

RINGKASAN EKSEKUTIF

Perancangan adalah satu perkara yang tidak akan lari daripada kehidupan semua orang, ia termasuk pelajar. Pelajar sentiasa membuat rancangan untuk apa sahaja yang mereka lakukan. Melakukan sesuatu tanpa perancangan, boleh menyebabkan hasil yang tidak seperti yang diharapkan. Semua pelajar di UMP mempunyai kuasa untuk mengawal laluan kursus pengajian mereka. Tetapi tidak semua pelajar menggunakannya dengan baik dan teratur. Ia akan menjadi lebih bermasalah kepada pelajar jika mereka telah gagal subjek dalam kajian kursus mereka. Dengan kajian ini, satu sistem akan dibangunkan di mana ia membolehkan pelajar untuk merancang dan menguruskan laluan kursus mereka secara sistematik sepanjang pengajian mereka. Semasa pembangunan sistem, model pembangunan lelaran dan Peningkatan akan digunakan sebagai garis panduan bagi tahap-tahap proses. Sistem ini akan berasaskan aplikasi web di mana ia akan menggunakan web server apache dan SQL untuk bahasa pangkalan data. Kajian ini dijangka akan menjadi sistem yang berjaya untuk membantu pelajar dalam menguruskan jalan kursus mereka. Untuk menyimpulkan semua, pelajar boleh menikmati kehidupan kampus mereka dengan ko-kurikulum tanpa bimbang rancangan pengajian kursus mereka yang telah dibentuk.

TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURE

LIST OF ACRONYMS

Acronym	Description	Page
UMP	Universiti Malaysia Pahang	vi
FSKKP	Fakulti Sistem Komputer & Kejuruteraan Perisian	12
SQL	Structure Query Language	vi
MySQL	My Structure Query Language	12
OR	Open Registration	1
SCMP	Student Courses Management Plan	2
E-Comm	E-Community System	2
GUI	Graphic User Interface	11
HTML	Hypertext Mark-up Language	11
PHP	Hypertext Pre-processors	11
CD	Context Diagram	15
CPA	Cumulative Point Average	20
GPA	Grade Point Average	20
OS	Operating System	25
Xampp	X (OS), Apache, Mysql, PHP And Perl	25
GB	Gigabyte	25
HDD	Hard Disk Drive	25
RAM	Random Access Memory	25

PART 1

INTRODUCTION

Each of students in Universiti Malaysia Pahang (UMP) has their own courses that need to be completed in order for them to graduate. From the first semester of first year, students have been provided with their own course structure that gives them the course that available for them to enroll. Each of faculty have different course depend on students program that offered by UMP. These courses represent with combination of code of alphabet, number and their course name. The numbers that include in the course code represent the course either by year of difficulty or pre requisite. With this, students can distinguish the level of the courses when they want to register in the Open Registration system.

Open Registration System (OR) is a system that used to enable students to register their courses for the next semester of their study. OR system that introduced to UMP students has been helpful to let students arrange their courses schedule with their own preference. Each semester, course catalogue will be issue at the end of semester. It contain the course that offer for the next semester with their schedule time and place also provide. It divides into three type courses which are core subject, university subject and elective subject. Students will plan what courses they want to enroll depend on availability of the courses schedule.

Students Course Management Plan System is a system that enables students to arrange their future courses from the semester two to the last semester of their study. With this, students can plan their study path during their busy campus live. The course management plans that will be create is not related with the course catalogue that issue every semester. There may be a clash with what students have planned to enrol for the next semester. So students need to plan their backup plan to fulfill the credit requirement. With the help from this system, students can see the option easily.

This study will develop a system to increase the OR system to arrange the course path from the first semester to the final semester called as Students Course Management Plan (SCMP) system.

1.1 Problem Statement(s) and Objective

Students E-Community system (E-Comm) is a portal for students to organize or get information from the services available. Various services and tool are provided from the E-Comm which covers all the need of students such as student information, finance, course structure, open registration and so on. Even it have many services, there are some places that can be improve. E-Comm has not provided the tools to arrange the student course path. With the many extra activity co-curriculums, it may disrupt the student focus of study and may affect their study plan.

