

**Web Portal: A Case Study FOR UTP CENTRE FOR GRADUATE
STUDIES (CGS)**

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CERTIFICATION OF APPROVAL

Web Portal: A Case Study UTP Centre for Graduate Studies (CGS)

by

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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.

Mohamad Faez Bin Azemi

ABSTRACT

This document discusses the description on the Final Year Project titled Web Portal in case UTP Centre for Graduate Studies. The deliverable of the project is a web portal that acts as an online medium for Postgraduate students in UTP to get information about the course and the university as well as to update on certain information regarding the academic matters. The objectives of this project are to design and develop a web portal template to address the requirements and needs at the postgraduate level and to implement the proposed web portal template for the development of UTP Centre for Graduate Studies portal as a prove of concept. The problem statement of this project is within the context of tertiary education, existing web portal templates are mainly focused the criteria and needs of undergraduate students and there is an existing gap as postgraduate students have different set of criteria and needs.

The literature review component discussed the significance of having a website and web portals for user and organization. In the methodology section, it discussed about the web portal development methodology applied in developing this project which is waterfall model. The project phases are also being discussed in detail. In the recommendations section, all the related recommendations and some improvements that can be done for the future of this project are listed and elaborated. The conclusion section concludes the overall project. Based on user experienced, a group of 20 respondents participating on user testing activity for this web portal in order to determine user acceptance on this project.

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ABBREVIATIONS AND NOMENCLATURES

et al.	And others
etc.	Et cetera
CGS	Centre for Graduate Studies
UTP	Universiti Teknologi PETRONAS

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Over the last 20 years, World Wide Web (WWW) provides free access for users all around the world with three fundamental technologies that remain until today which are:

- HyperTextMarkup Language (HTML): The publishing format for the Web, including the ability to format documents and link to other documents and resources.
- Uniform Resource Identifier (URI): A kind of “address” that is unique to each resource on the Web
- Hypertext Transfer Protocol (HTTP): Allows for the retrieval of linked resources from across the Web.

A web portal is a part World Wide Web (WWW) that remain as important medium of communication and interaction in today’s world. Web portal templates basically are essential source of references for the development of web portals in various kinds of industries such as:

- Business industry
- Tourism industry
- Government industry
- Education industry

As such, web portal is highly accessible. It can be used for an individual work, business or other organization. Within the context of higher learning in Malaysia, a web portal was being used as medium of communication and interaction in most universities and colleges, including Universiti Malaya (UM), Universiti Sains Malaysia (USM), Universiti Teknologi Malaysia (UTM) and others including Universiti Teknologi PETRONAS.

As Universiti Teknologi PETRONAS (UTP) vision to be a leader in Technology Education and Centre for Creativity and Innovation, UTP has implemented website and web portal to accelerate the academic process and act as one of the medium of communication and interaction among the students and UTP managements itself. The website and web portal that already implemented in UTP are UTP e-Learning and PRISM. As one the excellent universities in Malaysia, UTP targeted is to be a Research University (RU) very soon, there is an increasing number of Graduate students and researchers from all around the world in UTP. Due to that, UTP has already set up their own Centre for Graduate Studies (CGS) to manage all graduate students in UTP.

So, the idea of developing UTP Post Graduate Web Portal is as a prove of concept of web portal template that fulfill the requirement of postgraduate students. This can be an important medium of communication between UTP CGS office and people all around the world.

1.2 Problem Statements

Based on observation and benchmarking conducted on selected local and international universities, the result show that within the context of tertiary education, existing web portal templates are mainly focused on the criteria and needs of undergraduate students as for postgraduate students they have their own set of criteria and needs. So there is an existing gap between it. Therefore, a web portal template that mainly focused on postgraduate student needs and requirements are required to develop and the higher learning institution could use this template in order to develop their own postgraduate.

1.3 Objectives and Scope of Study

The objectives of this project are:

- To design and develop a web portal template to address the requirements and needs at the postgraduate level.
- To implement the proposed web portal template for the development of UTP Centre for Graduate Studies portal as a prove of concept

The scope of study of this project is besides literature reviews on design and requirements for web portal templates; comprehensive benchmarking on selected local and international universities will be conducted as well as surveys and interviews involving relevant personals such as from the Dean of Centre for Graduate Studies, Postgraduate Students from various universities and UTP ITMS of UTP.

1.4 Project Feasibility

The introduction of the UTP Centre of Graduate Studies Web Portal takes the service to UTP Graduate Students and UTP Management. It can help to facilitate and accelerate the Academic process in all aspects.

This web portal is believed can give a good impact to the CGS office in order to help them to achieve their objective as well as it can attract more potential student to come to UTP from all around the world. UTP Centre of Graduate Studies Web Portal also believed can be a strong medium to separate the information about the university and CGS office and this can help UTP to be a well-known as an engineering and technology research university among the graduate students.

Within four months, this project can be completed at least to the minimum requirements. It also depends on the amount of scope creep that would be encountered which is inevitable. Due to the scope creep and testing difficulties, it is also difficult to gauge how perfect the system can be within the time frame.

CHAPTER 2

LITERATURE REVIEW

2.1 The Definition of Website

In 1989, Tim Bernes-Lee, who worked as a software engineer at that time at CERN invented the World Wide Web. A lot of scientists all around the world participated in experiments at CERN for some period and return to their lab at all around the world after the period end. These scientist and Tim Bernes-Lee realize that it is hard for them to exchange data and result at that time because of limitation of it.

Tim Bernes-Lee send a proposal in late 1989 to proposed the internet can be accessible and useful to people. After being provided for free, the website had been used extensively across the world. The usage could be grouped as:

- Personal website
- Commercial website
- Government website
- Non-profit organization website

The definition of website:-

- Website – collection of related web pages, images, video or other digital assets that are addressed with a common domain name or IP address in an Internet Protocol-based network. A web site is hosted on at least one web server, accessible via the internet or a private local area network.
- Web page – web pages are documents, typically written in plain text interspersed with formatting instructions of Hypertext Markup Language (HTML, XHTML) and Hypertext Pre-processor (PHP). HTML is accessible using software interface. Common domain name or IP address is a unique set of number that identifies the internet user across the world. Each user will be provided with one.

2.2 Web Portal Industry

A web portal has become an important medium to all business area and most companies promote their web to get a large audience. A study on the web portal industry by Chan-Soo Park in 2000 mentioned that a web portal actually includes a lot of content such as news, information, link and also services. Web portals have a lot of functions that can be implemented to accelerate any business process. It is a good medium to interact and deliver any information and it can reach people with any second. A web portal or know as gateway for a world wide web site proposes web portal be a major starting for users when they are connected to the internet.

In context of university which is university web portal, it is use for students, staff members and to all faculty members. It can be customized based on the updated interest, activities and organization involved on campus. It provides an interface to various kinds of services and events such as:-

- The online web interface includes information such as courses, grades, class schedules and so forth
- Effective communication between students and the university management

2.3 Improving web-site for Postgraduate Students

The advantage of Information Communication Technology is basically can give a chance for the organization to improve their business process, services and efficiency. In their study, Khalid and Abdullah (2011) stated that currently there is no common knowledge prototype for the CGS to enable them to managed knowledge management for Postgraduate students. Currently Postgraduate students in various universities have difficulties in order to get for specific information regarding the postgraduate matters. A solution is needed in order to give an official platform for Postgraduate students free flow information from the university regarding the academic and non-academic issues.

