

Project Based Portal for CIS Department (FYP and TTP)

By

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Dissertation submitted in partial fulfillment of
the requirements for the
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(Business Information System)

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CERTIFICATION OF APPROVAL

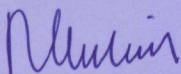
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A project dissertation submitted to the
Business Information Programme
Universiti Teknologi PETRONAS
in partial fulfillment of the requirement for the
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(BUSINESS INFORMATION SYSTEM)

Approved by,



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UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

January 2012

ABSTRACT

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



NUR AMALINA BT AHMAD RAZIF

ABSTRACT

Knowledge management (KM) has been widely adopted in many organizations. Nevertheless, today, the line of education is gaining the acceptance towards KM. Knowledge sharing is the most fundamental activity in knowledge management as it is the source of creating ideas for the knowledge. In higher learning education, knowledge sharing has increased the opportunities of the students in exchanging the ideas among each other.

This research studies the implementation of knowledge sharing among students in Universiti Teknologi Petronas (UTP) that taking project-based course. Project-based course is the course that requires students to create a project that will be evaluated based on the outcome of the project. There are two project-based courses offered for the final year students from Computer Information Science (CIS) department known as, Technopreneurship Team Project and Final Year Project (FYP). Survey will be conducted to the students that already taken and currently taking these two courses. The purpose of the survey is to identify the challenges and experiences of the students encountered.

The paper discussed about the Project Based Course Portal for CIS Department which is the portal that enables students to share all the information about FYP and TTP course. The portal is expected to facilitate the students minimizing the effort and time in seeking knowledge through the information that being circulated in the portal. In addition, encourages the students to share more informative information about the two courses in the portal.

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ABBREVIATION AND NOMENCLATURES

UTP Universiti Teknologi Petronas

CIS Computer Information and Science

FYP Final Year Project

TTP Technopreneuship Team Project

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CHAPTER 1

INTRODUCTION

1.0 Chapter Overview

The chapter will explained more on the background of study, problems statements, objectives and the scope of study that being identified in this research.

1.1 Background of Study

Knowledge management plays an important role in an organization. Knowledge Management (KM) may simply be defined as doing what is needed to get the most out of knowledge resources (Irma B., Avelino G. & Rajiv S., 2004). KM also means the management of the whole process of knowledge acquisition, representation, storage, learning, sharing and innovation in an Organization. Knowledge innovation is the goal of KM, but knowledge innovation cannot run without the assistant of existing knowledge. One of the most important subjects in KM is knowledge sharing. Knowledge sharing described as knowledge innovation, because everybody must add his own understanding when sharing knowledge (An Fenjie, Qiao F., & Chen X, 2004). Knowledge management undergoes the rapid transformation in a higher learning education as well.

Project-based course is a course that implementing knowledge sharing. Project-based course is the course where the students will be evaluated based on the outcome of the whole project. This course requires the students to be more self-determining and independent in making decision for the project. The assessment will be made by the end of the semester. Each student will be supervised by a lecturer within the duration of the project.

Project-based course is one type of courses being offered in Universiti Teknologi Petronas (UTP). Each student in Final Year study is compulsory to enroll the course. The requirements of the course are vary from each department. Students from department of Computer Information Science (CIS) acquired to register for two project-based courses, Final Year Project (FYP) and Technopreneurship Team Project (TTP). FYP is a course that students have to carry out the project individually, whereas for TTP, it will be a team group project. In a team, it consists of the combination four to five students from Business Information System (BIS) and Computer Information Technology (ICT). The criteria and requirements for these two courses are the same in term of generating the ideas and gathering the information, except the evaluation of the mark for the individual and group project.

1.2 Problem Statements

TTP and FYP courses enable the students to come out with a solution for the project that being identified which are related to their area of study and interest. Firstly, student must have to understand the basic information of the course. Students will be provided with documents like the course outline, dateline dates and the project requirements. Generating the ideas for the project is the most challenging part. The idea for the implementation of the project requires students to gather extra information in order to solve the problems. There are numerous ways of gathering the information used by students which involve student's problem solving, decision making and investigation skills.

Sharing the knowledge about the ideas of the project is more towards in the form of explicit knowledge. Knowledge can be classified into two types that are tacit knowledge and explicit knowledge. Explicit knowledge defined as the knowledge that can be easily documented into form of manuals, audio, video and data specifications (Heng-Li Yang et al., 2006). For FYP and TTP course, students obtained the explicit knowledge from documents that being given related to course outline, lecturers profile, report writing templates, due date of important dates and so on. Findings that students gathered to produce the thesis and literature review are in the other example of explicit knowledge. Students need to analyze the findings that related to the area of the investigation and for this task, it will consume a lot of time and need to get assistant from expertise people.

In contrast, tacit knowledge is obscure and not easily, clear and fully expressed which required closely interaction between people (Heng-Li Yang et al., 2006). Generally, the assistance form lecturers and other students is the best approach in this investigation. An example of tacit knowledge is lecturers' supervision style; the students will only be able understand the supervision style of the lecturer once the students having several discussions with the lecturer. Apart from that, peers or team member information are the other source of tacit knowledge. Students will be more aware by the information that being spread among peers. Besides, the report writing format and citations also counted since the student required a clearer picture and guidelines while the writing report from the lecturer and meeting the lecturer's requirements.

Therefore, from these two type of knowledge gained through the courses, the information can be combined and stored into a platform of knowledge sharing that secure the information and ease students to get the information. The portal not only contains the information but also experience or any information related to the course.

1.3 Objectives

The objectives of this research are to:

- i. To understand the current approaches used by students in sharing knowledge for TTP and FYP
 - Challenges and experiences of student while carrying out the courses
- ii. To identify the details information required for TTP and FYP
 - Information on supervisor
 - Information on Report Writing
 - Information on Project
- iii. To design a portal that enables the students to gather all information for TTP and FYP
 - Technological Platform

1.4 Scope of Study

This research focuses on the student who is currently taking the course and student that already taken the course in Universiti Teknologi Petronas. Students are taken from the students under the department of CIS, who are taking the two courses offered. Key areas that will be involved in the portal will be divided into five main sections that are Project Information, Lecturer Information, Research Method or Business Plan, Discussion Forum and Course Information respectively in each course.

The student's individual perspectives on the knowledge sharing practices will be discussed further in the next chapter. The purpose of this study is to share the challenges and experiences among the students while carrying out the project. Hence, a portal will be designed that enables the students to gather all the information and circulated the information around with other students.

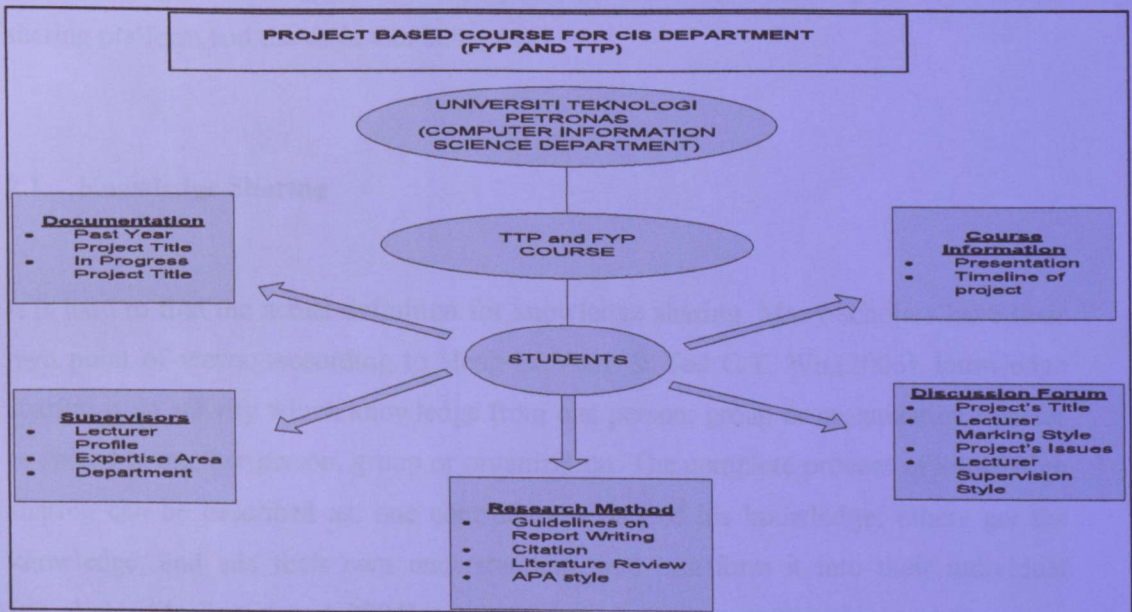


Figure 1.1 Scope of Study

CHAPTER 2

LITERATURE REVIEW

2.0 Chapter Overview

This chapter discussed about the findings on the related areas of the research to develop the portal. It consist definition of knowledge sharing, the application of knowledge sharing in higher learning education, project-based learning, an example of knowledge sharing platform and the tools that being used.

2.1 Knowledge Sharing

It is hard to find the actual definition for knowledge sharing. Many scholars have their own point of views. According to Heng-Li Yang & Ted C.T, Wu.(2006), knowledge sharing is an activity which knowledge from one person, group or organization transfer or spread to another person, group or organization. The complete process of knowledge sharing can be described as: one contributes a part of his knowledge; others get the knowledge, and add their own understanding, and transform it into their individual knowledge (An Fenjie et al. 2004).

Knowledge sharing process is the process that enables the knowledge being created and stored the knowledge. Then, the knowledge can transform to others by applying the knowledge. Referring to Table 2.0 as shown below, it is the process that took place in knowledge sharing as proposed by Sethumadhavan R., (2007). The process consists of four main processes that are knowledge creation, store knowledge, transfer knowledge and apply knowledge in order to complete the process.

