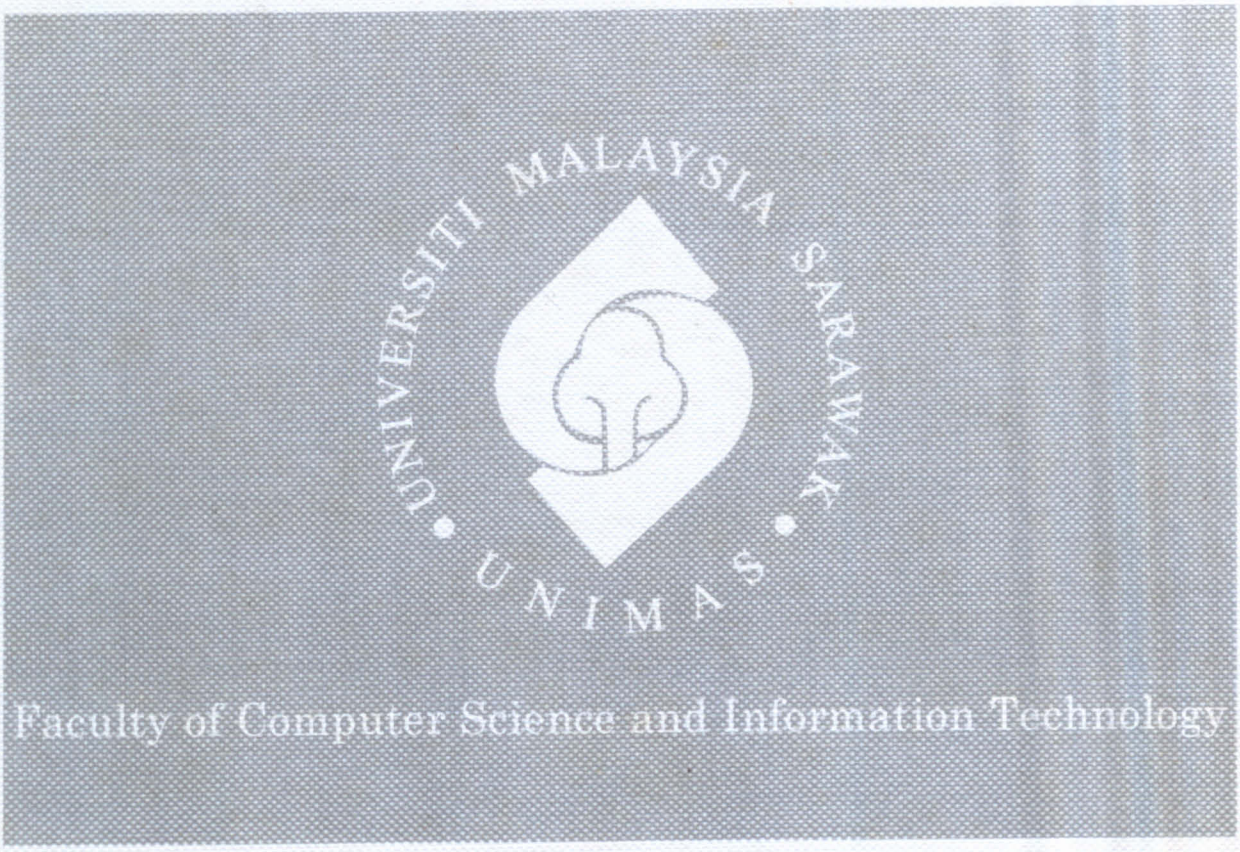

DESIGN AND DEVELOPMENT OF EMBEDDED SOFTSKILL MODULE FOR UNIMAS E-COURSE OUTLINE SYSTEM

Khong Siew Kheng

Bachelor of Computer Science with Honours
(Software Engineering)
2014

DESIGN AND DEVELOPM SOFTSKILL MODULE FOR UNIMAS SYSTEM

KHONG SIEW KHENG

This project is submitted in partial fulfilment of the

requirements for the degree of

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KHONG SIEW KHENG

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ABSTRACT

Design and Development of Embedded Softskill Module for UNIMAS E-Course Outline System is a web based system that is developed for the use of academic staffs of Universiti Malaysia Sarawak. The purpose of this system is to ease the learning and teaching process and also provide softskill elements for particular course under different faculty programmes. The existing softskill module in the existing system was less efficient and the information provided is less sufficient. By using this system, the academic staffs will be able to retrieve softskill information of a programme and also prepare the course plan easily.