Currently the official university websites is not enough to cater the Postgraduate students need sand requirement their own Postgraduate web portal template is required where it will benefit the university and their prospect students such as it will facilitate the knowledge among the Postgraduate Students and to reduce a perceived gap in knowledge management within the students.

The portal should provide access to information more easily related to a wide variety of activities and help the knowledge to be shared and available for the Postgraduate Students in all higher learning institution.

2.4 Usage of Web Portals in UTP

In this section, examples on the usage of web portal in UTP are provided and discussed.

2.4.1 UTP e-Learning

The screen snapshot of UTP e-Learning is as per Figure 1.

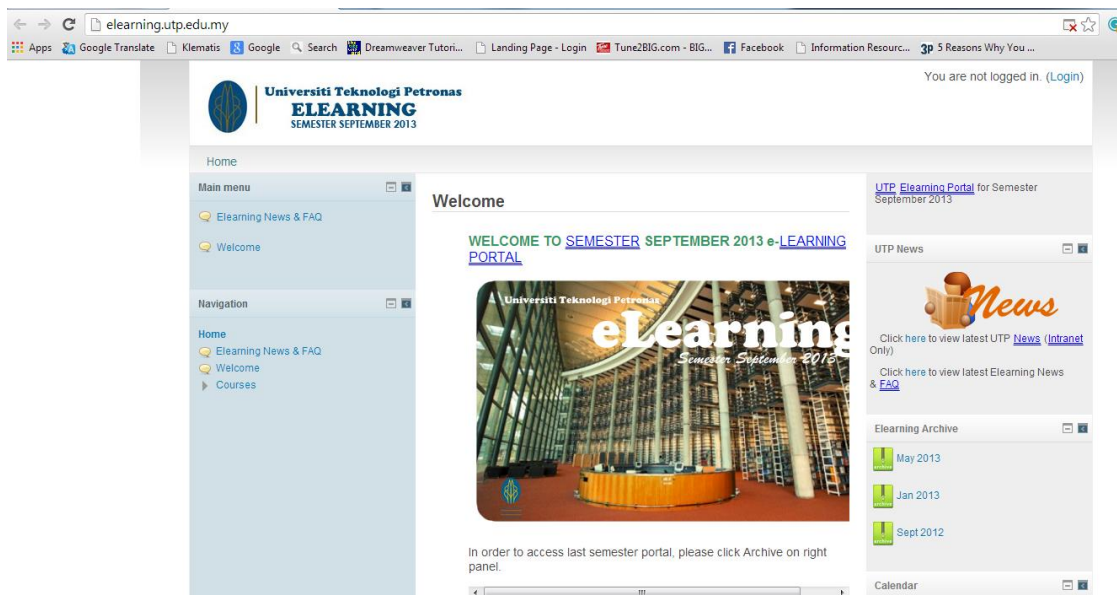


Figure 1: UTP e-Learning

- The system provides information for subjects that UTP students has registered

- The users can view, download academic resources and submit assignments in the e-Learning.

Advantages

- UTP e-Learning is a medium for UTP students to get updates about their courses and university information

Weaknesses

- Currently it only focuses to UTPU Undergraduate and foundation students only

2.4.2 UTP PRISM

The screen snapshot for UTP PRISM is provided in as per Figure 2.

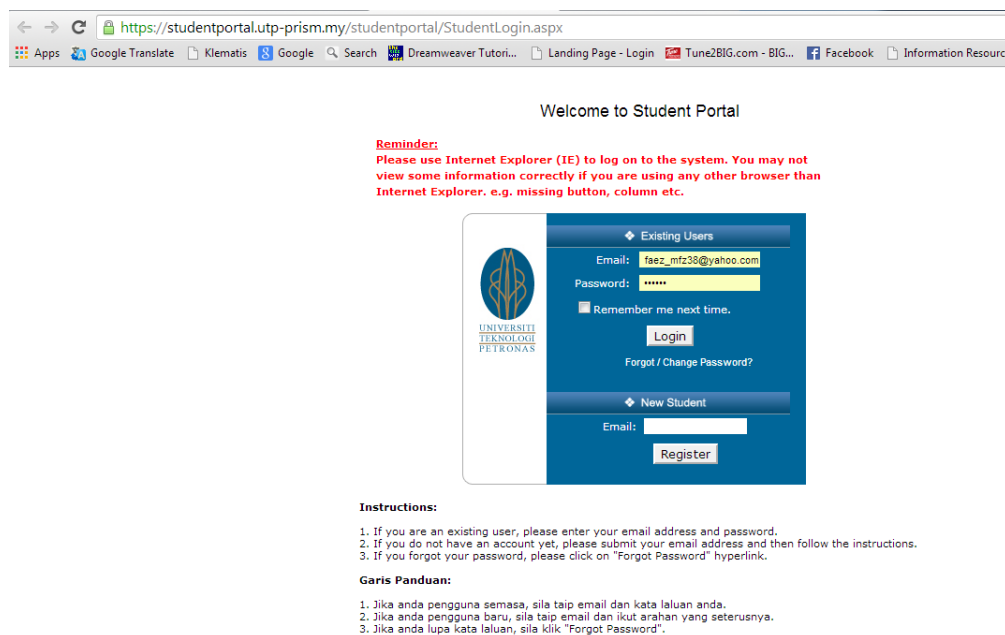


Figure 2: UTP PRISM

- The system enables UTP students to register for their new semester subject, download and view academic result and perform online application for their Industrial Training
- This system also maintains UTP students profile

Advantages

- UTP PRISM can assist UTP students to register subject and view result for every semester.
- The system is very useful for students who will be going for internship placement.

Weaknesses

- The system is only focused undergraduate and foundation students.
- It has very limited functionality

2.4.3 UTP IRC SYSTEM

The screen snapshot for UTP IRC system is provided in as per Figure 3.

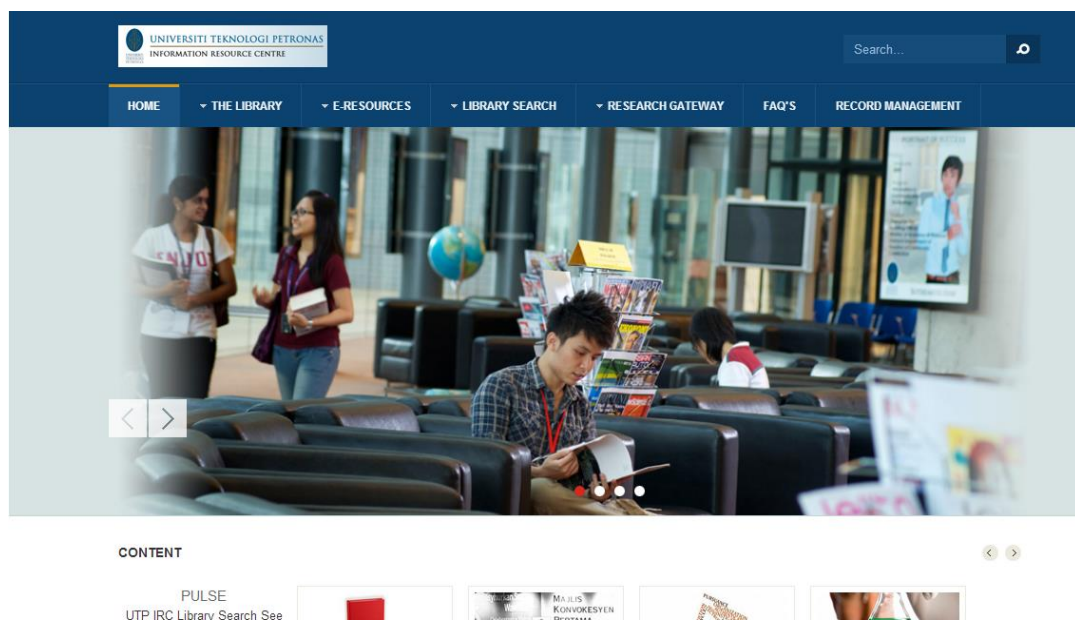


Figure 3: UTP IRC SYSTEM

- The UTP IRC System provides all information regarding Information Recourse Centre to UTP students.
- UTP Student can borrow and extend the period of borrowing books through online system.