Even though all the service that offer from the E-Comm give a lot of ease to students, some of them did not sure the courses they have completed or not. They only notice when they reach for their last year semester that can affect them from graduating as the expected. There are some courses that they have not completed yet that make them to extend their study because of one or two courses. Each semester, there is credit requirement that has been set from the beginning which must ones follow. If the credits that over from what have been set are justified by the dean, it may save the students from extending their courses.

There are some students that their previous courses fail, this make them to repeat the courses for the second or third time. This will affect students plan for the next semester because they must match with the schedule time with the repeat course where the time can be fulfil with others courses that not completed yet. This kind of obstacle will make students to change their plan a little bit.

The new system that able to display the student record easily is required to cover the entire shortcomings that have been identified. The main goal of this study is to develop a system that let the students to plan their course path systematically for the entire semester of their study. Before this, students only use either Microsoft excel or write it down on paper only. To archive the goal, there are some objectives that need to meet.

1. To investigate the way of course management plan work
2. To design a system that help students to arrange their courses from the first semester to the last semester.
3. To implement a computerize and systematic system to arrange course path
4. To ensure there is no left over courses that left behind for the remaining semester

1.2 Existing Project & Relationship with The Current Project

Before continuing with the project, a research for existing system needs to be done. It is to find any similarities with the project being develop and to find any irregularities and weaknesses that will arise. Existing system will act as reference to design the Student Course Management Plan. Advantage and disadvantage of the existing system will be studied to purpose a systematic and automated system.

According to oxford dictionary, plan give meaning decide on and make arrangements for in advance [1]. There would be three systems that will be review which equivalent and related to the system that will be develop which is the manual system, semi-systematic system and open registration system.

1.2.1 Manual system

The manual system is basically a system that student will use paper and pen to write and record the course plan that they want to take. Based on the course outline that student get, they will plan the course on what to enrol for the next semester. As mention in the introduction, course structure is a list of course that student need to complete to enable them to graduate. The course structure is different from each student where it depends on what the student course is such as faculty of computer systems & software engineering. This faculty offer four program of study which is Software Engineering, Computer Systems & Networking, Computer Science and Graphics & Multimedia Technology.