ABSTRAK

UNIMAS E-Course Outline Sistem merupakan sistem berasaskan web yang dibangunkan untuk kegunaan staf akademik UNIMAS. Tujuan projek ini bukan sahaja memudahkan proses pelajaran dan pembelajaran, tetapi juga dapat membekalkan elemen softskill untuk program tertentu di bawah program fakulti. Sistem semasa yang digunakan oleh fakulti adalah kurang efisien dan maklumat yang disediakan adalah kurang mencukupi. Dengan mengunakan sistem ini, staf akademik dapat menerima informasi mengenai softskill sesuatu program dan juga memudahkan perancangan kursus.

CHAPTER 1: INTRODUCTION

1.0 Overview

This chapter describes about the problem statements, objectives, scope, methodology, expected outcome, significant of project, project schedules and structure of the project.

1.1 Introduction

According to the Oxford Dictionary, softskill is the individual attributes that allow someone to communicate in a harmony and effective way with others. Softskills refer to individual qualities, habits, attitudes that contain potential to create a good student in addition to compatible with academic requirements. In other words, softskill is a fundamentally people skills that consist non-technical, intangible, personality-specific skills that decide strengths as a leader, listener, negotiator, and conflict mediator (Hewitt, n.d.).

Comparison among the revised and existing softskill elements for programmes and course Outlines are conducted manually to generate the softskill requirements change that will ease the reviewer to notice the changes part directly for evaluation. The process for reviewing any requested softskill element changes is delayed as the manual softskill implemented currently was inefficient.

To prepare for softskill module for teaching and learning process, an approval from MOHE and MQA must be first granted. The current softskill module will be improved for evaluation purposes by academic staff.

By using Design and Development of Embedded Softskill Module for UNIMAS E-Course Outline System, lecturers can easily update the softskills elements of a course.

Therefore, through the improvement of softskill module, softskill evaluation can be easily done. The aim of this project is to improve existing softskill module and increase the new softskill elements.

1.2 Problem Statements

The MOHE and MQA want a documentation of softskill and a proof of sofskill elements implementation in a university. Therefore the softskill elements in the current E-Course Outline system need to be revised and improved. For the current time, the learning activities and type of assessments that are carried out are recorded manually on the paper and it is not recorded in the system. The softskill elements in the system currently are not sufficient. Softskill assessments might be given to students during lecture classes but are not available in the system to be viewed by lecturers.

1.3 Objectives

i) To provide an effective process and systematic way in managing the softskill elements through the data stored in the system

ii) To investigate and identify the suitable softskill elements to be implemented in teaching and learning

iii) To improve the softskill module of an E-Course Outline system that is efficient to use by lecturers to update softskill elements for a selected course

iv) To investigate and identify the suitable softskill elements to be implemented in teaching and learning

1.4 Methodology

1.4.1 Gathering Requirements

In this stage, detailed understanding of proposed softskill elements, official procedure and flow for the UNIMAS academic staff are needed. Various methods are to obtain data such as from interviews, questionnaires, books, journals, thesis and also internet resources. These methods are chosen because they are more suitable with the need for this project.

1.4.2 Analysis

In this phase, it involves the task to analyze the data gathered from various methods used to collect information and it is crucial to analyze properly in order to get the best results to help the design and development of the project. Research on existing E-Course Outline system and relevant paper are carried out.

1.4.3 Design

In this stage, it is where to develop the logical design of project. At this phase it is where the data flow analysis, Entity Relationship Diagram (ERD), and Structure analysis will be done. The functionality and operation of the system will be identified. This phase is important to ensure that all needed elements covered in the literature review are included. It is used to design and describe the interface of the system. The process and flow of the system is design and explain by using system flow chart. Once the design part is complete, prototype of the system is developed, whereby this is the initial step to develop the system.

1.4.4 Implementation

In this phase, an overall understanding in the literature part is important as it helps to identify the system methodology. A prototype methodology is used as guidance to develop the system. In this phase also the design is translated specifically into programming codes and it involves

the identification on how to implement the real system based on the previous designed function and characteristic. Once the system is developed, the verification and validation processes are carried out. System verification and validation is essential to verify the feature in the system.

1.4.5 Testing

Testing process involves all the users to ensure system's usability and to gain feedbacks for advance improvements.