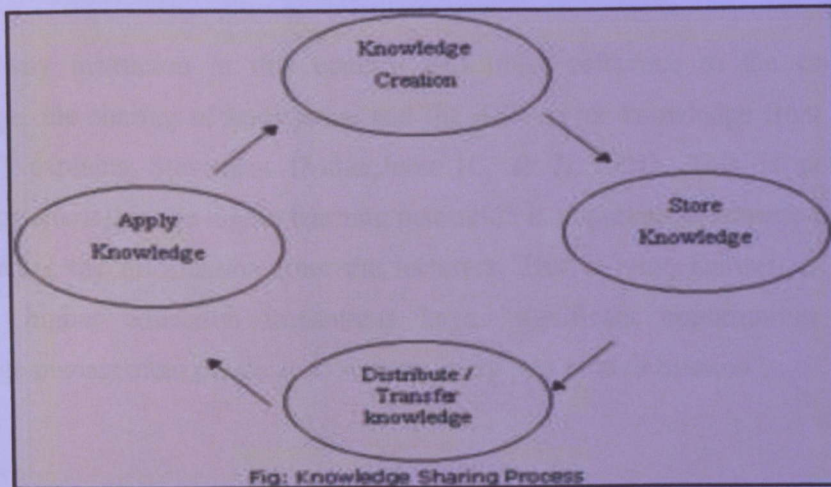


Figure 2.1 Knowledge Sharing Process

2.2 Knowledge Sharing in Higher Learning Institutions

Knowledge sharing practices has gaining huge impact in an education sector nowadays. There are several institutions across the country have recently received grants to implement knowledge management practices. Cuyahoga Community College in Cleveland, Ohio- perhaps the first educational organization in the country to receive a grant for knowledge management (Lisa A.P & Thad R. N, 2003). There are a number of findings that discussed on the practice of knowledge sharing in higher learning education. According to Maizatul et al. (2005) , in the higher learning education are no longer providing the knowledge for the students but also for the future reference Besides, learning institutions in the overseas also adapted the knowledge to their knowledge-based society (Kostas, Metaxiotis, John Psarras, 2003). For some universities in Malaysia, research was initiated as the key knowledge creation and knowledge dissemination (Maizatul et al., 2005). Additionally, research papers that being published and shared globally with the other learning institutions help in contributing to the knowledge sharing practices around the world. Research is part of knowledge sharing practice where it is combination numbers of view of others about a topic.

"Almost any institution in this country will make reference to the capturing of knowledge, the sharing of knowledge and the delivery of knowledge from faculty to students," explains Stevenson (Milan, John H., & Jr., 2001). This is proven that, knowledge sharing in the higher learning institution is important to educate the students by delivering the information from the lecturers. That is why, Kidwell et Al (2001) explains, higher education institutions have "significant opportunities to apply knowledge management practices to support every part of their mission".

2.3 Project-Based Course

Project-based course is derived from project-based learning. John Thomas (2000) explains that project-based learning requires "complex tasks, based on challenging questions or problems, that involve students in design, problem-solving, decision making, or investigative activities; give students the opportunity to work relatively autonomously over extended periods of time; and culminate in realistic products or presentations." The project-based learning means that the course expected the students to produce the greatest result based on all the activities that being performed throughout the project. Others definition of project-based learning based on the questions below.

First we attempt to answer the question: What exactly is project-based learning? Adderley et al. (1975, p. 1) provided the following definition for the project method, which after a quarter of a century is still a good definition:

- (1) [projects] involve the solution of a problem; often, though not necessarily, set by the student himself [or herself];
- (2) they involve initiative by the student or group of students, and necessitate a variety of educational activities;
- (3) they commonly result in an end product (e.g., thesis, report, design plans, computer programme and model);
- (4) work often goes on for a considerable length of time;
- (5) teaching staff are involved in an advisory, rather than authoritarian, role at any or all of the stages – initiation, conduct and conclusion.

Referring to the above questions, aspects (1) and (3) is the crucial parts in the project-based course. This type of learning acquires the students to decide on the best solution for the possible problems identified. Furthermore, the end result of the project will reflect on the steps that students take based on decision making that the students decided earlier. According to Blumenfeld et al. (1991), the essence of project-based learning is that a question or problem serves to organize and drive activities; and these activities culminate in a final product that addresses the driving question (Blumenfeld et al. 1991). The questions derive from the way the students presenting the end result of the project with some justifications that will support the solution that has been produced. For the team project, students generally work in small, collaborative groups in the project-based learning model. They find sources, conduct research, and hold each other responsible for learning and the completion of tasks. Essentially, students must be “self-managers” in this approach to instruction (Mergendoller, J. & Thomas, J. (2000). Consequently, the right management of time and task are important for the project-based course in order to achieve the objectives of the project and excellent result.

2.4 Related Work

This section explained in details of the examples of the system that has the similarities to the system will be developed.

2.4.1 A Process Based Knowledge Management System for Schools: A Case Study in Taiwan

According to the research paper done by Chi-Lung LEE et al. (2010), it is an implementation of project-based knowledge management known as Project –Based Knowledge Management System for Schools (PKMSS). PKMSS being conducted in the secondary schools located around Taiwan. It is one of the ways to promote knowledge management in schools. The system contains several of knowledge management studies by focusing on the knowledge sharing as the main objectives of the system and practicing the inter-member interactions. The system based on several findings found in the knowledge management transfer process proposed by Nonaka and Takeuchi (1995) and various studies of the knowledge-management process (e.g., Shin, Holden and Schmidt, 2001; Nissen and Espino, 2000; Tiwana, 2002; Metaxiotis et al., 2003, etc.) to design a process-based knowledge management model that meet the needs of secondary schools level.

The portal designed based on the Knowledge Management Studies that emphasize more on the knowledge sharing practices. Therefore, the portal address core functions based on the each concept found in the knowledge management processes. There are four type of process that being highlighted in this model which consists of socialization, internalization, combination and externalization. All four general processes being implemented in the core function of the portal. We will further discuss on each implementation of the main function in details.

Firstly, one of the main functions named as Knowledge Generation and Acquisition which is in this function, the portal will enable the participants to generate new knowledge to be shared in the portal. The information will be documented from any tacit knowledge captured and stored it in the portal for other's reference or views. This is where the externalization process happened to extract the knowledge and transform them into the new form of knowledge. This is usually the first step taken in knowledge sharing process.

Secondly, the other function is the Sharing and Communication of Knowledge where once the knowledge being captured and documented, there will be a session of sharing the information occurred and at the same time establish the communication between the participants in the portal. Internalization and socialization of knowledge being implemented at this stage where there will be participation of the participants in sharing and exchanging knowledge in the portal. The participants can shared any relevant information related to the issue discussed. The information can be shared once the information gained approval from the experts that claimed the information is correct to avoid any misunderstanding at the end. For this section, the higher level management of the organization should take extra effort in this issue to overcome any irrelevant or false information being distributed. There is a must for the portal to be observed by a person that in charge of any changes made in the portal.

Thirdly, it is the stage where all the documents that being shared in the portal being gathered and combine to be applied. It is known as the Application and Evaluation of Knowledge. The knowledge that has been selected and approved by the participants will be evaluated either through discussion mechanism or voting. The participants can be discussed further on the documents and give feedbacks. This is to ensure that the knowledge that being chosen is suitable to be applied by the organization and improve

any weaknesses. This function is more toward the exchanging of the idea and opinions on the selected idea proposed.

Lastly, the last function is the Knowledge Compilation and Feedback where there will be a compilation of information from the evaluation process made earlier. All the information will be sent to all the participants to give their feedbacks before the information being finalized and documented into the new form of information. This is to prove that the result that being achieved based on the participant's agreement after having some reviews on the topic that being discussed. In this stage, the knowledge sharing objectives will be accomplished as all the four process being included in each functions to form a new form of information.

This portal has successfully combined all the basic process of the knowledge sharing and it can lead the portal to be the alternative to share knowledge virtually. In order to attract more interesting discussion, the issues raised must be between the participant's consent and enable them to throw any brilliant ideas. The privacy should be the priority to avoid any false concept or information being spread out. In this portal concept, the person that conduct the sharing activities should the focal person and responsible to observe the flow of the portal.

2.4.2 Development of Knowledge Portal Using Open Source Tools: A Case Study of FIIT, UNISEL

The investigation took place at Faculty of Industrial Information Technology (FIIT) in Universiti Selangor (Nur Razia.et.al., (2010). One of the main objectives of the development is to overcome the limitation of sharing knowledge culture among students and staffs in the university. Previously, there is no stable platform that supports knowledge sharing process unless sharing information manually either through meeting or offline discussions. There is also no repository for future references.

The main reason using as a medium to solve the problem is because it can reduce the cost and less time consuming. The choice of developing the portal is by using the open source tools available on the market for example, PHP programming language, JOOMLA and also MySQL for the database purpose.

Portal that being developed can become one of the main sources of information as well as increasing the efficiency and productivity of the faculty by eliminating the manual and offline knowledge sharing. Besides, the portal estimated to be one of the centers of information around UNISEL.

Based on the traditional way of sharing information in FIIT for example like Faculty Meeting, Informal Discussion, Faculty Activities Pen/Thumb Drive and so on. These following approaches being proved that it will only available on the current time and cannot be retrieved for future references. Therefore, with the existence of the portal that

being develop it will save all of the information into a single database and can be retrieved at any time when there is internet connection.

2.1 Chapter Overview

With using JOOMLA as the open source tools, the portal will be built to encourage the knowledge sharing on the learning methods and improve level of communication among the staffs. This method can be successful if the staffs have the willingness to contribute and share information with others. The portal also can as platform to interact any interest, issues or announcements that being updated in the faculty. Other than that, with the globalization of internet communication, portal will not be an obstacle to be reached by the staffs.

2.1.1 System Development Life Cycle (SDLC)

According to the Figure 2.1, System Development Life Cycle (SDLC) is the process that being used for the software development. During the Planning process, it will be the requirement gathering & project by defining the objectives, priorities and preparing the chart chart. Besides, the work on the system structure defined and establish the software that will be developed that collected by the process which has multiple iterations will be done and approved. Then, the analysis on the data collected will be reviewed and approved. Also, the design of the project will be implemented based on the flow of business process. Lastly, the progress of the system implementation will be reviewed and approved.

CHAPTER 3

METHODOLOGY

3.0 Chapter Overview

This chapter covers the process and method used to gather the information during this research. The aim of this study is to scrutinize the challenges that the students encountered while generating the ideas for the course. A survey techniques will be distributed to get the respondents perspective in UTP. The surveys involved the students that taking are currently taking FYP or TTP course through an online survey.

3.1 System Development Life Cycle (SDLC)

Referring to the Figure 3.1, System Development Life Cycle (SDLC) is the process that being used for this research methodology. During the Planning process, it is the first step before starting a project by defining the objectives, problems and preparing the Gantt chart. Besides, the study on the related literature reviews and technique for collecting data will be identified. Data collection is the process where the suitable technique will be chose and conducted. Next, the analysis on the data collected will be discussed and reviewed. As a result, the design of the project will be implemented based on the result of the data analysis. Lastly, the progress of the project implementation will be discussed by the end of the process.