2.5 Usage of Web Portals by Centre of Graduate Studies of local universities.

This section features samples of web portal screen snapshot used by the selected Centre of Graduate studies of local university such as Universiti Sains Malaysia (USM), Universiti Teknologi Malaysia (UTM) and Universiti Malaya (UM). It also provided discussions on the common and distinct features for each of the selected web portals.

2.5.1 Universiti Sains Malaysia – Institute of Postgraduate Studies

The screen snapshot for Universiti Sains Malaysia Institute of Postgraduate Studies is provided in as per Figure 4..



Figure 4: USM Institute of Postgraduate Studies


- This web portal basically acts as an online medium for Postgraduate students in Universiti Sains Malaysia (USM) to get information about the course and university as well as to update certain information regarding the academic matters. This web portal is beneficial for both current student are their potential postgraduate student.

Features:

- Check application status for the prospect postgraduate students
- Getting information about programmed that offered by USM, the tuition Fees, accommodation as well as information on how do they can apply for postgraduate studies in USM.
- The current Postgraduate student in USM may also view their financial statement for their current semester, update on current and upcoming event that be held soon, check about examination timetable and result as well as getting information about contact details of USM Institute of Postgraduate studies.

2.5.2 Universiti Teknologi Malaysia –School of Graduate Studies

The screen snapshot for Universiti Teknologi Malaysia School of Graduate Studies is provided in as per Figure 5.



The screenshot displays the website for the School of Graduate Studies at Universiti Teknologi Malaysia (UTM). The header includes the UTM logo, the text 'School of Graduate Studies', and navigation links for 'Sitemap', 'English [Change]', and '[AA]'. A search bar is located on the right side of the header. Below the header is a navigation menu with categories: 'PROSPECTIVE STUDENTS', 'CURRENT STUDENTS', 'FEES & FINANCES', 'STUDENT LIFE', and 'ACADEMIC RESOURCES'. A 'Quick Links' dropdown menu is also visible. The main content area is titled 'APPLICATION FOR ADMISSION' and features a list of links: 'GUIDELINES TO APPLY ONLINE FOR POSTGRADUATE STUDY AT UTM', 'Applications for full research programmes are open throughout the year!', and 'New/Edit application'. A prominent blue button labeled 'ONLINE APPLICATION' with 'SERVER 1' and 'Click here' is displayed. Below this, there are links for 'Application processing fee payment method' and 'List of Programme Offered for Semester II 2013/2014 Session (February 2014)', which includes sub-links for 'Mainstream programmes' and 'External/Off-campus programmes (Malay / English)'. A section for 'Advertisements for Semester II 2013/2014' also lists 'Mainstream programmes (Malay Version, English Version)' and 'External/Off-campus programmes (Malay Version, English Version)'. The left sidebar contains a 'Navigation' menu with links to Home, Online Application, Prospective Student, Current Students, Fees & Finances, Student Life, Academic Resources, Non Graduating Students, Quick Links, Contact Us, Event Calendar, Dean Event, Proofreading Services, and Student Event. The right sidebar contains 'News' items, including 'Advertisement on PhD Research Grant Application Details ...', '2nd International Science Postgraduate Conference 2014 (ISPC 2014) Details ...', and 'Announcement to all UTM Scholarship Recipients Details ...'. The date and time 'Tuesday, 05 May 2009 06:26' are shown in the top right of the main content area.

Figure 5: UTM School of Graduate Studies

- Universiti Teknologi Malaysia (UTM) Graduate Studies web portals seems to more organized and interactive where they divide the audience into two groups which is prospective students and current students. It easy for the student to get information regarding their courses as well as to update their information.

Prospective Students

- This is the medium where the potential UTM postgraduate student can get information regarding the course offered by UTM, the requirement that UTM stated for certain courses and on how do they can apply to further their study in UTM
- The prospect student may also get information about their accommodation status in UTM

Current Students

- Current Postgraduate Students in UTM may also use this medium to get information regarding their academic matters such to their course and examination timetable, view result, view academic calendar, update about importance announcement made by university as well as to view their fees statement for their current semester.

2.5.3 Universiti Malaya – Institute of Graduate Studies

The screen snapshot for Universiti Malaya Institute of Graduate Studies is provided in as per Figure 6



Figure 6: UM Institute of Graduate Studies

- Universiti Malaya (UM) is the oldest highest institution in Malaysia and among the top excellent university in the world. UM Institute of Graduate Studies web portals enable for both current and prospect student easy to get information that they need directly and there is not so much different from the others local university.

2.6 Usage of Web Portal by Centre of Graduate Studies of International universities.

This section features samples of web portal screen snapshot used by Centre of Graduate studies of International University such as National University of Singapore (NUS). It also provided discussions on the common and distinct features for each of the selected web portals.

2.6.1 National University of Singapore – Graduate Studies

The screen snapshot for Universiti Malaya Institute of Graduate Studies is provided in as per Figure 7.



Figure 7: NUS Graduate Studies

- This web portal basically acts as an online medium for Postgraduate students in National University of Singapore (NUS) to get information about the course and university as well as to update certain information regarding the academic matters. This web portal is beneficial for both current students and their potential postgraduate student.

Features:

- Check application status for the prospect postgraduate students
- Getting information about programmed that offered by NUS, the tuition Fees, accommodation as well as information on how do they can apply for postgraduate studies in NUS at Graduate Admission button.
- The current Postgraduate student in NUS may also view their financial statement for their current semester, update on current and upcoming event that be held soon, check about examination timetable and result as well as getting information about contact details of NUS Graduate Studies.

2.7 The Importance of a Website for Any Business

Collection of pages that representing a company, business or simply an idea on the World Wide Web (WWW) is one of definition of a website. According to Hearn in 2003 said that nowadays a website are extensively used by all corporate, big and small businesses and even by individuals in order to provide information about their products, services or information and invite inquires and hopefully order.

So from High education perspective, website or web portals are one of the important medium used by institution, especially for private university in order to provide information to their potential and current student generally about the university, university product and services as well as information regarding the academic matters. The objectives are to provide information in order to attract more prospect student to come as well as to be well-known university.

Zeroone (2012) said that more and more people are getting on the Internet every day. The internet has changed the way we buy and sell, the way obtains information, communicates and getting entertained. Over 1 billion people use the internet and it gives a huge benefit to have the website or web portals among the higher education institution such as:-

1. Be found. Millions of people today go for online in order to apply something and this can be an advantage to the university in order to get

their prospect student where they can easily apply to further their study in the chosen university via online.

2. Be accessible 24/7. Have flexible time to run business and extra time to update information regarding academic matters
3. Save money and budget. A website is very cost efficient when compare to other form of methods
4. Can easily provide and update information
5. Compete Globally. A website can be reach and use by people all around the world and not fix for certain place or region only. So this can be an extra point to the university in order to attract international student to come and further their study.