1.5 Scopes

This project will be focusing only for softskill elements. Besides, this system is also design to create an electronic version environment of softskill element. The improved E-Course Outline system is mainly use for the lecturers in all faculties and centres in UNIMAS.

1.6 Significance of Project

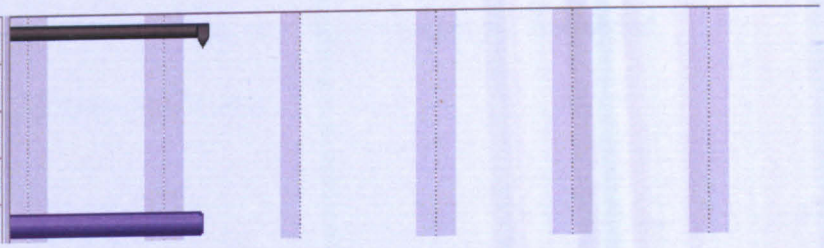
The softskills elements in the system are improved so that the lecturers will implement them in the teaching and learning for each of faculty programme.

1.7 Expected Outcomes

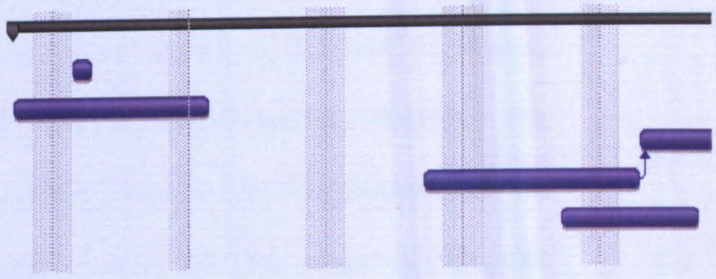
Improve softskill module in the current E-Course Outline system. For a course, lecturers will pick any types of skills and input softskill elements for a particular selected course.

1.8 Project schedules

	Planning	29 days	Wed 4/9/13	Mon 14/10/13
	Obtain title and gather requirements	4 days	Wed 4/9/13	Mon 9/9/13
	Define brief desciption of project	3 days	Wed 18/9/13	Fri 20/9/13
	Wait for Reviewer approval	6 days	Mon 23/9/13	Mon 30/9/13
	Requirements Identification	11 days	Mon 30/9/13	Mon 14/10/13



	Analysis	34 days?	Fri 11/10/13	Sun 24/11/13
	Requirement Analysis	1 day?	Mon 14/10/13	Mon 14/10/13
	Proposal preparation	7 days?	Fri 11/10/13	Sun 20/10/13
	Chapter 1 preparation	11 days?	Tue 12/11/13	Sun 24/11/13 11
	Research & studies	7 days?	Fri 1/11/13	Mon 11/11/13
	Chapter 2 preparation	5 days?	Fri 8/11/13	Thu 14/11/13



	Design	42 days	Wed 16/10/13	Mon 9/12/13
	Create Use case	2 days	Fri 15/11/13	Sun 17/11/13
	Create Data Flow Diagram(DFD)	3 days	Tue 19/11/13	Thu 21/11/13
	Create Entity Relationship diagram(ERD)	1 day	Fri 22/11/13	Fri 22/11/13
	Create data dictionary	3 days	Mon 25/11/13	Wed 27/11/13
	Chapter 3 Preparation	1 day	Wed 16/10/13	Wed 16/10/13
	Integration of chapter 1,2,and 3	4 days	Fri 22/11/13	Tue 26/11/13
	Prepare FYP1 Final Report and paper for assessment	5 days	Tue 3/12/13	Mon 9/12/13