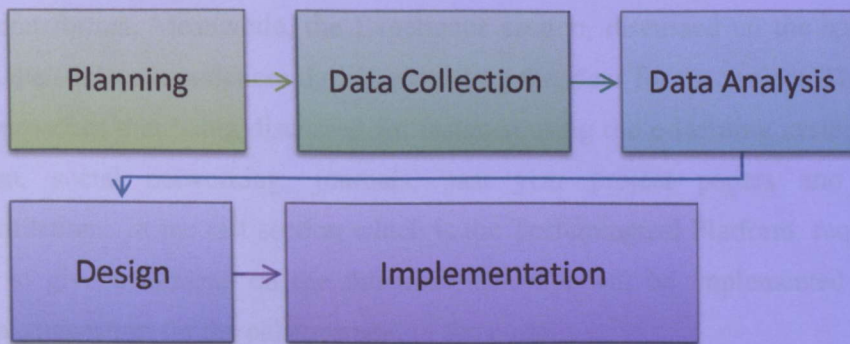


Figure 3.1 System Development Life Cycles (SDLC)

3.2 Planning Phase

Planning is the process that took place at the early stage of the project that involves planning about the whole project ideas, project title, supervisor, literature review, Gantt chart and the method for data collection process. Therefore, after finalizing the ideas and title of the project with the approval from the supervisors, Gantt chart being prepared. Gantt chart purpose is to ease the students in managing the time with the datelines. Subsequently for data collection method, online survey is the method that being chosen to collect the information from the students that taking FYP or TTP course.

3.3 Data Collection Phase

The survey is being conducted among the students that are currently taking the course. The surveys also gathered the information from the students that previously registered for the course. The purpose of this survey is to get the respondents perspectives on the knowledge sharing practices in these two courses. Survey has been divided into three main sections that are Challenges, Experiences and Technological Platform. Challenges section required the respondents to give feedback about the difficulties encountered while gathering the information for the courses. The information consists of the Report Writing guideline, citation, lecturer profile, and lecturer expertise area and also

presentation format. Meanwhile, the Experience section, discussed on the approaches based on the student experiences during generating the ideas for the project. There are a lot of approaches that being discussed for instance using the e-learning system, online discussion, social networking, journals, past year project papers and lecturer recommendations. In the last section which is the Technological Platform, required the students to give comments on the functionalities that will be implemented and any additional suggestion for the enhancement of the portal.

3.3 Implementation Phase

The surveys will be distributed for two week to gain the feedbacks from the respondents. The online survey that being used is Google Docs Form which an online survey which provided by Google. The number of respondents and the comments will be analyzed in the database that being captured during the distribution of the surveys. Feedbacks and comments provided by the respondents will be reviewed to enhance the implementation of the portal.

3.4 Data Analysis Phase

Based on the result obtained from the surveys, pie chart and statistics will be prepared based on the outcome of the surveys. The key points of the result will be captured from the surveys and will be the main indicators for the project implementation. The analysis process also includes the transformation of the data into User Class Diagram and Class Diagram. The result of the analysis will be discussed further in the next chapter, Result and Discussion.

3.5 Design Phase

It is the process where based on the result obtained, the architecture design of the project will be prepared using the UML Diagram to foresee the elements that will be included in the project.

3.6 Implementation Phase

This is the process where the portal started to be implemented. The progress of each implementation will be specified.

- Flow chart of the project implementations
- User Acceptance Test

Tools required during the implementation of the portal:

- MySQL database
- Server Domain
- Web 2.0 application
- PHP programming Language, Dreamweaver

3.7 Expected Output

As a conclusion, from the overall overview of the study, it has been discovered the implementation of knowledge sharing practice among students in TTP and FYP course is required. The knowledge that being shared among the student are still insufficient in generating the ideas for the project, Report Writing guideline and also information about presentation. Tacit knowledge is difficult to be captured and requires extra effort or others people to obtain the knowledge. An example of capturing information from the supervisor is regarding the report writing style which might be different for each

student. However, if the students willing to share the information gained with others, people will be informed about the supervisors' style and expectations and help student in writing report. As a result, a portal will be designed specifically for the students who currently taking FYP or TTP project. It will be implemented to ease for the students to share some tips or informative information about the project, lecturer, guidelines, lecturer supervision style and other related issues to the course or as reference for the next students enrolled this course.

3.8 Key Milestones

Table 1 Key Milestones

Description	Week
PROGRESS REPORT	W7
PRE-EDX	W10
DISSERTATION	W11
VIVA	W13
FINAL DISSERTATION	W14

3.9 Gantt Chart

Refer to Appendix 1.

CHAPTER 4

RESULT AND DISCUSSION

4.0 Chapter Overview

Data being gathered during findings and surveys will be discussed further in this chapter to be implemented with the relevancy of the project to be built.

4.1 Project Based Course Portal for CIS Department

The portal is focuses on knowledge sharing process among the students and lecturers on project-based course. The two main project courses that involved are Technopreneurhip Team Project (TTP) and Final Year Project (FYP).

TTP is the subject that required the students to come up with a project in a team which related to the marketing strategies, entrepreneurship and business skills. The course will be evaluated by external examiners that have the experience in the real business world. The project will be graded based on the requirements that being set at the early of the semester. Some of the reports that included in the course are business plan, financial projection, prototype of the project, marketing strategy and presentation to promote the project. Each team will be supervised by a lecturer that can assist in any problems faced by the team. The duration of the course only taken place during the current semester student enrolled the course.

Aside from TTP, FYP is the other project-based course but it is different as the project will be handled by student individually. Student need to produce a prototype together with a thesis at the end of project. The title of the project can be chose according to the students' interest in certain area and the availability of the lecturer to supervise the student. Title of the project can be proposed by the student or from the lecturer. Each student must be supervised by a lecturer and for the co-supervisor it is an optional. FYP will be carried out for two semesters as for the first semester students will do the preparation or documentation of the project, while during the next semester is the development phase. The evaluation for FYP is the same as TTP where the project will be graded based on the requirements set by the external examiners.

The aim of the portal is to ease the students to gather knowledge that they required from both courses defined above. The students can gain more knowledge through the discussion and forum implemented in this portal. This is the core functions of knowledge sharing process in this portal. In UTP, there is a portal called UTP e-learning that being developed by the university to help the students and lecturers communicate through sharing lecturer slides, announcements, academic materials and several other activities. However, the existence of the portal only specific for the lecturers to manage the portal, where the student do not get the opportunity to voice out any issues related in the portal aside from sent email to the lecturer. Students do not have the authority to open discussion forum in any page as it is restricted to the lecturer only. The frequency of using the portal also is based on the lecturer, as sometime there is lecturer prefer to distribute the academic materials manually. There is less usage of the e-learning from what has been expected. From the perspective of the student, the portal is really useful if the information stored is updated regularly and emphasized the students and lecturers to use the portal as the main medium of transferring information. Lecturers also can utilize the usage e-learning by having more conversation with students through the portal and set the test or assignment using e-learning.

The main differences between e-learning and the portal are the new portal's main objective are to promote the knowledge sharing practice on the two most challenging course that student taking and allowed the students to exchange opinions regarding any issues. These two courses have their own similarities in term of the documentation and preparation of the prototype. While taking these two courses the students tend to be more focus and allocated more time to complete the project. So, this portal can help to minimize the workload of the students and ease the student's burden by providing useful information from the lecturers and also students.

4.2 Data Gathering

Through the findings on the knowledge management system that was being developed for the secondary school in Taiwan. There are some models of the portals derived from the same concept of the models.

Table 2 Models Behavior for Project Based Course Portal for CIS Department

Knowledge Sharing Process	Description	Model
Knowledge Creation	Students can publish any topics or problems that the students willing to share and discuss in the portal about the project. The knowledge that the students get from the lecturers or any readings also can be written in the portal.	Discussion Forum
Sharing and Communication of Knowledge	The students will exchange the ideas through the Discussion Forums site where students can participate in giving opinions or sharing experiences related any issues raised in the course. Besides, student can help other students to solve the problem of getting the reliable source for the project.	Discussion Forum

Application of Knowledge	The information that the students gathered from the portal, can be used for the students to do the analysis and creating the new project or do some changes and enhancement on the existing project. The list of the project being listed in the portal will help the students to get the overview idea for the project.	Project Information
Knowledge Storage	The portal will be the place where all the required documentation for the two courses will be provided with the permission of the right people. The documentations that being approved will being published in the portal by the system administrator.	Course Information, Project Information, Research Method and the Lecturer Information

Other than these findings, this research also conducted survey to the students that currently taking the courses and the previous students that taking the courses. The survey being distributed to identify the real problems of students encountered in completing the courses.

4.3 Survey Results

The result of the surveys being analyzed based on the outcome and feedbacks from the surveys that being distributed. There are several important issues that being pointed out in every section in the survey questionnaire. The sample of questionnaire can refer at Appendix 2. The result being divided into three main sections which are involved 20 students. For each rating scale will be pointed a value used to get the total of the number of value for each section.

4.3.1 Challenges sections

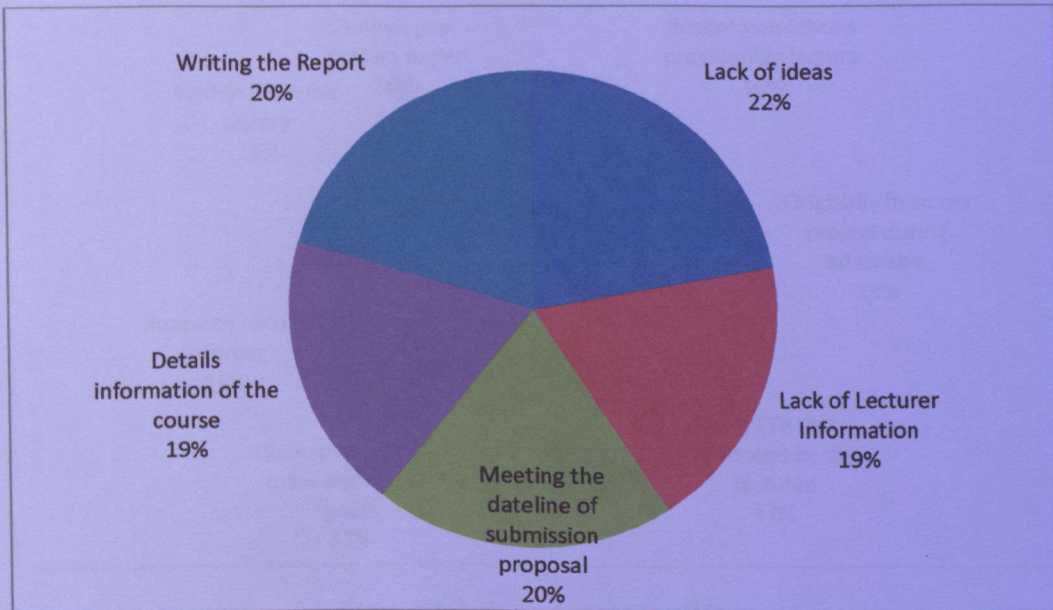


Figure 4.1 Challenges Section

Figure 4.1 can be concluded that most of the students find out that the students have the challenging part in the gathering the idea for the project. Secondly is the writing Report part which including the methods to write the literature review, citation or reference, research methodology, business plan and etc according to the course requirements. Therefore, in the implementation of the portal, documents that are related to the Writing Report and gathering ideas for the project will be more focus. Information about the course, lecturer and the dateline will be the other challenges that the student faced.