CHAPTER 3

METHODOLOGY

3.1 Development Process

Methodologies mean ways on how the process of the system will be made. In the process of making a system, there are numerous types of software development methodologies. Examples of the methodologies that are available are Structured Systems Analysis and Design Method (SSADM), Joint application Design (JAD), Prototyping, and Rapid Application Development (RAD). The methodology chosen in developing this web portal is Waterfall Methodology which performs requirement analysis, designing, implementation, verification and maintenance in the downward flowing process. By implementing this methodology, the flow of this project can be easily monitored as the work progress done systematically.

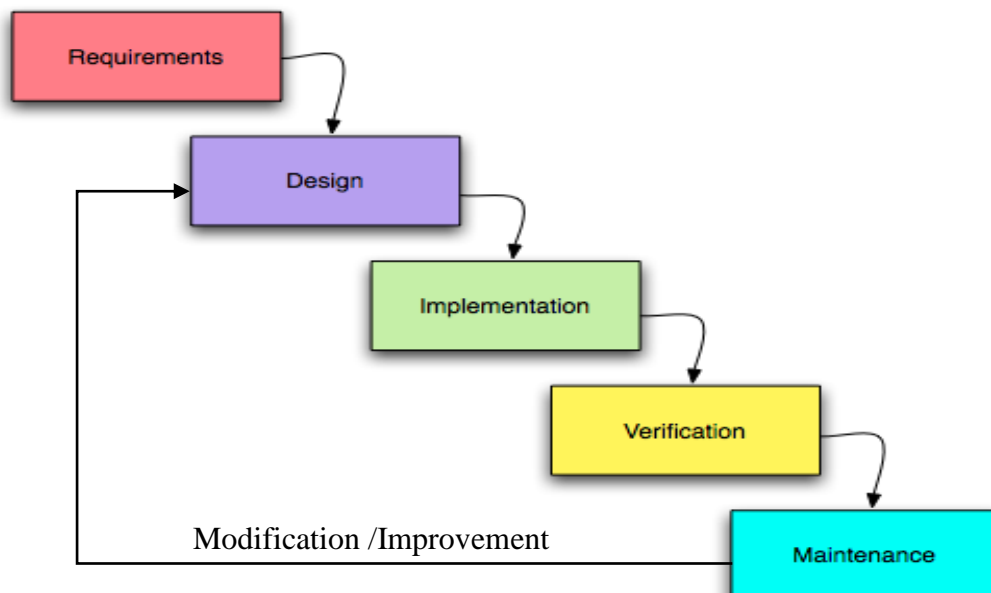


Figure 8 : Waterfall Methodology Model

As to all project, planning phase will take place first. This is a critical phase where project can have enough room to be completed. Timeframe fixed and all information and resource gathered.

Before the web portal template is able to be developed, the author has to conduct a feasibility analysis to ensure a smoothing development of this project. During this phase, the author should properly schedule a proper plan in order to ensure a successful development of this web portal template. This can include the development of the Key Milestones as well as Gantt Chart where both of these can become a reference to the author in ensuring the completeness of every single task on particular time frame. The figures below show the Key Milestones and Gantt Chart for respective semesters for the development of this project.

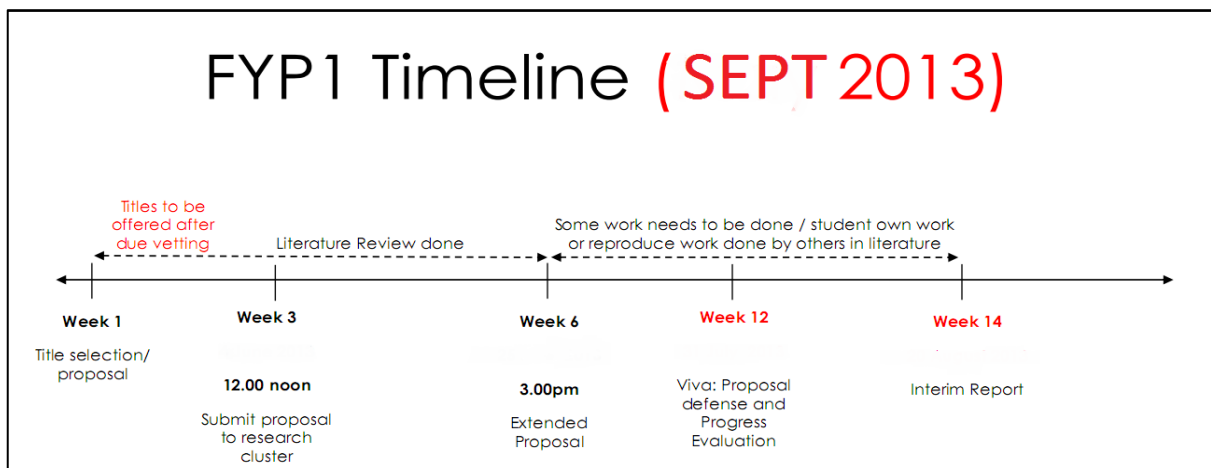


Figure 9: Key Milestones for the development of UTP Web Portal in 1st Semester (FYP I)

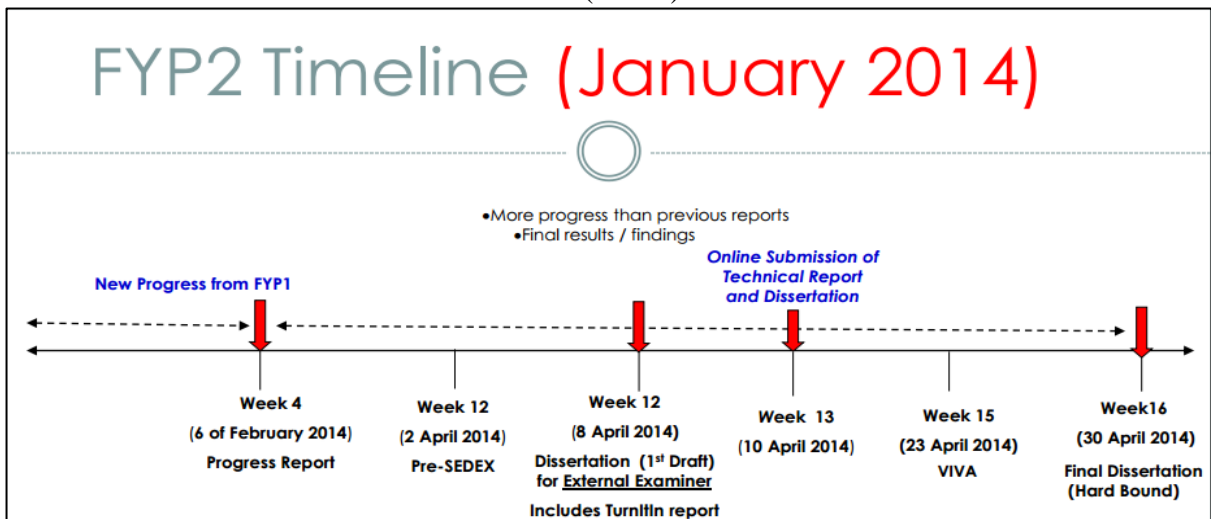


Figure 10: Key Milestones for the development of UTP Web Portal in 2nd Semester (FYP II)

No.	Project Activities (FYPI)	Week													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Selection of Project Title	■	■												
	Search for Project Title	■	■												
2	Planning & Research Analysis			■	■	■	■	■	■	■	■	■			
	Conduct interview and questionnaire			■	■	■	■	■							
	Define system scope					■	■	■	■						
	Determine system outline							■	■	■					
	Literature review research							■	■	■	■				
3	User Design											■	■	■	■
	Design storyboard diagram											■	■		
	Preliminary screen layout												■	■	■