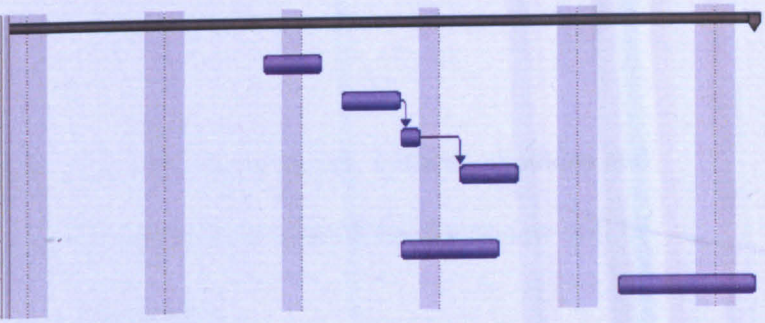


Figure 1.1: Gantt chart for Semester 1

	Implementation and Testing	78 days	Wed 19/2/14	Fri 30/5/14
	Install relevant software	1 day	Wed 19/2/14	Wed 19/2/14
	Develop interface	21 days	Sun 2/3/14	Thu 27/3/14
	Modify interface and system	7 days	Fri 4/4/14	Fri 11/4/14
	Revise FYP report and gantt chart	7 days	Mon 24/2/14	Mon 3/3/14
	Prepare first draft of chapter 4	16 days	Sat 15/3/14	Fri 4/4/14
	Prepare first draft of chapter 5 and abstract for paper	11 days	Sat 12/4/14	Fri 25/4/14
	Prepare first draft of chapter 6,system prototype and	21 days	Sat 12/4/14	Fri 9/5/14
	Prepare final FYP2 report	1 day	Mon 12/5/14	Mon 12/5/14
	Modify and debug program	19 days	Sat 5/4/14	Tue 29/4/14
	Test system	6 days	Sat 24/5/14	Fri 30/5/14

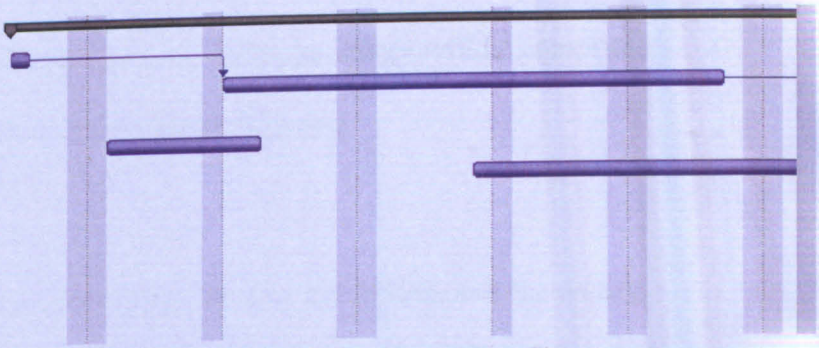


Figure 1.2: Gantt chart for Semester 2

1.9 Structure of Project Report

In this project, there are six chapters written for Design and Development of Embedded Softskill Module of UNIMAS E-Course Outline System report.

1.9.1Chapter 1: Introduction

In this chapter, an introduction of Design and Development of Embedded Softskill Module for UNIMAS E-Course Outline System will be stated. The chapter also includes the problem statement, objectives, scope, and methodology, expected outcome, significant of project, project schedule and structure of project report. The problem statement describes the problems faced by the current system and provides justification on why this project has to be developed. The objectives explain about the project's goal and the scope clarifies the limitations of the project to be developed.

1.9.2 Chapter 2: Background Study

In this chapter, there are parts, which are the review on related paper, systems, modules and journals. Firstly, the review on related paper about softskills is done. Next the review will be on systems. Lastly, the journals and books will be reviewed.

1.9.3 Chapter 3: Requirement Analysis and Design

This chapter will focus about the analysis and design of embedded softskill module for UNIMAS E-Course Outline System. Correspondingly, the database design will be comprised here, aided by Data Flow Diagrams and Entity Relationship Diagrams.

1.9.4 Chapter 4: Implementation

This chapter includes the implementation of the components of the system and the testing. Screenshots and the interface layout are used to describe the structure of the system in details.

1.9.5 Chapter 5: Testing

The testing process will be analyzed in helping to improve the performance of proposed project.

1.9.6 Chapter 6: Conclusion and Further Work

This chapter provides the conclusion of whole project. A brief summary of achievements of this project, limitations and future enhancements of system are also explained in this chapter. Conclusion and future works will be concluded by discussing on accomplishment of system and suggestions on future works will be explained to improvement the weakness that is found in system. The conclusion about evaluation that has been done about the system by determining whether the objectives and project scope of system has been achieved.

1.10 Conclusion

From this chapter, all the initial steps involve are identified. With the observation and problem statement identified, the project goal and objectives can be determine and solve the current problem. The project scope defines the boundary that the system will cover and also means the total work that need to cover that are included under the project. This system will cover the softskills module that enables the academic staffs to select the softskill elements. Besides that, this system can fulfil the aim which is to provide effective and efficient process of softskill elements selection.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

The purpose of background study is to gather information which is particularly related to **Design and development of embedded softskill module for UNIMAS E-Course Outline system**. Literature review is the part of any research where particular topic is placed that contains general and broader description of the topic. To develop any new system, background study is essential.