4.3.2 Experiences sections

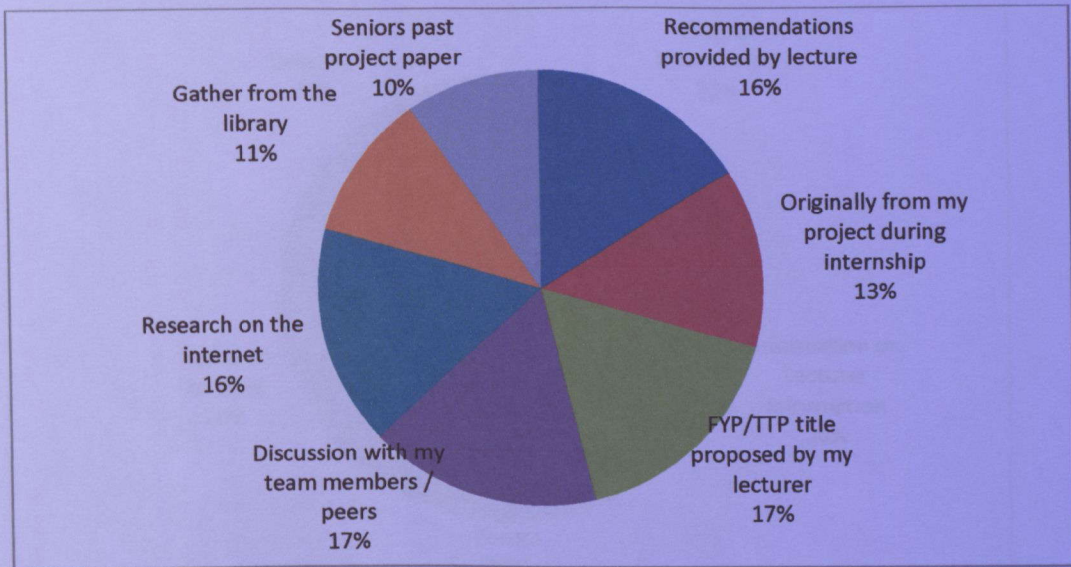


Figure 4.2 Experiences Sections

Figure 4.2 shows students give the feedback on this section has no big differences based on the result obtained, students is gaining the experiences of the project mostly from discussions with the team member or peers and also the lecturer. Other than that, there are students that gather the information from the internet and implementing the project that they are doing during the internship. Recommendations from the lecturer also give an impact to students while doing their project. Lastly, students collected information based on seniors past year project and also resources available at the library.

4.3.3 Technologies sections

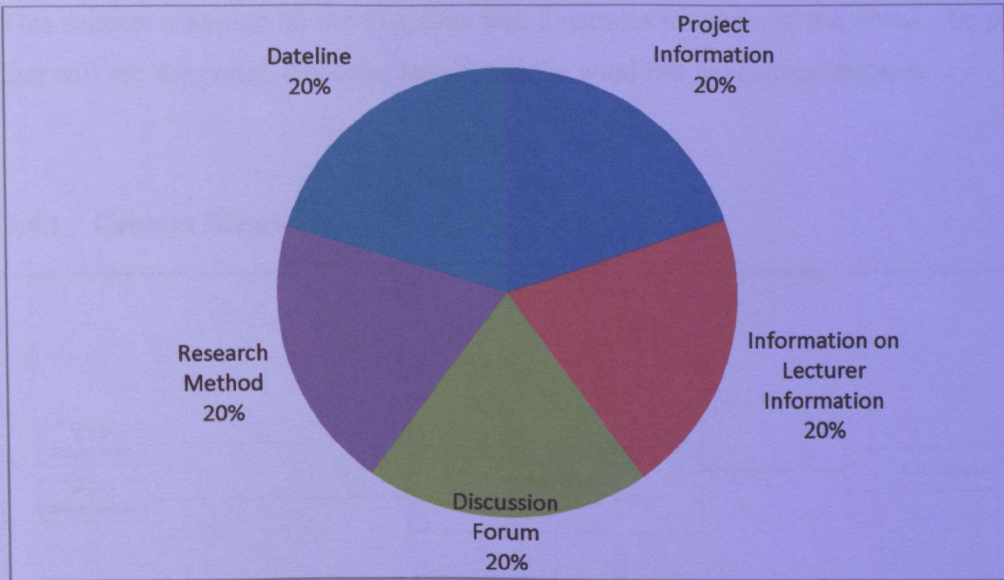


Figure 4.3 Technologies Sections

In the technologies sections on Figure 4.3, the functionalities that get the most feedback from the students came from the Lecture Information, Research Methods and Discussion and Forum. This implementation can be applied in the portal to meet the student requirements. Students required extra information on these activities to ensure that the students get the right direction on solving the problems and provide the best solution. From the Discussions Forums activities, students can share the information with others and give their opinions on other's problem and applies knowledge sharing practice in this portal.

4.4 Diagrams

This section including all the diagrams that illustrates the flow of the portal, the person that will use the portal, database, server and the windows navigation diagram.

4.4.1 Context Diagram

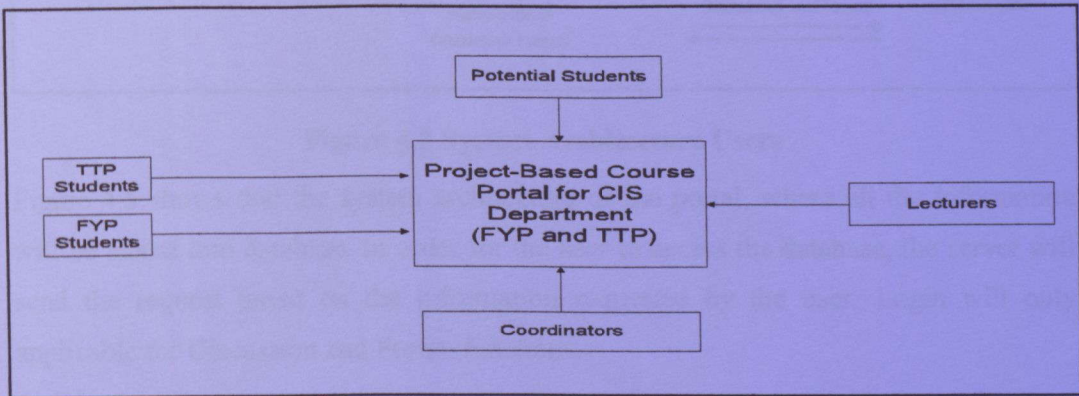


Figure 4.4 Context Diagram

From the Figure 4.4, it shows that the portal will be involving five different users that can have the different level of access to the portal.

Coordinators - Consist of the lecturers that have been assigned in monitoring each course which is FYP and TTP.

Users- Users can be divided into three parts which are FYP students, TTP students and Lecturers.

Potential Users- It is also known as Guest where the person can only view the portal.

4.4.2 System Architecture

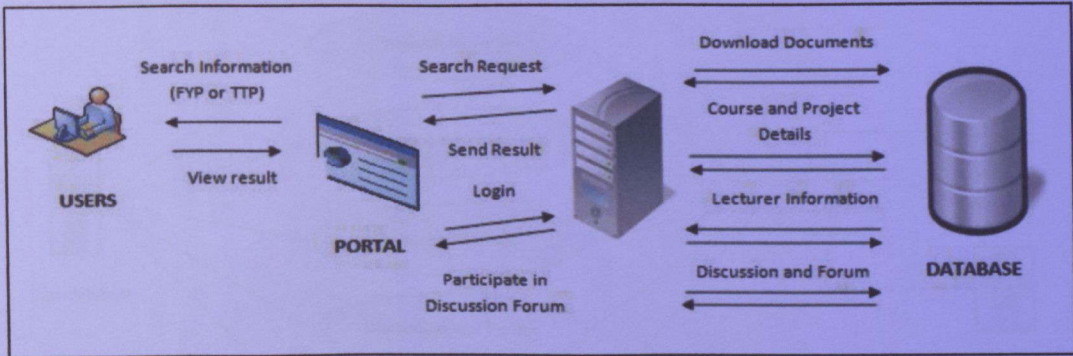


Figure 4.5 System Architecture Users

Figure 4.5 shows that the system architecture of the portal, where all the information will be stored into database. In order for the user to access the database, the server will send the request based on the information requested by the user. Login will only applicable for Discussion and Forum functions.

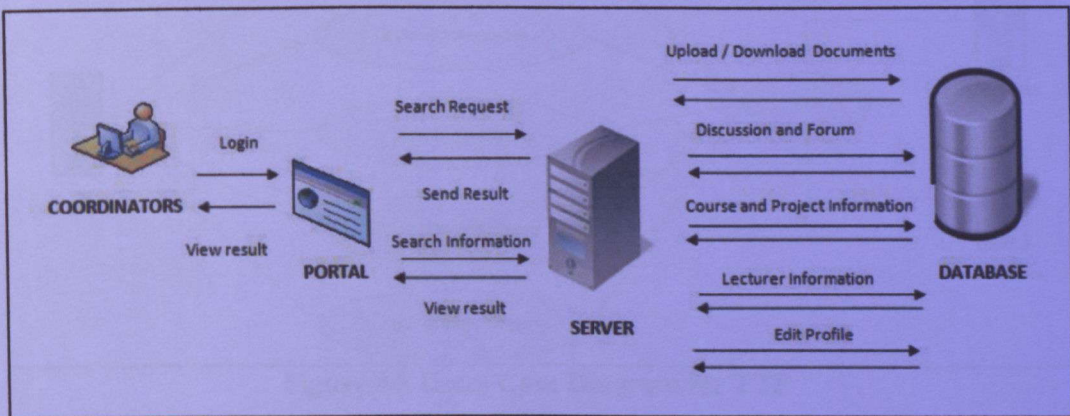


Figure 4.6 System Architecture Coordinators

Figure 4.6 is the system architecture of the portal for the coordinators, where all the information will be stored into database. In order for the coordinators to access the database and edit, delete or add any documents, login is needed to process to the next activities. For both users, the same database will be used to integrate the portal.