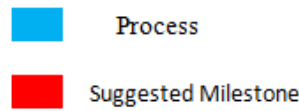


Table 1: Gantt Chart FYPI

No.	Project Activities (FYP2)	Week													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
4	System Construction	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	• Build	■	■	■	■	■									
	Develop User Interface	■	■												
	Create pages in Flash according to storyboard			■	■										
	Write coding in Action Script 3.0				■	■									
	• Demonstrate						■	■	■						
	Run simple test to show the workability						■	■	■						
	Ensure all components interrelated and working							■	■						
	• Refine									■	■	■			
	Fix coding error									■	■	■			
Reconstruct the system										■	■				
5	System Cutover												■	■	■
	Testing system functionality and usability												■	■	
	Check system specification aligned with requirements													■	
	System implementation														■

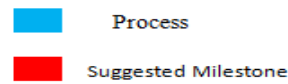


Table 2: Gantt Chart FYP2

3.1.1 Requirements

User requirement is based on requirement analysis. The requirement of this project is basically based on the consultation with the stakeholders such as from UTP Centre for Graduate Studies, current UTP postgraduate students and also UTP ITMS. Understanding system architecture and the way the web portals works is the most important element. Besides the analysis of the requirement conduct by benchmarking against the existing web portals from selected international and local universities. The analysis is used to determine the requirement in order to develop and completing this project.

On the web portal, UTP Post Graduate web portals will use web development tools such as HTML, XHTML and PHP in order to develop and creating this web portal. Highly referring to <http://www.w3schools.com> as helping tools in completing this task is helpful [14]. By using software such as Adobe Photoshop and Adobe Illustrator, it helps to create an interactive interface of the web portals.

3.1.2 Design

This phase will discuss the interface of the proposed web portal template. So basically, after gather all the requirements of this project, then the author will move on into design phase to start developing the web portal. In addition, to develop this web template, the author will use several tools such as Adobe Photoshop, Adobe Illustrator and Joomla Software. Using right tools in order to develop this web portal is important since web portal of a university is a hallmark on the reputation of the university. So attractive interface and reliability of the web portal is essential.

3.1.2.1 System Architecture

The system architecture for UTP Centre of Graduate Studies Web Portal consists of several components such as the reader or the user, page server and comment server, application server and the authors or admin.

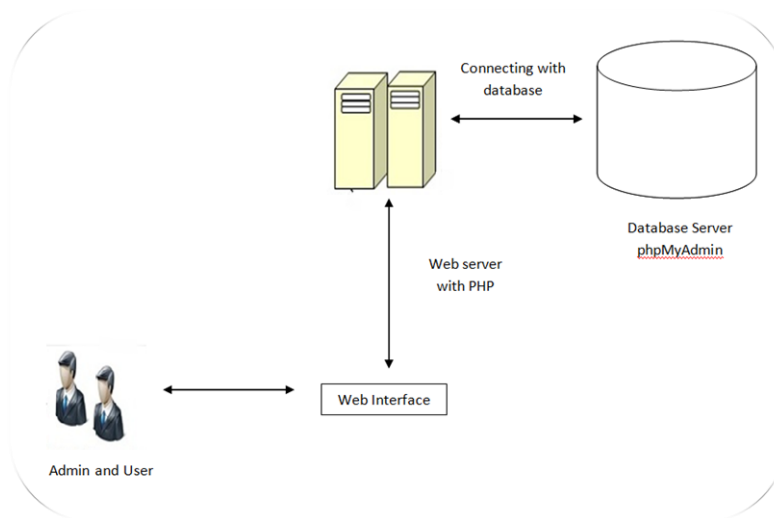


Figure 11 : System Architecture Diagram

In this system architecture, one machine is dedicated to serving pages and processing information from the user. It is meant to be accessed by the user of UTP Centre of Graduate Studies Web Portal. The second machine's sole purpose to service user authoring content, modify data and performing others administrative function by administrator.

The reason of separated server is to insulate the application server from load generated by spikes in data and trackback traffic.

3.1.2.2 Use Case Diagram

An actor is someone or something outside the system that interacts with the system. In this case we have four types of actors which are student, visitor and system admin.

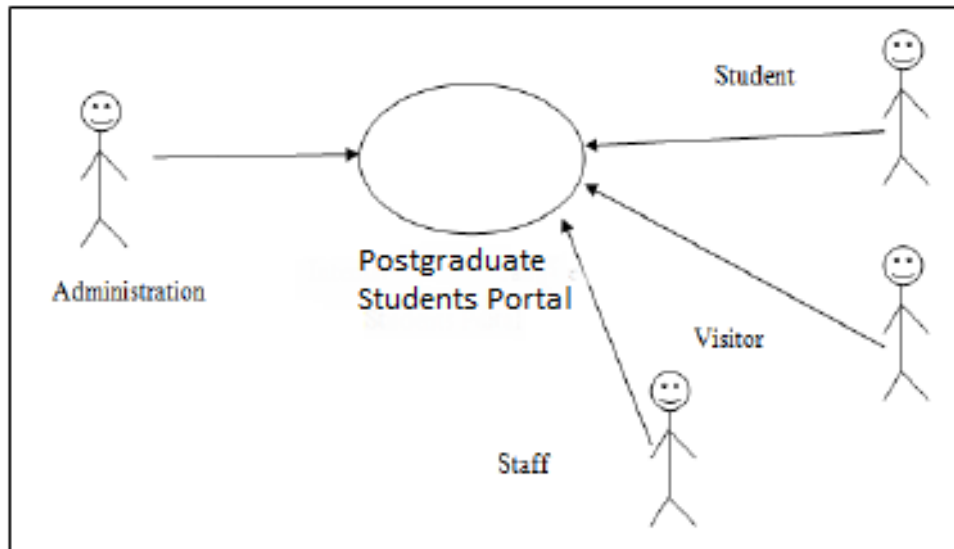


Figure 12 : System Architecture Diagram

This figure just describes who can use this web portal in the university.

3.1.2.3 Physical Design

UTP Centre for Graduate Studies Web Portal will be developed using author`s personal laptop as official workstation for author. So Adobe Photoshop should have to be install in it. Within this software, the author will be able to design a web portal interface for this project.

The author then chooses create Joomla account in order to start developing the web portal. In this software, the author will be able to see result of the development of the project clearly. In addition, before begin with the development of this project, the author will use Adobe Photoshop as a tool to create an attractive Graphical User Interface (GUI). Table below shows the hardware and software specifications for this application.

Tools	Specifications
Hardware	Asus Personal Laptop
Software	Adobe Photoshop, Joomla

Table 3: Hardware and Software Specifications for UTP CGS Web Portal

3.1.3 Implementation

Before a web portal can be built, requirement gathering and creation of several design of the web portal should be done to avoid any conflict and issues throughout the development later. Basically only one proposed design that meets all requirements and attributes of the project will be selected and proceed o development phase.

This application will be developed by using author`s workstation which is an Asus laptop in order to get real live result of the development. Moreover instead of using physical hardware, Adobe applications and Joomla Software are also will be use in developing this web portal.

The build phases begin with the development of the web interface. In conjunction with that, the author decides to use Adobe Photoshop for the enhancement of the image to be used. Since the author chose Prototyping Methodology for the development of this application, continuous refinement on the

prototype will have to be conducted till it meets the users' expectation and satisfaction. Changes will be happened throughout the whole development process to ensure all of the targeted functions work as per required. Some of them are done prior to their functionalities while additional features will be added based on necessity.