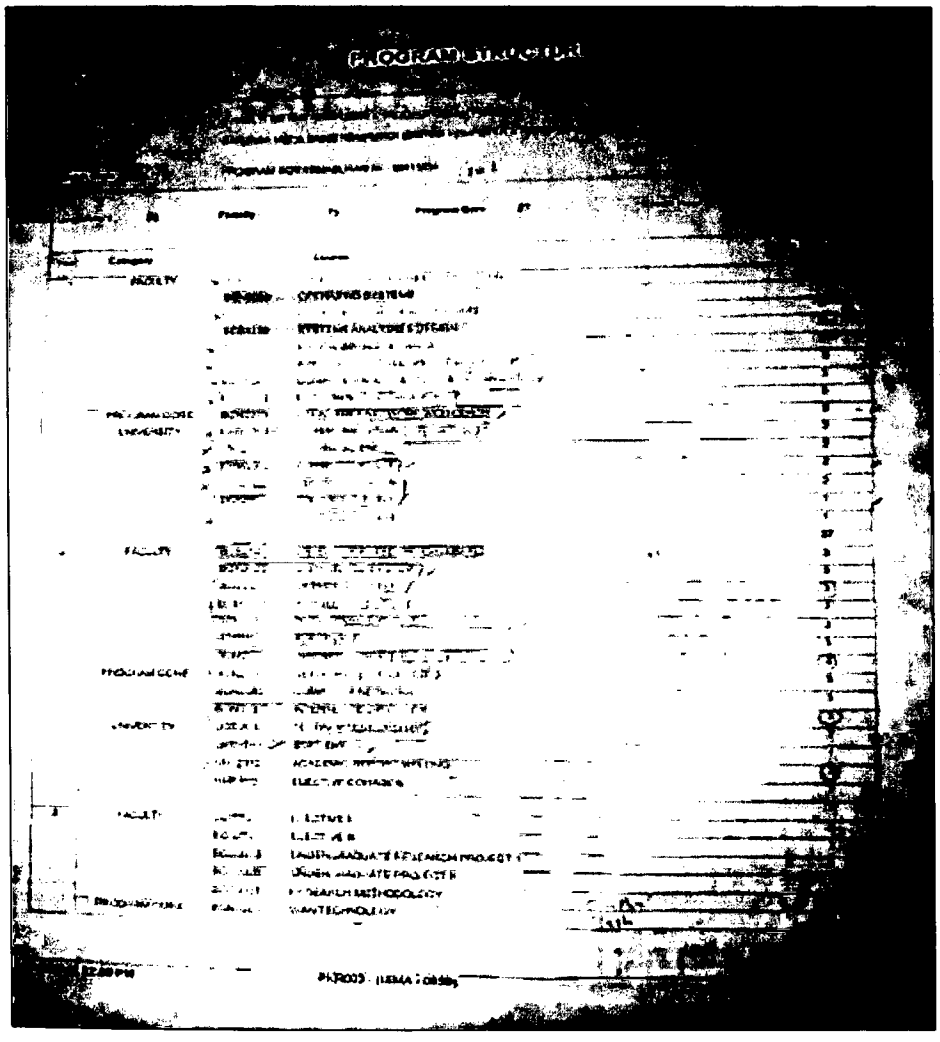

Figure 1.2.1.1: Manual Course Plan using Course Structure

The advantage of this system is student can easily see the course that they want to take in the next future. This because with the course outline available for student to print, they just need to make a note in the course structure which course that they want to enrol. The disadvantage is the course plan that student make in the course outline may arise problem during in saving. For example the course outline paper might disappear from student keep and other disaster and it hardly might happen.

1.2.2 Semi-Systematic system

Semi-systematic system is a system that use some technology while make the plan in the course management. With the help of the software Microsoft Excel it will make the course plan more systematic than the manual one. But the student still needs to refer on the course structure and type it one by one. Even with the help of copy & paste function, there are still some work needs to be done. Moreover, when the student course catalogues have been release, they can easily make the arrangement of the table for the next semester. With this student has made the scope smaller on what to search in the course catalogue.

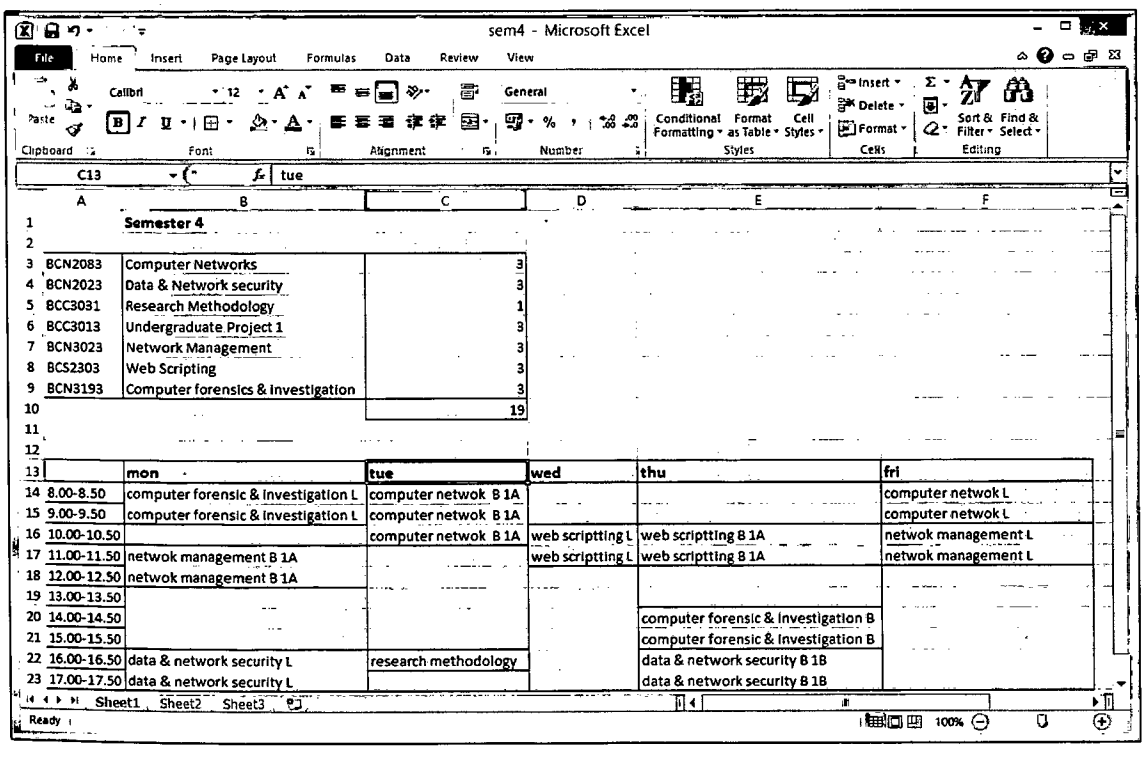

Figure 1.2.2.1: Course plan using Microsoft Excel

The advantage with this system is it more systematic than the manual system. This system also gives easy to save it with high security. With the advancement of the technology, it can be store in any kind of media such as cloud computing, hard drive and many more. Student can also print the course plan. The disadvantage from this system is still need student to type and make the confirmation from the course catalogue.