Design and development of embedded softskill module for UNIMAS E-Course Outline system is a web application to facilitate UNIMAS academic staffs to manage softskill information for course plan. It is hoped that the design and development of current embedded softskill module for UNIMAS E-Course Outline system will bring efficiency to academic staffs of UNIMAS.

2.1 Importance of handling and computerizing softskills information in E-Course Outline system

The manual way of storing softskill activities is actually time consuming, and the information provided is insufficient for the management of each faculty programme. The advantage of handling softskills in a system is not only to provide information in graphic detail but also to make sure the information is being updated effectively and efficiently.

2.2 Why do we need Design and development of embedded softskill module for UNIMAS E-Course Outline System?

Design and development of embedded softskill module for UNIMAS E-Course Outline system will be used by lecturers of UNIMAS to ease the process of teaching and learning of

faculty programmes. The softskill module will ease the lecturers to manage the most suitable softskill elements for a particular faculty programme.

2.3 History of the current embedded softskill module for UNIMAS E-Course Outline System

Basically, the softskills activities are carried out in a manual way where by the softskill elements are not entered in the existing system. The manual system is not interactive enough to provide lecturers. For example, the current existing system did not mention the activities under each softskill elements. Despite the fact, softskill is still being managed manually. Currently, *'Modul Pembangunan Kemahiran Insaniah untuk Institusi Pengajian Tinggi Malaysia'* is used as the main reference to the administration staffs and lecturers in UNIMAS. In this module, various softskills elements are mentioned.

2.4 Similar systems

There is currently no existing E-Course Outline system about design and development of embedded softskill module available on the internet. Therefore direct comparison of similar systems cannot be made. Instead, review on the current E-Course Outline system will be made as the main softskill elements are provided in the current E-Course Outline system. Therefore reviews on the specific softskill elements will be done instead.