During this phase, UTP CGS Web Portal should be 100% complete through the prototype developed and has been undergone the different stages of tests in order to uncover as many errors as feasible. As a result, the author will be able to make improvements and enhancements on the prototype to become a complete application before it is able to be launched in the production environment, specifically to the targeted users.

3.1.4 Verification

While developing a web based project, testing is necessary phases where it uncover as many error as possible, therefore it have to be done systematically and all result should be documented. There are four stages of testing such as Unit Test, Integration Test, System Test, and Acceptance Test. Each of the tests is having different objectives but with the same goal which is to uncover as many errors as feasible.

When the prototype developed by author is ready to be implemented, testing stage will have to be carried out. Therefore, a test plan which contains several series of tests will required throughout the process of testing. For this project, testing phases that involve are unit testing, integration testing and acceptance testing. To be specific, unit testing and integration testing will be done by author while acceptance testing will be conducted by selected tester. The results of the testing will be discussed further in Chapter 4: Results and Discussion.

3.1.5 Maintenance

Maintenance phase is the phase where the system is continuously monitored to maintain its functionality. Throughout the phase, any room of improvement will be noted so that the website and database of the web portals are up to date. Monitoring the website frequently will provide adequate information for improvement.

CHAPTER 4

RESULT AND DISCUSSION

4.1 Literature Review Findings

From the literature review research, the findings are:

- The web portal is an important medium to any business organization and also to the higher education institution.
- Web based system is the best medium to interact with consumer and it can save cost and time as well as it visible to everywhere that have internet connection so it can accelerate any process of business
- By implementing web portal, it can help the university to attract more prospect student to come and further their study especially to the international students and it might help the university to be well-known to the people all around the world.

4.2 Storyboard

The figure below shows the prototyping of the UTP Centre of Graduate Studies Web Portal when the user is browsing into the web portal.

4.2.1 Prototype

This prototype should meet the objective, requirement and needs of the project where it functions is to provide a platform for Graduate student to get information and communicate with CGS office everywhere anytime and accelerate and facilitate academic process. Therefore attach here are the descriptions of the prototype for UTP CGS Web Portal which had been developed throughout this whole semester. Figure below shows when the user browsing the web portal.

4.2.1.1 Home Page

The first page which is *home page* will be displayed. Here, users will get information regarding Centre for Graduate Studies (CGS) generally where they can know about all current and future events that going to be held in UTP. This page also consist of useful link to allow users to go directly to the link attach. Moreover, all buttons at the top of this page will allow user to proceed to the next page where it contain different type of activities. The buttons are *About Us*, *Faculties*, *Admission*, *Facilities*, *Apply Now*, *Post-Graduate Students Council* and *Contacts Directory*. If users click on “*About Us*” button, it will proceed to the information about CGS Organization. “*Faculties*” button consist information about list of faculties inside UTP. “*Admission*” button will show the information about UTP criteria and minimum requirement in order to accept student offer to further their studies in UTP. “*Facilities*” button will inform the user or UTP prospect student about UTP facilities and as for “*Apply Now*” button will allow user to directly apply for UTP by fulfill online application.” *Post-Graduate Students Council*” button consist detail about UTP Postgraduate council and as for “*Contacts Directory*” button, it will give users information regarding their particular person that they wish to contact.

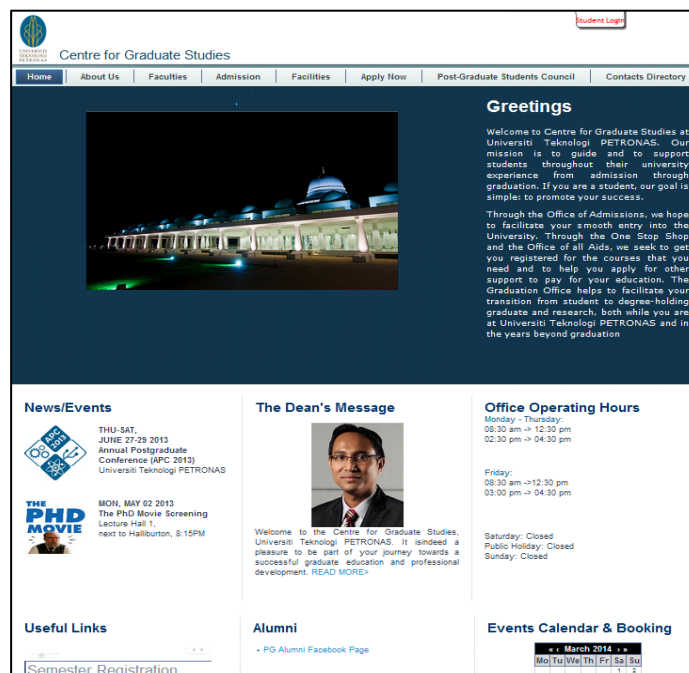


Figure 13: UTP Centre for Graduate Studies Web Portal Home Page

4.2.1.2 About Us Page

About Us page will display the information about UTP Centre for Graduate Studies organization chart which can allow user to know who the right particular person that they should deal and contact with if they wish to do so regarding any matters of UTP postgraduate.

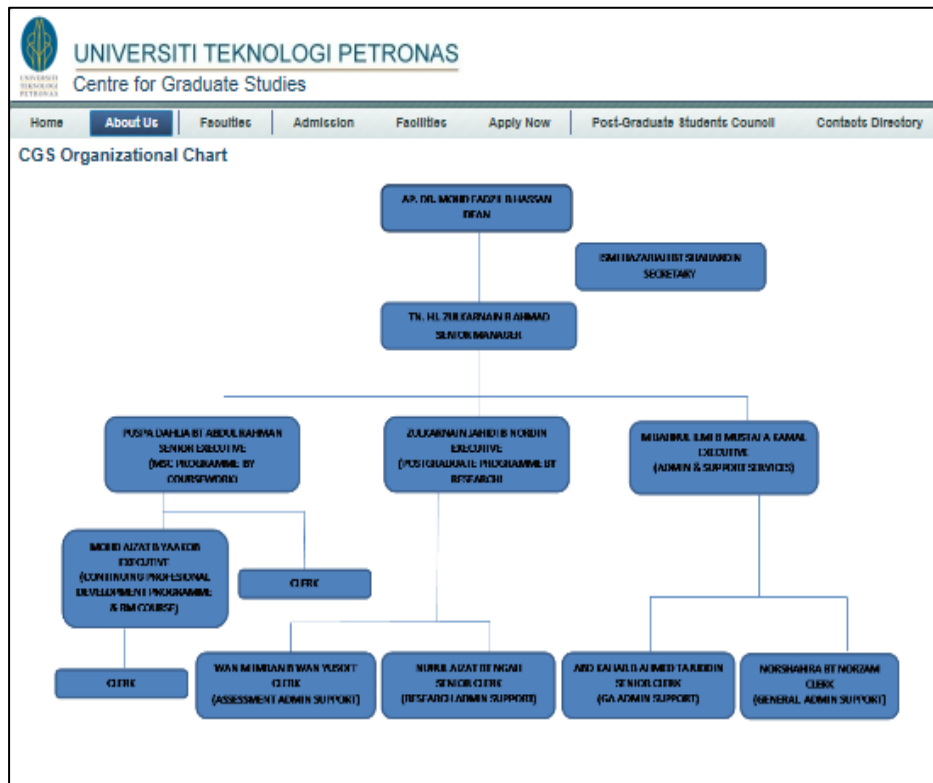


Figure 14: UTP Centre for Graduate Studies Web Portal About Us Page

4.2.1.3 Faculties Page

Faculties page will display list of all faculties in UTP which is Engineering Faculty, Science and Information Technology Faculty, Geoscience and Petroleum Engineering Faculty as well as Management Humanities Faculty. This page also will provide information about postgraduate course offered by UTP according to each faculty.