1.2.3 Open Registration System

Open Registration system is a mechanism that used by the student to register courses/subject for their next semester. In early of the first semester, student will be briefly about the course structure that needs to be complete in order to graduate. The course structures are differing according to student program. In the 2011/2012 session of study, the course registration systems are used to register courses. Student need to register minimum 12 credits hour and maximum 19 credits hour. Student that wants to take more than 19 credits hour need the approval of the dean of the faculty. They are allowed to take more than the maximum credit after get consent from the dean.

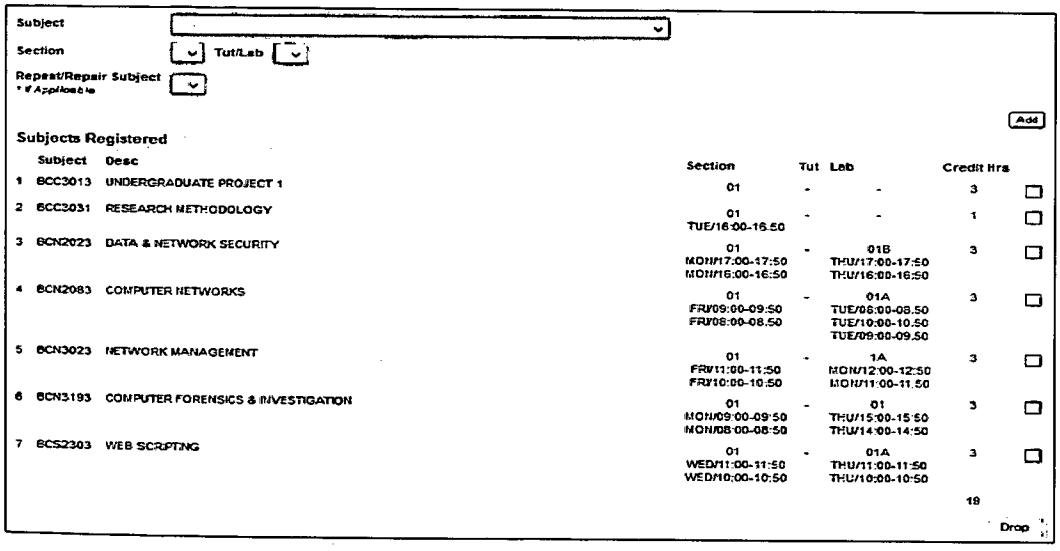

Figure 1.2.3.1: Course Registration

In the course registration system, there will be a subject that student can select using drop box button. In the subject field, the course that available to be enrolling for the next semester will be in the drop box list. After the selected subject available, student needs to choose the section and tutorial/lab session. Take noted that each section has the capacity available to enrol. Usually the capacity is 60, 90 to 120 based on the course subject. If the capacity is full student need to change their selection either section or choose other subject. After done select the section, student can add the selection subject into the subjects registered. If there is a clash subject, message will be appear and state the clash subject.

Start form session 2013/2014 Open Registration 2.0 was introduced. An upgrade from the course registration system have been made where student need to register both first and second semester for session 2013/2014. The selection of the subject stills the same as the previous one. Only this time students need to plan and register in both semesters. The credit hours are still the same as previous where student must follow the minimum and maximum credit hour that can be taken in one semester.