4.4.3 User Case Diagram

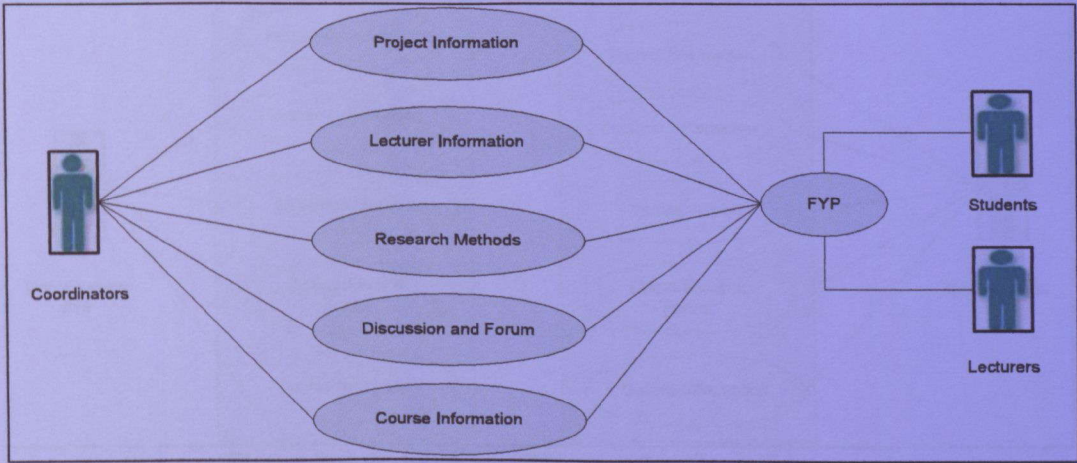


Figure 4.7 Users Case Diagram for FYP

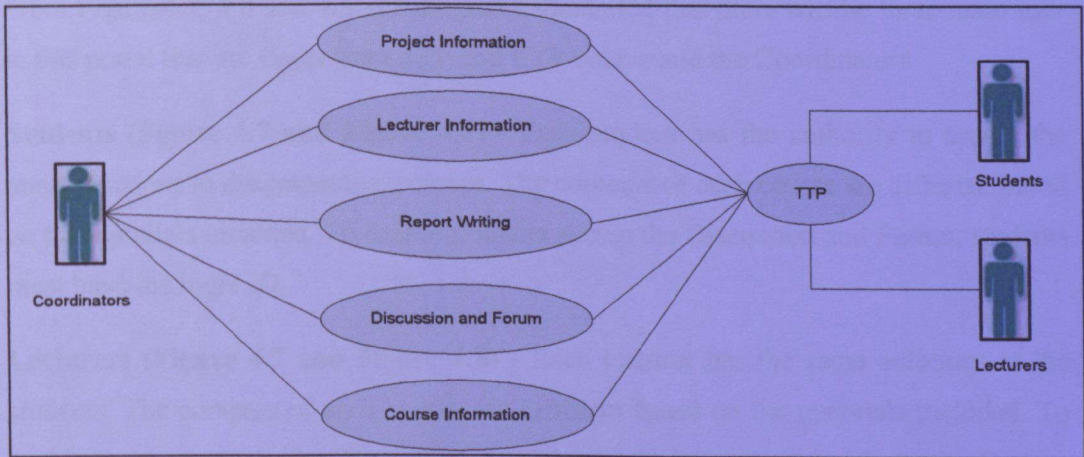


Figure 4.8 Users Case Diagram for TTP

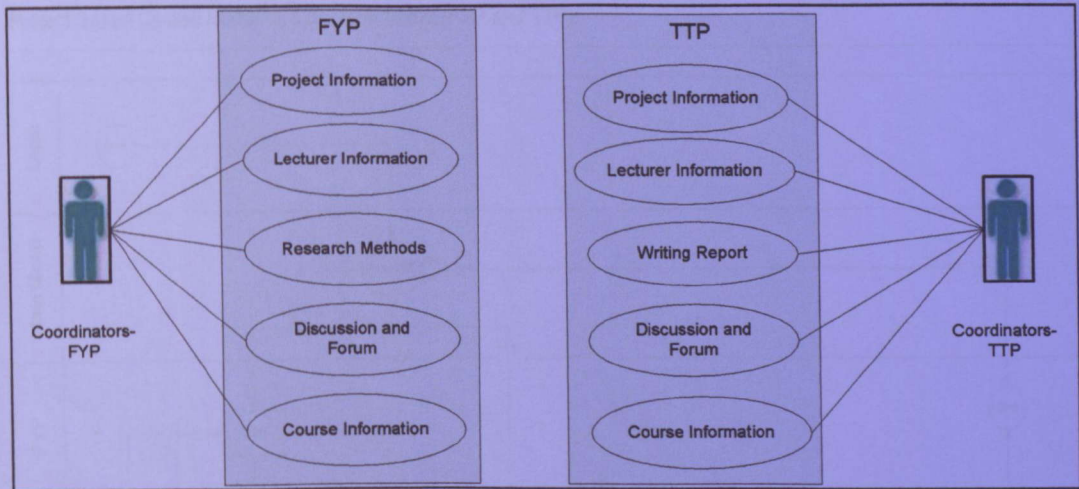


Figure 4.9 Users Case Diagram for Coordinators

From Figure 4.7, 4.8 and 4.9, the diagrams illustrated that there will be three main user in this portal that are Users from TTP and FYP course and the Coordinators.

Students (Figure 4.7 and Figure 4.8) - Each student has the authority to access the main functions in the respective courses. The contents of each course are different based on the materials included. To enable students access the Discussion and Forum, students must have the login ID.

Lecturers (Figure 4.7 and Figure 4.8) - Each lecturer has the same authority as the students. The contents of each course are different based on the materials included. To enable lecturers access the Discussion and Forum, lecturers must have the login ID.

Coordinators (Figure 4.9) – It is a person that being responsible to manage the portal, database and the information that being stored inside the portal. All the information stored in the portal has to get the permission from the respective person on documents to ensure it meets the courses requirements to avoid any misunderstandings. In this portal, FYP and TTP coordinators will be in charge of this section.

4.4.4 Activity Diagram

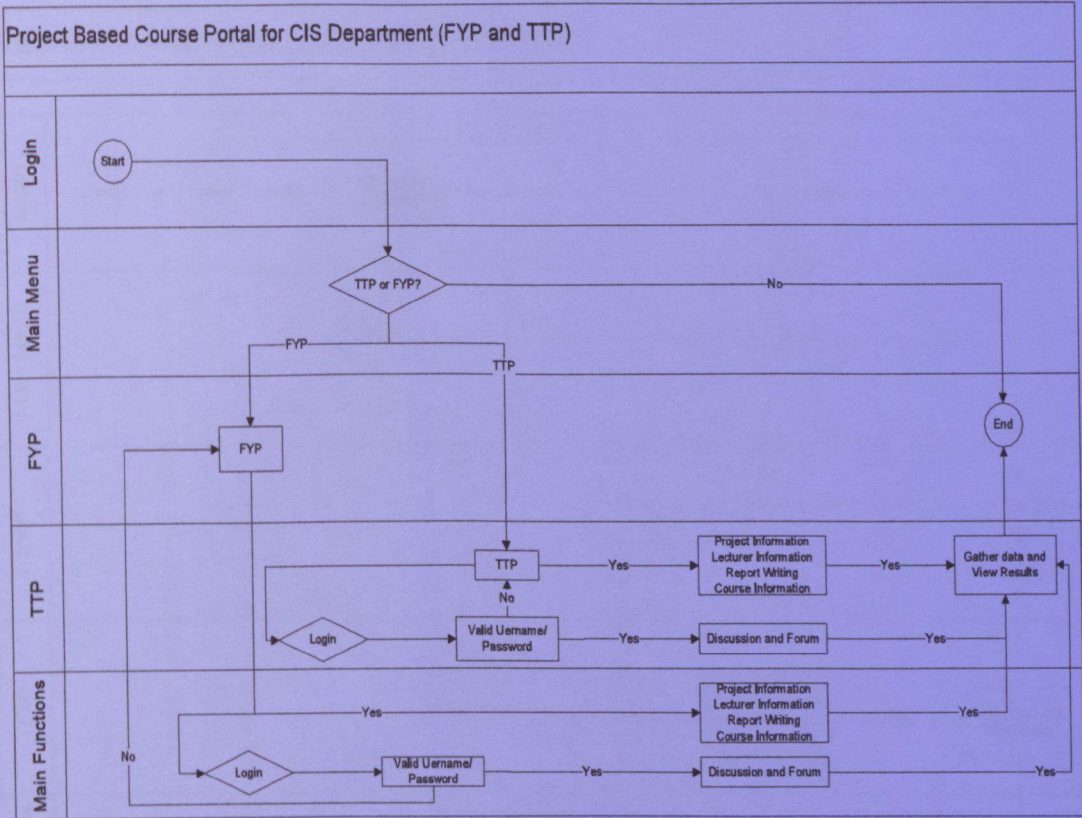


Figure 4.10 Activity Diagram for Users

The activity diagram at Figure 4.10 shows that users can view all the four main functions in the portal except the Discussion and Forum functions. Users can view the website by choosing between two courses, FYP and TTP as the contents are different. Before the user can participate or view the Discussion and Forum page, users need to login with the given Username and Password. It is to provide the secure the information posted in the portal within the university. However, for Guest, they only can view the portal but do not participate in Discussion and Forum page.