2.5 Review on existing Design and Development of Embedded Softskill Module for UNIMAS E-Course Outline System

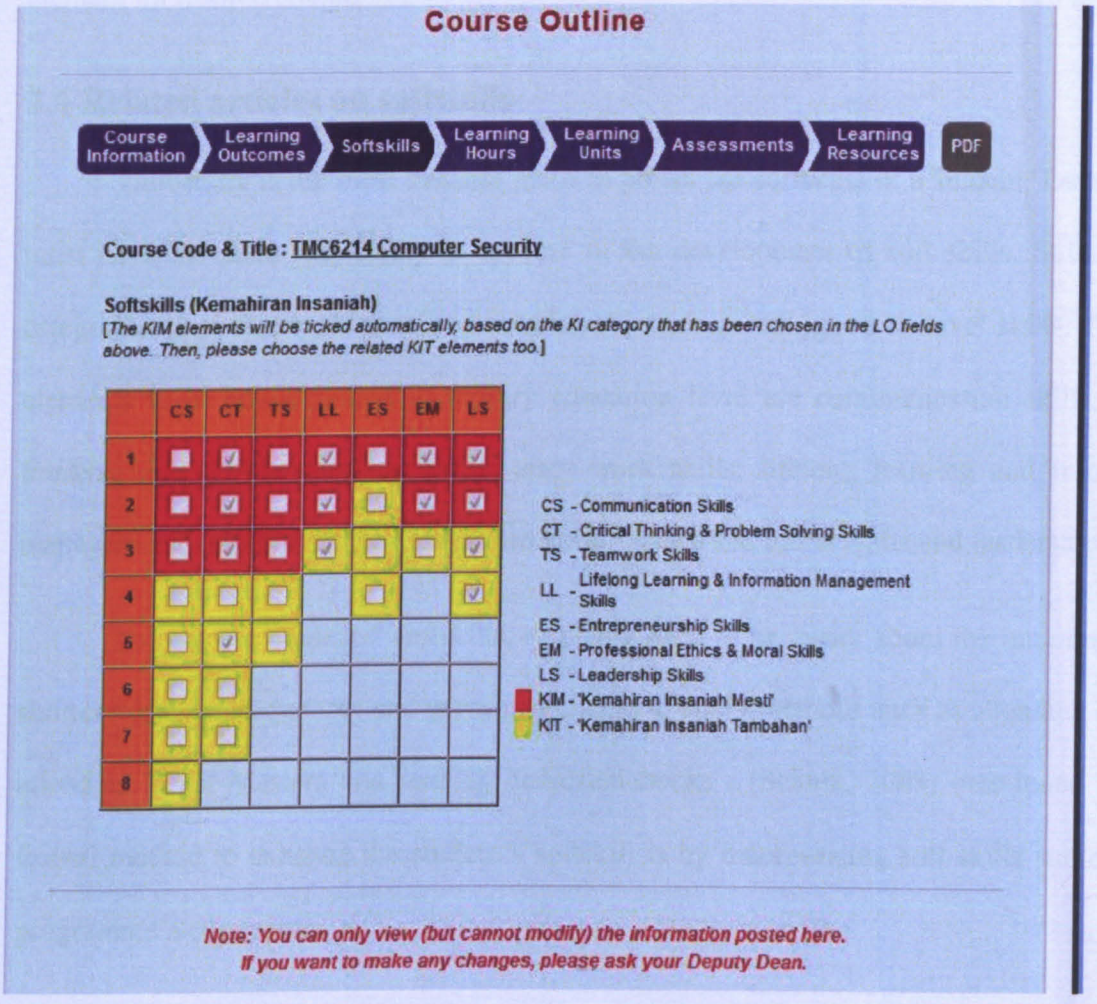


Figure 2.1 The checked and unchecked values of softskill elements.

The current system only let the user to view the list of softskill elements that are displayed in a checked box form. The red color symbolizes the 'must have' softskill while the yellow color symbolizes the 'good to have' softskills module of UNIMAS E-Course Outline system. User knows what the type of sosftskill that have been selected earlier but might as well want to know the description of the softskills and also need to input learning activities and type of assessment for teaching and learning process. Therefore, several features must be added to the

existing system to enhance the efficiency when academic staffs select particular softskill element for desired course.

2.6 Related articles on softskills

University is the most suitable place to polish the softskills of a student. Each student must have the need and ability to involve in the development of soft skills. Softskills are categorized into two types that are 'must have' softskills and 'good to have' skills. The main elements to be implemented in tertiary education level are communication skills, critical thinking and problem-solving skills, team work skills, lifelong learning and information management, entrepreneurship skills, profession ethics and moral skills and leadership skills.

To improve students' softskills, student's need to be aware about the importance and shortcomings consequences and encouraged them to apply methods such as attending courses, attending Toast Masters and reading dedicated books . (Schulz, 2008) mentioned that the formal method to enhance the student's softskill is by incorporating soft skills subjects into programme's curriculum.

Basic Vocational Education (PAV) is a vocational program conducted in lower secondary school and is implemented in 15 selected schools in the year 2012. PAV program components consist of self esteem, vocational technology, vocational skills and entrepreneurial skills. Communication skills, critical skills and problem solving skills, teamwork skills, entrepreneurship skills, continuous learning and information management, professional ethics and moral, leadership skills are the softskill key elements contained in each of the PAV components (Azmi and Hashim, 2012).

Communication skill, creative and critical thinking, teamwork, program and project management skill, decision making and problem solving skills are rated as important by

employers but the performance are rated as moderate by employer. The average mean score for the soft skill importance rating by employers are higher than the mean score of graduates' soft skill performance by employers (Hairi, Ahmad, & Razally, 2011).

In a research of soft skills absorption to students in teaching and learning activity in university by (Kamsah, Abu & Razzaly, n.d), a research that uses questionnaire is carried out to collect basic quantitative information softskill absorption practiced by academic staff related to the teaching and learning activities. The questionnaire consists of four parts which are respondent background, preparation, knowledge and individual skill and institution support in softskill absorption, implementation of softskill in teaching and learning and problems faced by academic staff in absorption in teaching and learning.

Own initiative has the highest percentage that has started softskill application activity. Out of seven softskills set by higher education minister (MOHE), communication skills, critical thinking and problem solving skills, team work skills are the top softskill elements that is applied by respondents. As for the conventional teaching and learning method, lectures, tutorials and projects are the most used method by respondent in softskill activity absorption in teaching and learning. Meanwhile for the softskill evaluation method, lecturers observation, reports and projects are mostly used.

Meanwhile, in a study named evaluation of softskill in bioreactor system, (Zain, Suja, Basri, & Basri, 2007) mentioned that awareness on self-assessment environment caring are the highest chosen by students followed by communication skill and also critical thinking skills. Communication skills are important criteria that every future engineer must have to compete among others in international level.