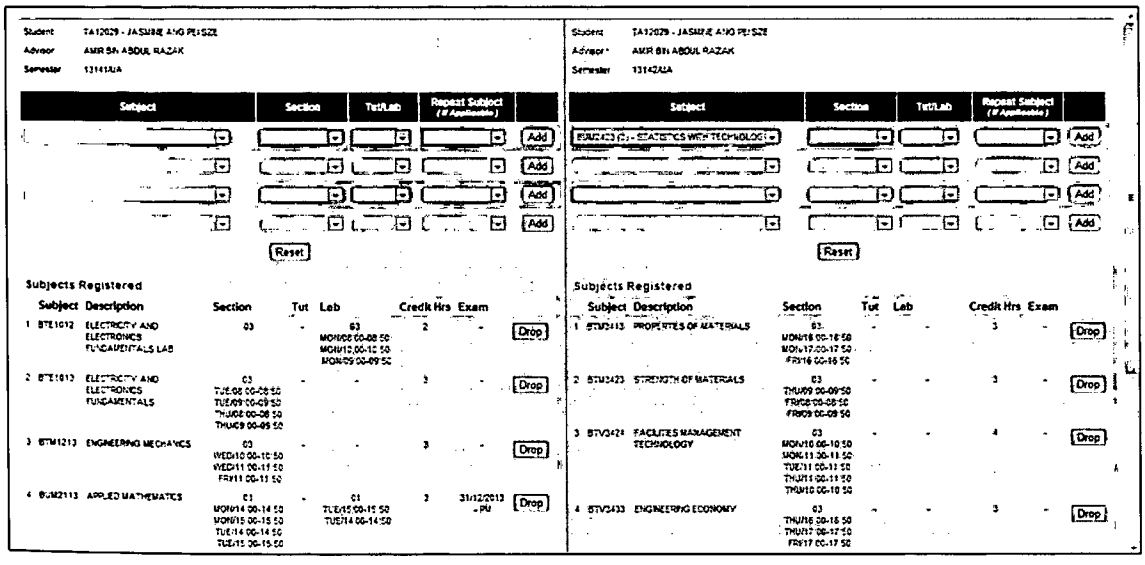

Figure 1.2.3.2: Couse Registration 2.0

The advantage of this system is that it gives students easiness to register subject that they want to enrol. There is priority to senior student that allow them to register first to complete their remaining course structure. With the OR 2.0, students have more

flexibility to register subject that they want to register either in semester one or two in the session. The disadvantage of the system is that students need to review the entire course catalogue for their remaining course subject that incomplete. This may take time to match the suitable time and availability.

1.3 Feature Comparison of Existing System with this Project

With these three systems, comparison will be made and the result that collected from them will be implementing in the new system that will be develop. The criteria that will be observed are as follow.

i. Friendly user
ii. Functionality of the system
iii. Security of data
iv. Access control to the system
v. Manual user

	Manual System	**Semi-Systematic system**	**Open Registration System**
Ease of used	Not user friendly	Half user friendly	User friendly
Functionality	There is no function at all, use of pen and paper	Function exist with used of media such as Microsoft Excel	Full of it with systematically
Security of data	Not provide	Provide with human error	provide
Access control to the system	Hard to control the data	Easy to control the data	Full access control with human error
Manual user	None	None	Exist
Data type	No	Yes	Yes

Table 1.3.1: Comparison systems

1.4 Explanations of Terminology

1.4.1 Course Catalogue

This term refer to the document file where there is course that available for student to enrol. This document file contains the information about the availability of the place class, day and time by subject.

1.4.2 Course Structure

This term refer to the document file about list of subject course that student need to enrol for them to graduate. It divides by faculty subject, course subject and university subject

1.4.3 Pre Requisite

This term refer to constraint of the subject. For example each subject may have constraint on them which make it need to take it by level. With the pre requisite, student need to enrol for the subject that not independent to the other subject, then can only enrol the pre requisite subject after complete the constraint subject.

1.5 Method Approach

Methodology can be defined as a systematic set of practices in order to carry out research. The methodology is very important to carry out the research as base reference model on how the research will be conducted. Nowadays, there are many methodologies that available, and for this research, Iterative and Incremental Development model will be used as guide to develop the project.

Iterative and Incremental Development model is an approach to develop software in which the overall lifecycle is composed of several iteration and it is used with repeated. With the incremental of the process are intended to improve the quality

and functionality of the develop software. The requirement can always be evolve during the development and can be add to the software.