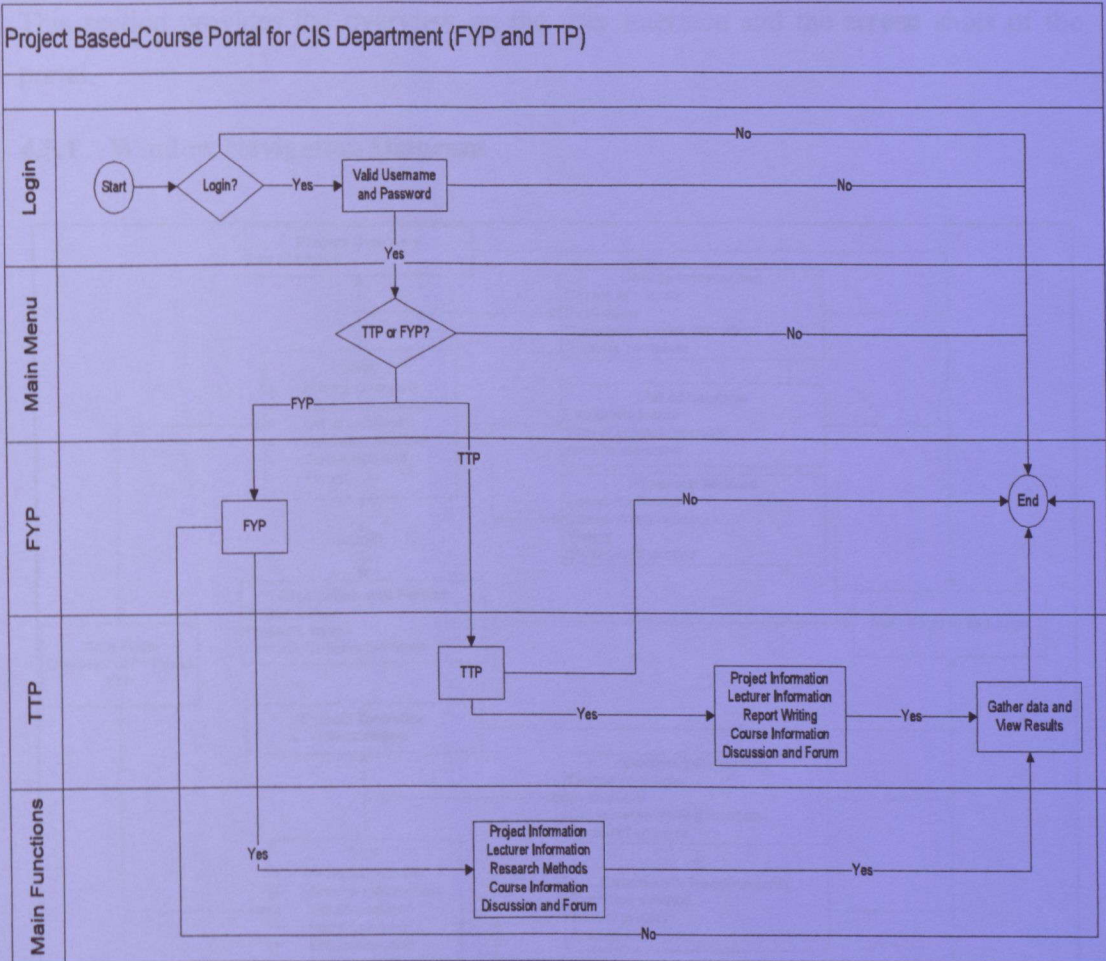


Figure 4.11 Activity Diagram for Coordinators

The activity diagram at Figure 4.11 shows that coordinators can view all the five main functions in the portal. Coordinators can add, delete, or edit any related documents to be shared in the portal. Before proceed with the activities, coordinators will login with the given Username and Password that specific for the coordinators. The coordinators also act as the web master that monitors all the information being circulated in the portal. Besides, the level of authority is higher compared to the users.

4.5 Prototype

This section provides the overview on the user interface and the screen shots of the portal.

4.5.1 Window Navigation Diagram

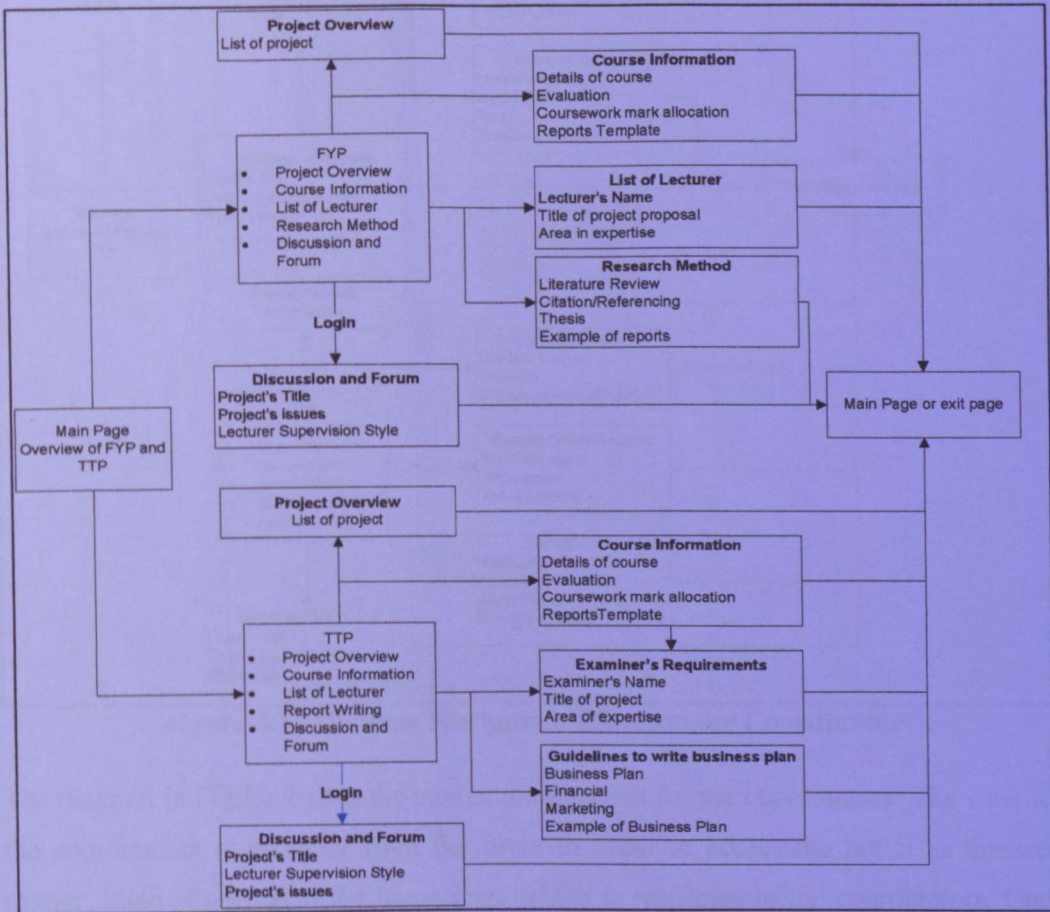


Figure 4.12 Window Navigation Diagram for User

The diagram in Figure 4.12 is the navigation diagram where it shows the flow of the portal page from the start until the user view the results. Once the user choose either FYP or TTP, it will redirect to the course own main page and listed the five main functions that the course has. The user can view the four main functions except for the Discussion and Forum page, where login is needed to proceed. The section can enable the user to post or commented on any discussion or issues related posted.

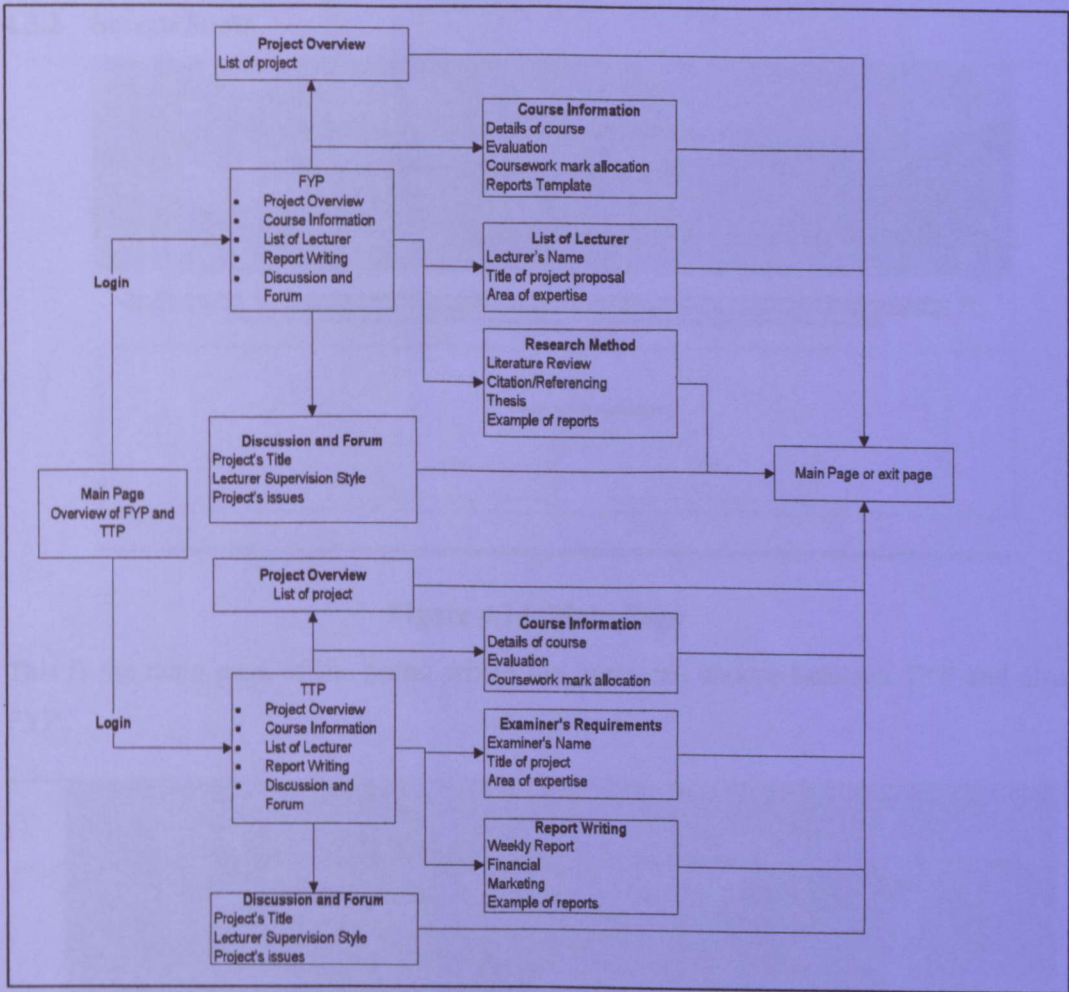


Figure 4.13 Window Navigation Diagram for Coordinator

The diagram in Figure 4.13 is the navigation diagram for the coordinators. The view for the coordinators is different from the users in order to access the portal as the web master; login is needed at the home page which is restricted to the coordinators. Once the coordinators login into the website, the view of the portal will be the same as the user's page but coordinators has the right to upload, edit, delete, add or change any related documents in the portal unlike the users.