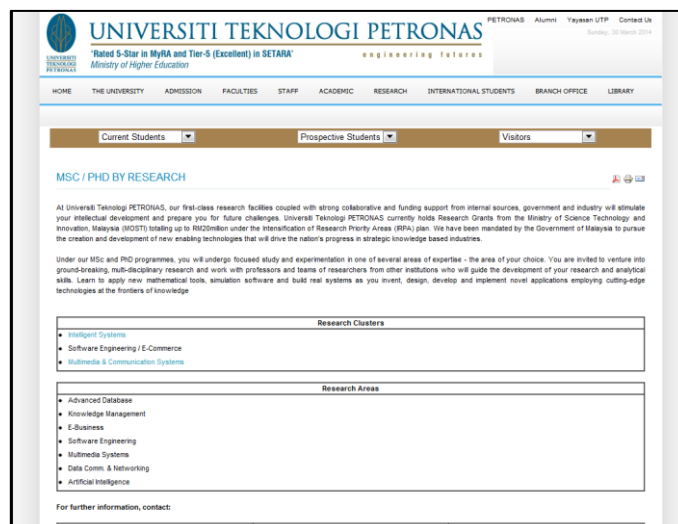
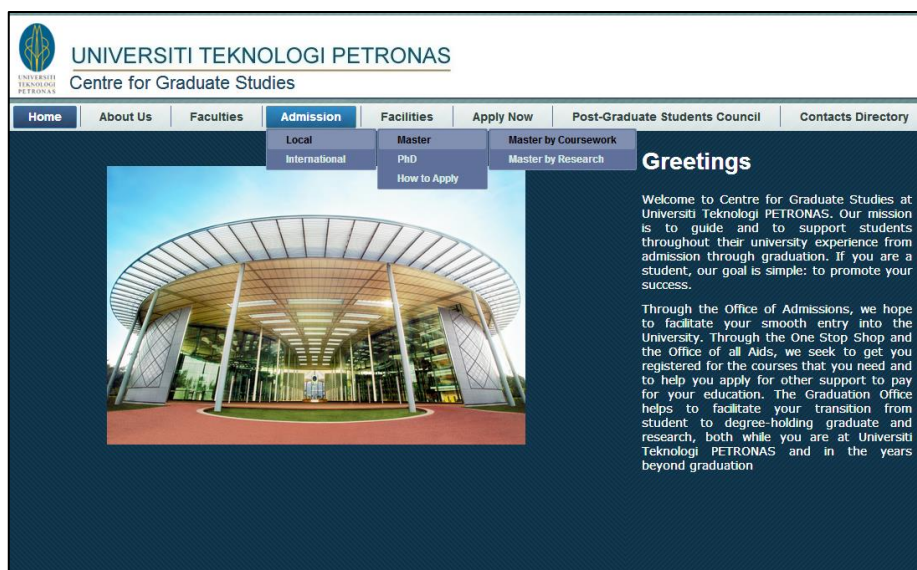


Figure 15: UTP Centre for Graduate Studies Web Portal Faculties Page

4.2.1.4 Admission Page

Admission page will provide information about all admission details of UTP. It divided into two categories which is local and international applicant and it will also divide into various categories such as Master with coursework or research and PHD by research applicant. After the users recognize their category, then the particular page will provide information about admission details such as the admission date, UTP admission requirement, the duration course to be complete and also the details of tuition fees.



MSc by Coursework & Dissertation	On Campus	Off Campus	Intake
Petroleum Engineering	Yes	No	January
Petroleum Geoscience	Yes	No	January / May
Process Integration - in collaboration with University of Manchester	Yes	Yes	January / September
Asset Management & Maintenance	Yes	Yes	January / September
Advanced Process Control	Yes	No	September
Electronic System Engineering	Yes	Yes	January
MBA in Energy Management	Yes	Yes	January

Figure 16: UTP Centre for Graduate Studies Web Portal Admission Page

4.2.1.5 Apply Now Page

Apply Now page will allow UTP prospect postgraduate students to apply directly via online application in this web portal. They necessary have to fulfill the online form in this page before they can submit their application.

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engineering futures

A. APPLICATION DETAILS

Programme of Study (*) :

Mode of Study (*) :

Academic Year (*) : Intake (*) :

For Research Programmes Only:

Area of Specialization :

Proposed Research Title :

Proposed Supervisor :

B. PERSONAL DETAILS

Full Name (*) :

Gender (*) :

Date of Birth (*) : dd/mm/yyyy

Age (*) :

Nationality (*) : Ethnicity :

Mailing Address (*) :

Postcode (*) : City (*) : State / Province (*) : Country (*) :

Tel No (*) : Mobile No : Email (*) :

NRIC / Passport No (*) :

Place Of Birth (*) :

Marital Status (*) :

Religion (*) :

Permanent Address :

Figure17: UTP Centre for Graduate Studies Web Portal Apply Now Page

4.2.1.6 Post-Graduate Student Council Page

In *Post-Graduate Student Council* page, the users will know about UTP Postgraduate council, their function, vision and mission as well as it allow users to get information about the direct contact of the council.



Figure 18: UTP Centre for Graduate Studies Web Portal Postgraduate Student Council Page

4.2.1.7 Contact Directory Page

Contact Directory page will provide information about CGS office Contact details where it will divide into 3 categories which are CGS staffs contact details, Postgraduate coordinator contact details and Program managers contact details. So it will be easier for user to contact directly to the particular person regarding UTP postgraduate matters.

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Centre for Graduate Studies

Home About Us Faculties Admission Facilities Apply Now Post-Graduate Students Council **Contacts Directory**

Greetings

Welcome to Centre for Graduate Studies at Universiti Teknologi PETRONAS. Our mission is to guide and to support students throughout their university experience from admission through graduation. If you are a student, our goal is simple: to promote your success.

Through the Office of Admissions, we hope to facilitate your smooth entry into the University. Through the One Stop Shop and the Office of all Aids, we seek to get you registered for the courses that you need and to help you apply for other support to pay for your education. The Graduation Office helps to facilitate your transition from student to degree-holding graduate and research, both while you are at Universiti Teknologi PETRONAS and in the years beyond graduation

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Home About Us Faculties Admission Facilities Apply Now Post-Graduate Students Council **Contacts Directory**

CGS

Contact details of CGS staffs are listed below.