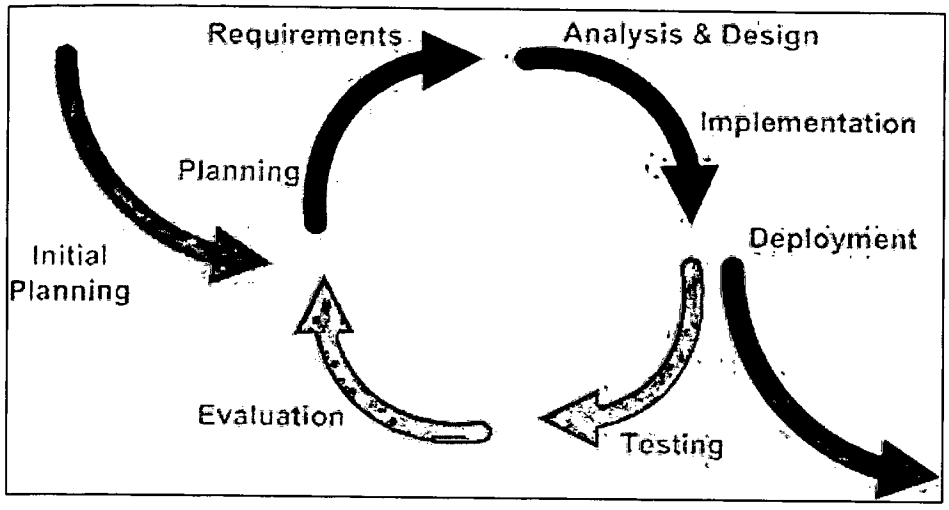

Figure 1.5.1: Iterative and Incremental Development model

Below are the explanations for each iteration phase:

1.5.1 Initial planning phase

In this phase rough planning about the software that will be developed will be plan. The requirement for the software will be record, such as the role of the software, services that will be provide by the software and others. The entire requirement that collected will be considered as primary reference during the developing process.

1.5.2 Planning phase

In this phase, more detail plan will be carrying out. The title of the project, problem statement, objective and soon will be more precise toward the goal of the software that will be develop. The time line of the project will also be presented as guide line for the developer to always meet the dateline as plan. The actual timeline of the project can be differ from the planning as the developer can meet new requirement that need to be include in the software.

1.5.3 Requirement phase

In this phase, the entire collected requirement will be compiling in the related diagram to show the flow of the software when it run in the real situation

1.5.4 Analysis & Design phase

In this phase, the software will be going into the design step where the development software will be used. All the data that record in the requirement phase will come in handy to design the GUI for the software.

1.5.5 Implementation phase

In this phase, to complete the user interface functionality, scripting will be implementing to it. The script languages that will be applied in the software are HyperText Markup Language (HTML) and Hypertext Preprocessor (PHP). For the interaction between the software and the database, the SQL will be used as a standard language for accessing databases.

1.5.6 Testing phase

In this phase, the software will come into testing stage to check the functionality and to solve any error and problem during the implementation phase. The testing must be carrying out as many times with different user to verify the system to running properly.

1.5.7 Evaluation phase

In this phase, the system will be evaluating either the system archive the objective and goal. If not or there is some addition requirement, the process will start all over again until it fulfil the purpose of the system.

1.5.8 Deployment phase

In this phase, a complete system will be deploying to user to use it. Maintenance and upgrading will also carry out in this phase as requested by the user. The table below are the advantage and disadvantage using the Iterative and Incremental Development model

Advantage	Disadvantage
Building and improving the product step by step	Costly system architecture or design issues may arise
Can track the problem at early stages	Not all requirements are gathered up front for the entire lifecycle
less time spent on documenting and more time on designing	Management complexity is more
Can only create a high-level design of the application before begin to build the product and define the design solution for the entire product	More resources may be required

Table 1.5.1: Advantage and Disadvantage Iterative Model [2]

1.6 Scope of Study

In order to achieve the objective, an online web based will be used to develop the system. It includes Adobe Dreamweaver to design the interface of the system using PHP and html language. Xampp package will be used as a medium, where Apache for the sever side scripting, MySQL will be used as the database and Microsoft Excel will be the data management medium.

Other scopes of this study are as follow:

i. The system developed for UMP FSKKP student only.

ii. User for this system solely for the students

iii. Academic Advisor can see their student course plan

iv. Student can select and update of courses plan

1.7 Outline of Presented in Rest of Report

These reports are containing three parts. Part 1 is about the introduction of the project. In part 1 will discuss about the purpose of the project and the existing system. The existing systems are divides into two (2) parts that are the system description and the problem with the existing system. Part 2 is about the report body. In part 2 will discuss about the user requirements, design description, development plan and the testing plan. Lastly, part 3 will provide the conclusion of this project and recommendation.