4.5.2 Screen Shots

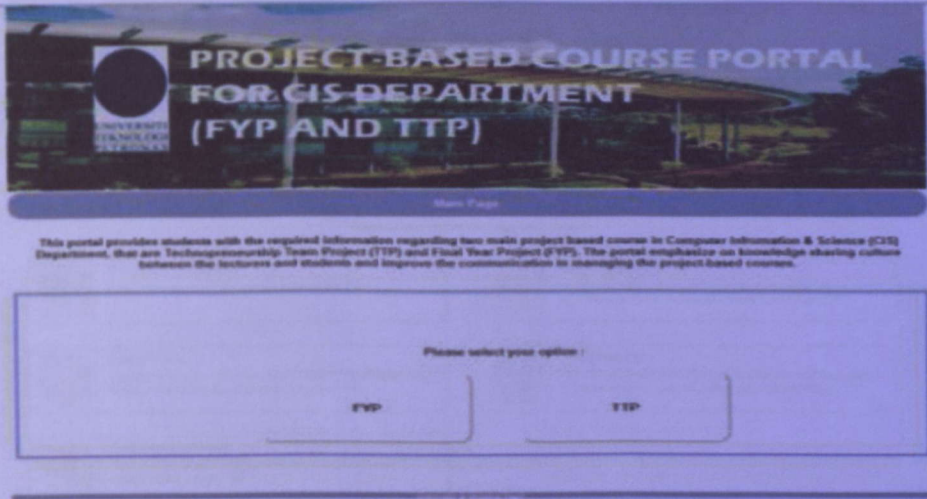


Figure 4.14 Main Page

This is the main page of the portal where the users can choose between TTP and also FYP.

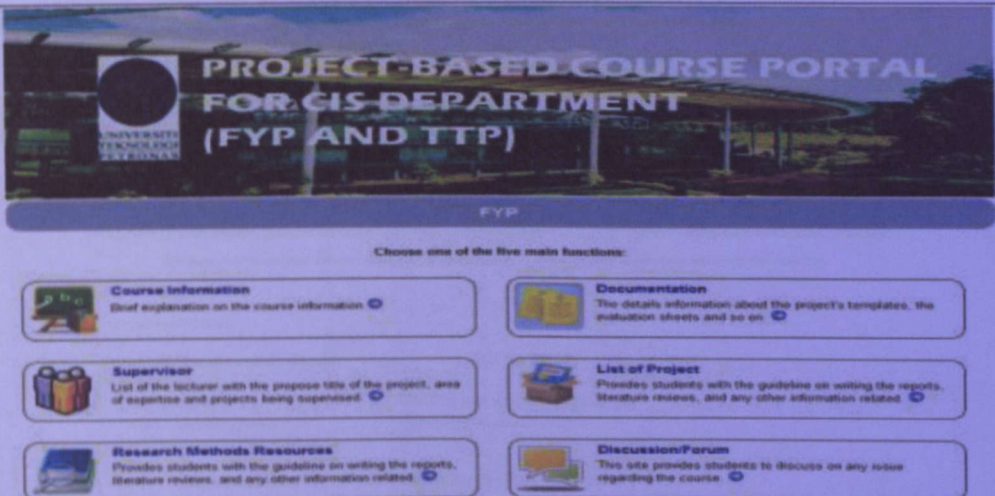


Figure 4.15 Main Menu for FYP

In the FYP, there are six different main functions that are Course Information, Documentation, Supervisors, List of Project, Research Method Resources and Discussion or Forum.

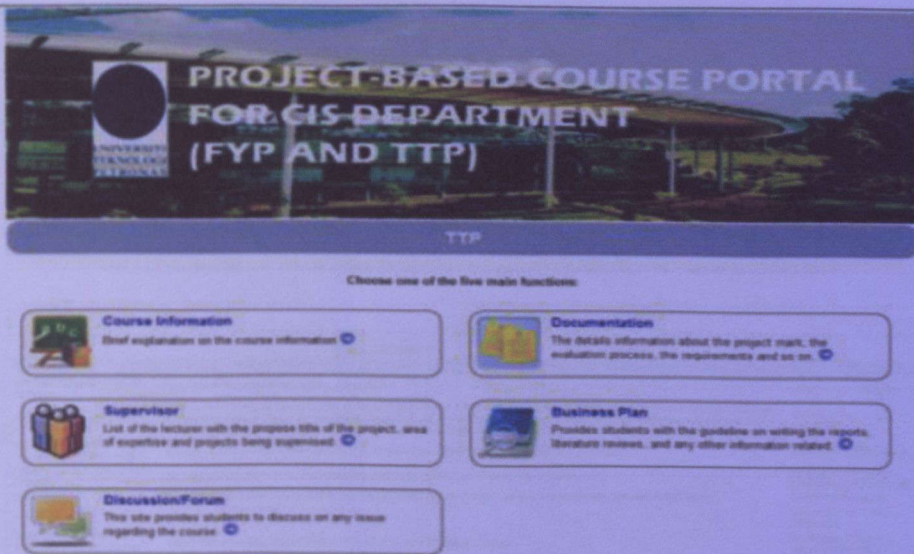


Figure 4.16 Main Menu for TTP

In the TTP, there are five different main functions that are Course Information, Documentation, Supervisors, Business Plan and Discussion or Forum.

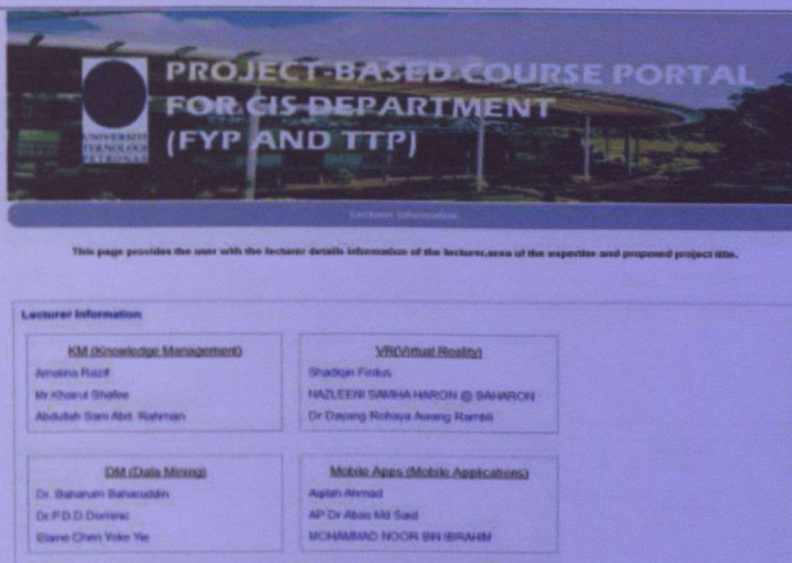
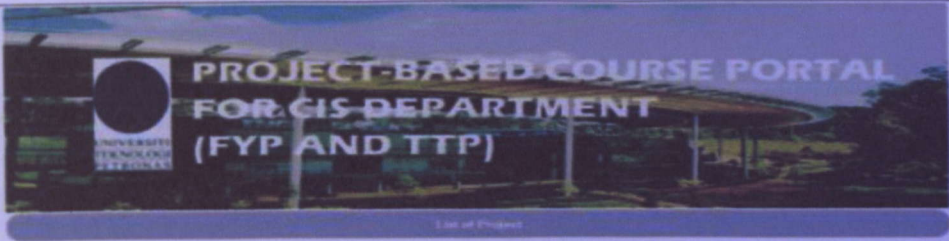


Figure 4.17 Supervisors Page

In the supervisor's page, it described the supervisor's details with the profiling on the area of the expertise. It also contains the email, proposed title, past projects and details of supervisors.



This page provides the user with the required documents that need to be completed by the students about the course.

Search

Title Project	Description	Lecturer
3D Modeling From 2D images	Transforming image from 2D image to 3D	AP Dr Adam Md Saad
Artificial Intelligence (AI)	Artificial Intelligence (AI) is the key technology in many of today's novel applications, ranging from banking systems that detect attempted credit card fraud, to telephone systems that understand speech, to software systems that notice when you're having problems and offer appropriate advice.	Dr Mohd Fadzil Bin HASSAN
Mobile Instant Messaging As an Alternative To GMS	System looks like instant messaging for example Gtalk, Yahoo Messenger, WhatsApp	Mohd Heng Bin Hassan
Mobile Access Document System	Access the document from the mobile or smartphone that compatible with any size	HAZLEEN SABRIKA HARON @ SHARON
UTP Mail	System that can allow student to buy things through an online service. For example, Unisearch.HB Mail	Dr F D Comrie
None	None	Abdulrah Saleh Alad Rahuman
Virtual Reality For Education And Training	Virtual Reality application for the education and training purposes	Dr Dayang Rohaya Azang Ramli
Mobile Ticketing System	Online ticketing system	Ehsan Chai Yuh Te
Mobile Food Ordering System	The system that detects and serve the customer with an online food ordering	SOHABUD MOOR BIN IBRAHIM

Figure 4.18 List of Project

In this section, it will be listed a list of project of past project that has the details of project with the title of project, description and the supervisors.

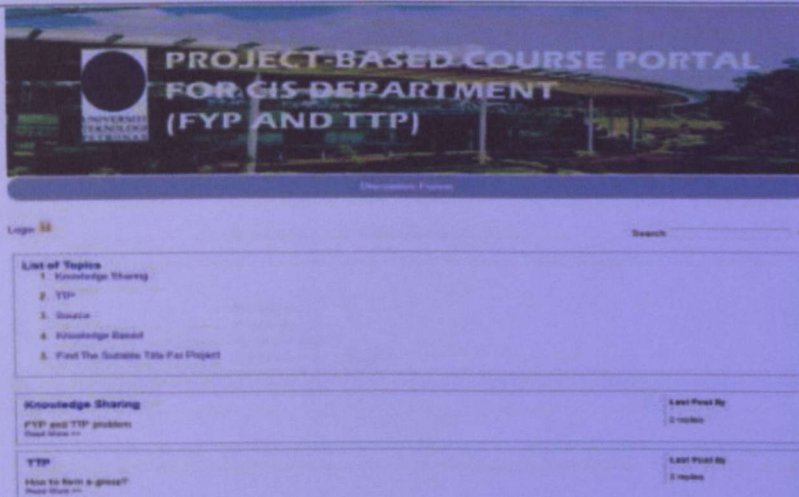


Figure 4.19 Discussion and Forum Page

This is the section where the users can participate in the forum. The users can see the overview of forum that being posted by the previous user that being discussed.

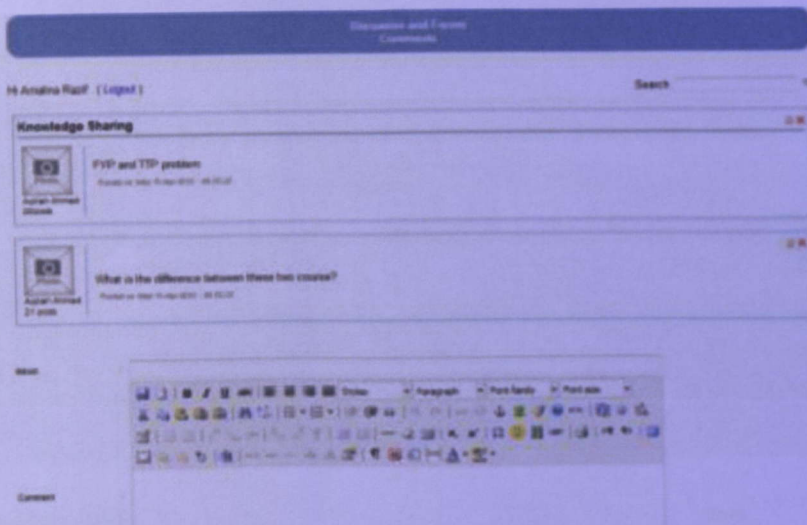


Figure 4.20 Comments Page

In the forum, the users can commented on the title of the forum that being created. The users also can create the new post or issues in the forum.