#	Name	Position	E-mail	Phone
1	Assoc. Prof. Dr. Mohd Fadzil B Hassan	Dean	mfadzil_hassan@petronas.com.my	05-3688585
2	Ismi Hazariah Bt Shahrudin	Secretary	ismihazariah@petronas.com.my	05-3688687
3	Tn. Hj. Zulkamain B Ahmad	Senior Manager	zulkana@petronas.com.my	05-3688197
4	Muhammad Bahrul Ilmi B Mustafa Kamal	Executive of Program by Research (GA, RPD, Symposium, Leave, Deferment, Administration)	bahrulilmi.mk@petronas.com.my	05-3688194
5	Abd Kahar B Ahmed Tajuddin	Senior Clerk	kahara@petronas.com.my	05-3688190
6	Norshahira Bt Norzam	Clerk	norshahira.norzam@petronas.com.my	05-3688194
7	Zulkamain Jahidi B Nordin	Executive of Appointment of Supervisor, Paper Presentation, Viva Examination, Thesis Formatting	zulkamain_nordin@petronas.com.my	05-3688192
8	Nurul Aizat Bt Ngah	Senior Clerk	nuruai@petronas.com.my	05-3688203
9	Puspa Dahlia Bt Abdul Rahman	Senior Executive of Program by Coursework	puspadahlia_arahman@petronas.com.my	05-3688193
10	Mohd Izzat B Yaakob	Executive of Program by Coursework		
11	Wan Imran B Wan Yusoff	Clerk	wimran_wyusoff@petronas.com.my	05-3688198

Figure 19: UTP Centre for Graduate Studies Web Portal Contact Directory Page

4.3 Testing

Testing is different from debugging which the former is a process of finding unexpected error or any error while the latter is a process of removing expected or “known” error. Basically, the objective is to find the errors in a system or application which is it not only finding not working function but it will find any unexpected function that the system or application not supposed to do. In contrast, the objective of debugging is to identify the type and location of the errors and remove it by re-design or re-code, depending on the situation.

For this project, three different testing had been conducted by the author which is Unit Testing, Integration Testing and Acceptance Testing. Unit Testing is a process where testing the individual subunits, subroutines or procedure of a system or application and its purpose is to ensure the unit does not contradict with the system. The testing is conducted in development phase where different units can be tested in isolation simultaneously. The advantage of this testing is it will make debugging task much easier as it only involve a single unit and when an error is found, the error involve in that particular unit only.

Integration testing conducted to explore incompatibility of the interfaces between the applicant and the system. This testing will ensure that the interfaces and linkage between different parts of the system or application work properly.

Acceptance testing done by selected user to test the system or application whether it meet the users requirement and needs and to test whether the application functioning well or not. Therefore for this project, the developer had selected 20 respondents to test this web portal.

First, the developer had brief the user about the overview of this web portal. Then the tester will give the link of this web portal to be tested. While tested are conducted, the developer will take note all the comments and attitudes towards the tested application. This is important because the developer will be able to identify the usability of this web portal to them.

Lastly, the developer gave a survey form as attached in the Appendix to testers which they required to fill it as a feedback about the web portal. The result of the survey as follow:

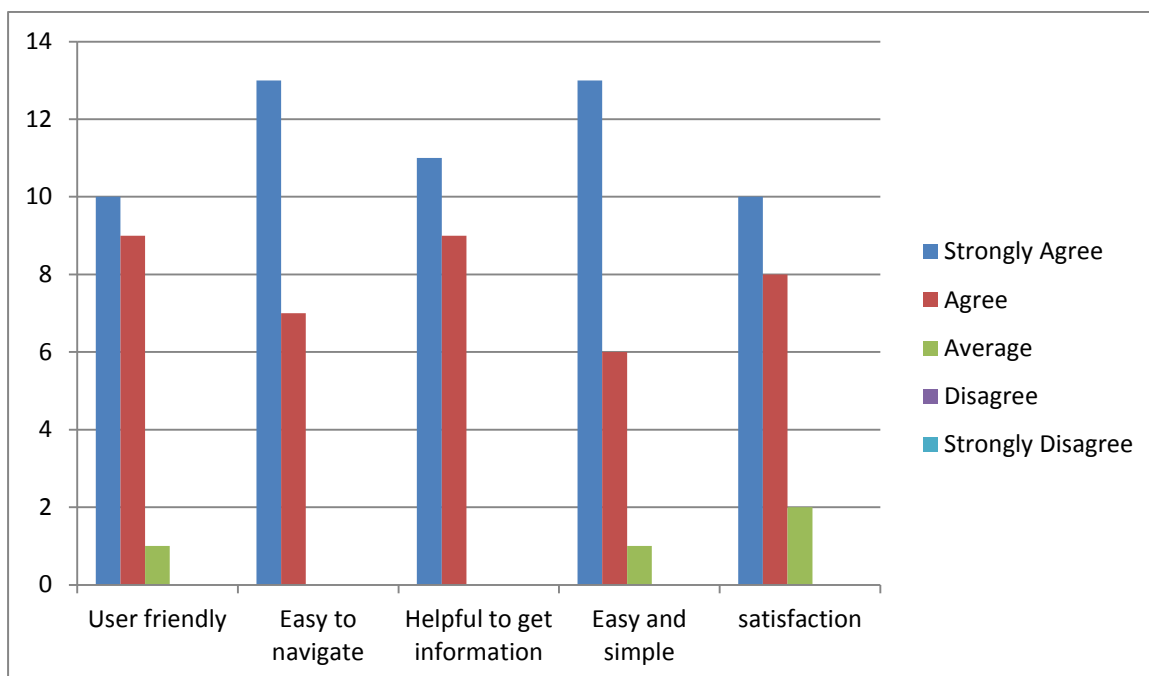


Table 4: User Feedback on UTP Centre for Graduate Studies Web Portal

Above figure shows 20 respondents involved on UTP Centre for Graduate Studies web portal testing. Based on the activity, the result showed that the users can accept, uses satisfy with this web portal very well. They satisfy while browsing this web portal which they feel that it is easy to navigate from one to another and very convenient web portal to postgraduate students. Moreover, the result showed that all users agreed this project will benefit to postgraduate students. They also give some feedback in order to improve this web portal such as add more color and features.

CHAPTER 5

RECOMMENDATION AND CONCLUSION

There are several recommendations to be made regarding this project. Recommendations are not meant to be used to change this project wholly, but to allow improvements in certain aspects and to put some factors into considerations before proceeding with the development of the software.

One of the recommendations is the data gathering process for this project should not be limited to only giving out questionnaires and interviewing the end user. Other than those two methods, research data gathering by facilitate group interview with individuals that have something in common. Besides that, in order to complete the project early and more effective, the development phase need to be done within the time frame as what has been planned. This project can be completed at least to the minimum requirements. It also depends on the amount of scope creep that would be encountered which is inevitable. The requirements are quite a challenge so it is also difficult to gauge how perfect the system can be within the time frame. Domain of this project also will be one of the challenges whether have to buy the domain or find other solutions in order to test this system live.

As conclusion, the proposed web portal template can be an important source of reference to be adopted by institute of higher learning that aim to develop dedicated web portals for accommodating the needs and requirements of their postgraduate programs. As the respondents involved in the research project are affiliated to UTP, the obtained results could be biased to the requirements and needs of UTP postgraduate programs which are focused on engineering, technical and sciences. It is interesting to empirically determine whether other postgraduate programs for example Non-sciences like management, art or social sciences may have different set of requirements.

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APPENDIX

UTP Centre for Graduate Studies Web Portal User Testing

* Required

1) The web portal has user-friendly Graphical User Interface (GUI) *

1 2 3 4 5

Strongly Disagree Strongly Agree

2) It is easy to navigate from one section to another section through this web portal *

1 2 3 4 5

Strongly Disagree Strongly Agree

3) This web portal will help Postgraduate students in order getting relevant information about UTP Graduate programmed *

1 2 3 4 5

Strongly Disagree Strongly Agree

4) The information provided is simple and easy to understand *

1 2 3 4 5

Strongly Disagree Strongly Agree

5) Are you satisfied with this web portal? *

1 2 3 4 5

Strongly Disagree Strongly Agree

6) Please leave your comments about UTP CGS web portal for the improvement and enhancement

Submit