PART 2

REPORT BODY

This chapter is included the user requirement, design description, development plan and testing plan. These sections are explaining more detail about the material which related to the structure outlined in the Introduction.

2.1 User requirement

This part stated the requirement of the user about the courses management plan. Some of the student has state that it hard to manage their subject course and wondering if they can plan the course with systematically. Before this, they need to refer multiple document before make decision on what subject course that they want to enrol. I come across this situation and give them suggestion on how they can manage their course plan.

Most of the student would want to manage the subject course for the entire year of study which includes eight semesters. They also want some grad calculation enable them to target what their pointer is.

The requirement of the student request included:

i. To manage course subject systematically.
ii. To predict student course pointer.
iii. To provide students with intelligence system that give suggestion what subject to enrol.

2.2 Design Description

Design by definition from book of Modern System Analysis and Design, sixth edition give meaning a description of recommended solution then converted into logical and then physical system specifications [3]. In this part, the logical and physical design will be explain in term to complete the system requirement which needed. It include context diagram (CD), use case diagram, and flowchart.

2.2.1 Context diagram (CD)

A Context Diagram represent the simple understanding of a system that will be develops. It will present the entity that will involve to the system and defines the border between system, environment and showing the interaction between them.

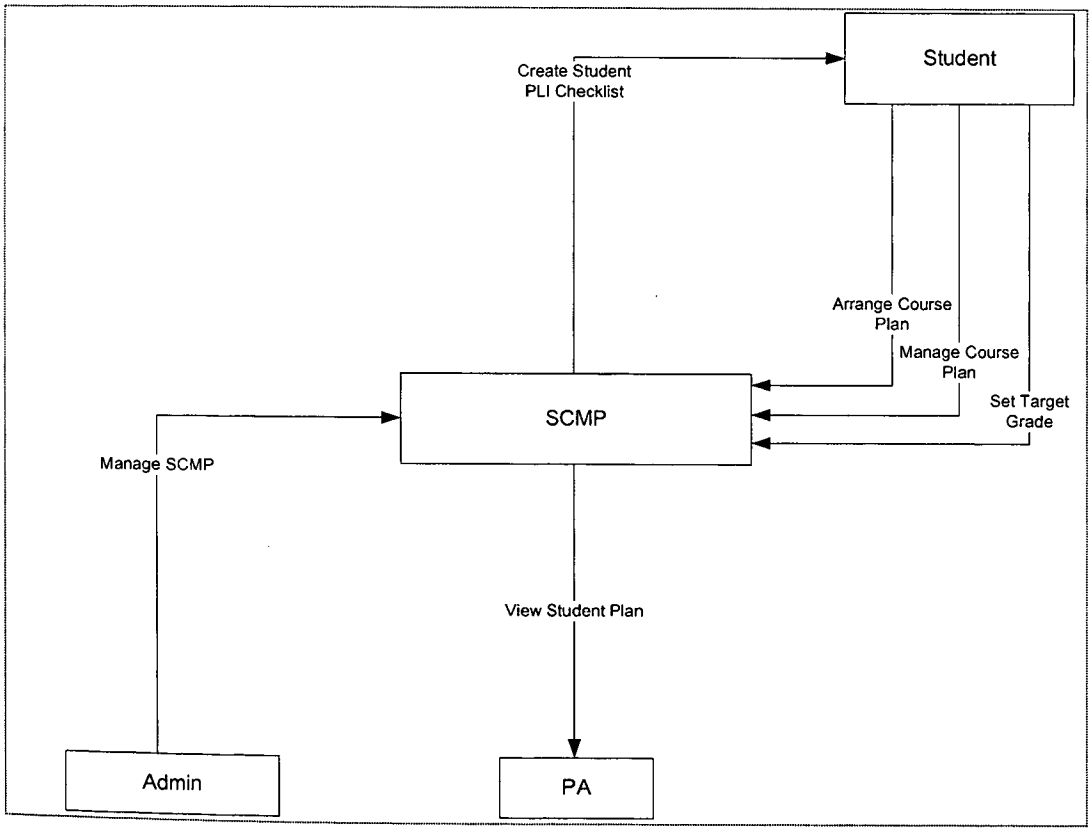

Figure 2.2.1.1: CD of SCMP

2.2.2 Use Case Diagram

Use case diagram is a graphical picture that shows the system behaviour along with the key actors that interact with the system. The basic elements of a use case diagram are the use case where it represents system functionality. Next are the actor represent for the external entity (role) that interact with the system. Then there is system boundary represent as a box and connection of association between the use case and the actor.