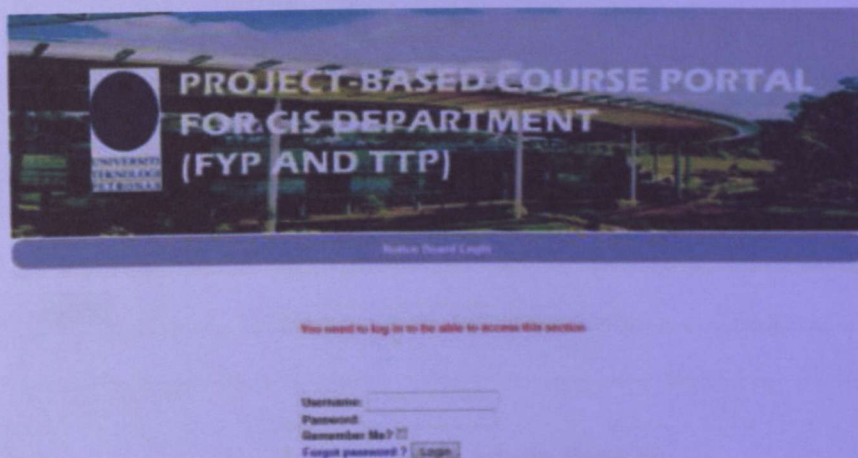
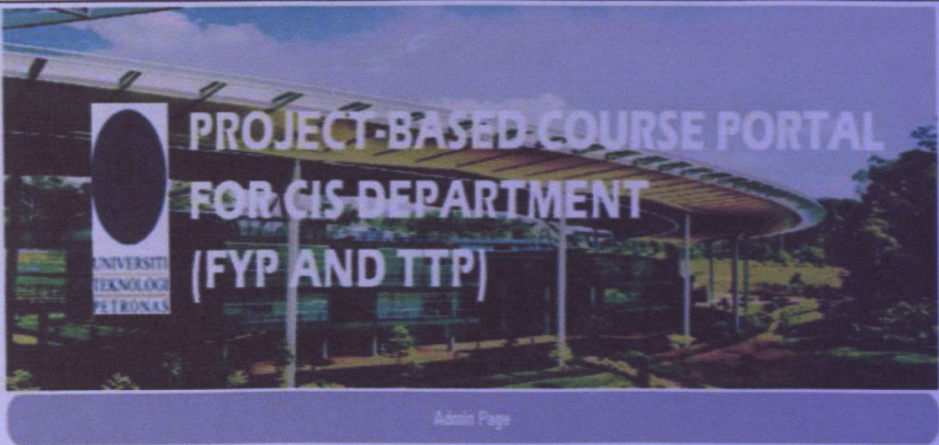


Figure 4.21 Login Page

The login page of the portal is needed for the user to participate in the Discussion and Forum section. The login page also required for the admin to login in the admin page.



Hi Administrator. (Logout)

Search

Administrator
View All File

Upload File

Title File

Course: Directories:

Add URL or Examples

Link URL Title

Section: Course:

Figure 4.22 Admin Page

The admin page is restricted to the admin where it is the coordinator for FYP and TTP that has been assigned. The page contains the platform for the admin to upload the required file or documents needed to be viewed in the portal. Admin also has the authority to create the new user, the URL or link of the webpage and edit or view the uploaded files.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.0 Chapter Overview

This chapter explained about the recommendations that can be enhanced in the portal for the future and also the conclusion part.

5.1 Recommendations

The portal that being implemented can be one of the sources of the information that the students will be used to as the other ways of gathering information about FYP and TTP course. Apart from e-learning, this portal can be as a secondary medium that interact the students with each other in term of educational purpose specifically related to project-based courses.

In future, the portal can be used as a platform for students and lecturer to exchange the ideas and opinions about the projects that being developed by the students. The students can have the virtual discussion with lecturers by having the online messenger application embedded in the system. The system can also include the application that enables the supervisors to inform the particular students that currently under the supervisor's supervision about any information. The application can reach to each student's profile on the updates made by the supervisors. This is to notice all the students about certain information like datelines, availability of the lecturers, appointment and so on.

With the advancement of technology nowadays, mobile application is the most popular technology being developed in the new technological eras. The mobile application portal also can be implemented where the students and lecturers can have the access to the system by only using the smart phone and be more alert on every updates that being announced.

5.2 Conclusion

As a conclusion, this research study helps the students solve the problems faced to gather all the information about these two courses into a single platform that integrates all the information named Project Based Course Portal for CIS Department. The portal allows the students to exchange and share ideas about the other's student project in the context of knowledge sharing practices.

It is the other alternatives that the students can be used to gather any information regarding these two courses. The information consists of various type of information for example, the documentation, and discussion on the issues of the project, guidelines on writing the report, lecture's information and so on.

With the implementation of the portal, it can assists and reduce the workloads of the students to gather the information of the courses. The portal provides the students to have the access to two courses which is basically required the students to come out with the same techniques of learning objectives and requirements.

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7.0 Appendices

Appendix 1

Gantt Chart for FYP Project (Mur Amalina Et Ahmad Razif 12129)

Task	Week 1 26.1-27.1	Week 2 30.1-5.2	Week 3 6.2-12.2	Week 4 13.2-19.2	Week 5 20.2-26.2	Week 6 27.2-4.3	Week 7 6.3-14.3	Week 8 17.3-19.3	Week 9 20.3-26.3	Week 10 28.3-1.4	Week 11 24.4-3.4	Week 12 9.4-15.4	Week 13 16.4-22.4	Week 14 23.4-29.4
Project Flow Planning	Analyze the results into pie chart													
Analysis	pie chart													
	Gather the results- eg chart, or chart, results of surveys and etc													
Design	Specify the design of the project by using User Case Diagram													
	Class Diagram, Object Diagrams													
	Draw the User Interface													
Implementation	Plan on the Design of the Database system													
	Design the Architecture													
	Design of the model													
	Prepare the system flow of the model													
Final Report	Start to Implement the system (week 7- 75%)													
FYP 2														
Project Development	FYP 2 Important													
	Current Stage													
<div style="border: 1px solid black; width: 100px; height: 15px; margin: 0 auto;"></div>														

FYP 2 Important
Project Development
Current Stage

Appendix 2

Knowledge Sharing Portal Project-Based Course Survey Questions

The purpose of this survey being conducted is to obtain the respondents perspective on the knowledge sharing practice which will be implemented in the Knowledge Sharing Portal Project-Based Course. This system involved two project-based courses in Computer Information System (CIS) department, Technopreneurship Team Project (TTP) and Final Year Project (FYP). This system is the platform that integrates all the information needed by the students about the course.

* Required

Respondents Profile *

Gender

Male

Female

Programme *

Year of Study *

Are you taking FYP or TPP subject this semester? *

YES

This survey will be divided in three main sections: A: Challenges, B: Respondent Experiences and C: Technological Platform

Section A: Challenges

Challenges that you have faced while searching for all the information that is related with TTP or FYP courses.

1. Rate the difficulties in finding the idea for the project (e.g. topic, scope, background, etc.)

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Rate the difficulties in seeking information about the guidelines, objectives, documentations and course outline.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Rate the difficulties in finding the past year projects information

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Rate the challenges that you encounter when finding important information for project-based courses

	Very Challenging	Challenging	Neutral	Less Challenging	No Challenge
i. Lack of Ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. Lack of Lecturers Information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. Meeting the deadline of submission proposal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iv. Details Information about the course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
v. Writing the Report	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Please indicate any other challenges that you faced when finding information on project-based

Section B: Experiences

B-1: Experiences in finding ideas for project title / background

B-2: Experiences in finding information about the course

B-3: Experiences in finding information about the potential supervisors

B-4: Experiences in doing the project

B-1: Experiences in finding ideas for project title / background

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I gather the ideas for my project from the recommendations provided by lecturer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The ideas for my project originally from my project during internship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I decided to proceed with my FYP/TTP title proposed by my lecturer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The FYP/TTP title that I proposed to my supervisor was based on the discussion with my team members / peers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. The ideas/title for my FYP/TTP project was based on my research on the internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. The ideas for my FYP/TTP project was based on the information that I gather from the library	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. The FYP/TTP title / ideas that I proposed to my supervisor was based the seniors past project paper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B-2: Experiences in finding information about the course

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I get information about TTP/FYP from e-learning (e.g. guideline, course outline, submission date)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I gather FYP/TTP project title / ideas from social network sites such as Facebook, Twitter.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I find the information of the course while having conversation with friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B-3: Experiences in finding information about the potential supervisors

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I do some research on finding the supervisors (e.g. area specialization, expertise, past year research paper)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I gather details of the supervisor from the lecturer profile and the proposed title in the e-learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. The supervisor for my FYP/TTP project was based on the recommendations of seniors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B-4: Experiences in doing the project

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. When doing project, I use teams discussion forums for research and gathering of information (e.g. research tips, source codes, design samples etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I refer to some research papers on the internet to produce my Report Writing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I gather the ideas for my FYP/TTP based on the analysis of product that already existed in the market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I get the advice from the lecturer on the guideline on Report Writing (e.g. Extended Proposal, Literature Review, Methodology and Presentation, Citation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. The presentation for FYP/TTP project was prepared based on the requirements set by the evaluator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section C: Technological Platform

The section will gather information about the portal. It includes the information of the project, lecturer profile, and course. Recommendations and expectations from respondents are the other main objectives in this section.

1. I proposed the knowledge sharing platform to have the following functionality.

i. Project Information

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Past Year Project Title	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. In progress Project Title	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ii. Information on Lecturer Profile

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Lecturer Profile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Expertise Area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Department	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

iii. Discussion Forum

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Project's Title	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Lecturer Evaluation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Project's Issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Lecturer Supervision Style	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

iv. Research Method

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Report Writing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Literature Writing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Citation and References	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Presentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

v. Course Information

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. Deadline of submission paper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Please recommend other functionalities that you feel is required in the FYP/TTP Project Knowledge Sharing Portal

3. Please write your expectation of this FYP/TTP Project Knowledge Sharing Portal