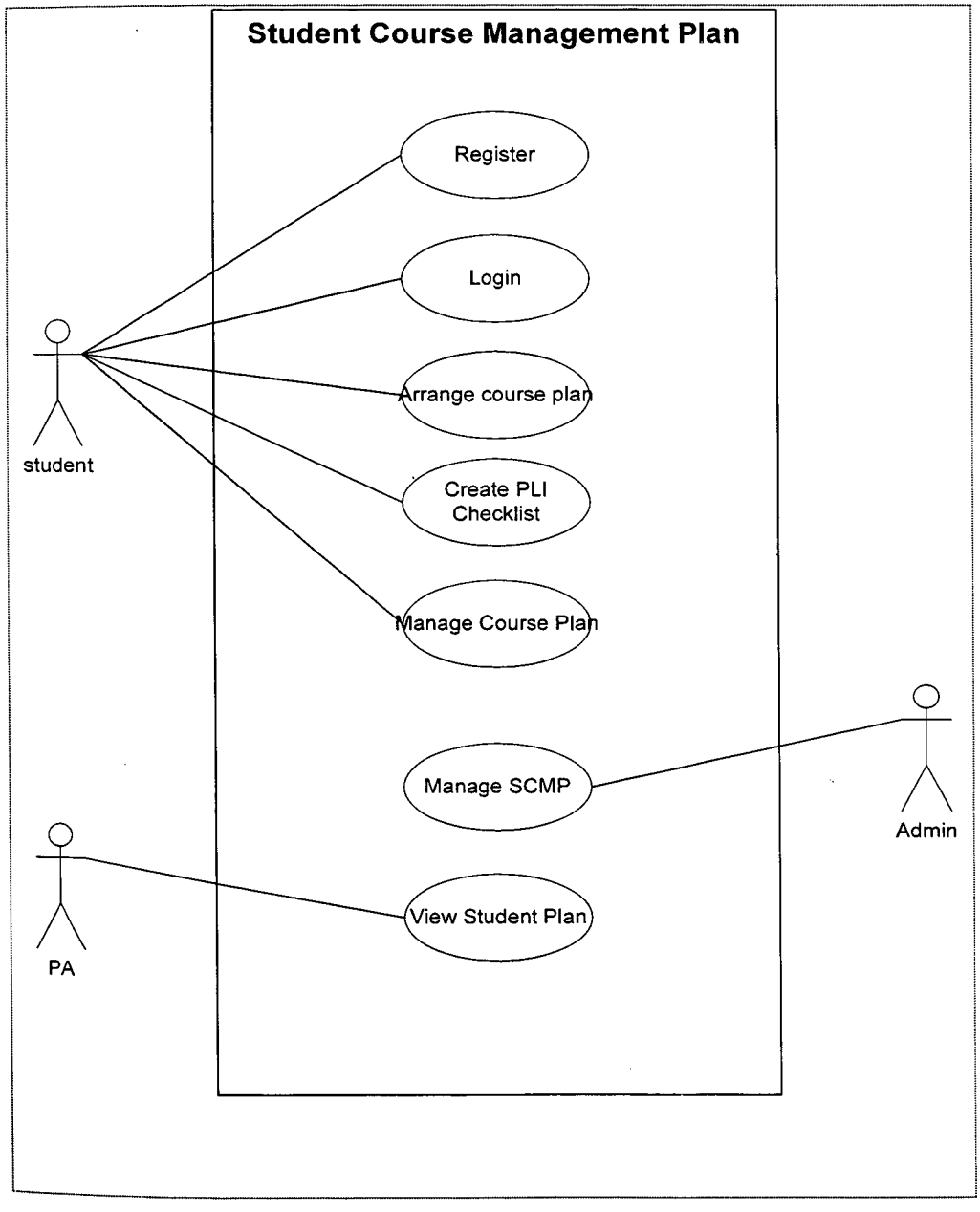

Figure 2.2.2.1: Use case of SCMP