Management Information System Development PKL Faculty of Engineering of Universitas Negeri Semarang

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Abstract: The purpose of the research is to study the evaluation of the professional placement (PKL) administration implementation using the administrative information system (pkl.ft.unnes.ac.id) based on the user's perception for the improvement of Professional Placement Information System Management (PKL SIM). This research includes the study of input, process and output from the SIM PKL FT UNNES. The research uses evaluative research method by using a series of system testing tables to determine the performance of PKL SIM based on the flow carried out by each user. This study uses RUP model. RUP (Rational Unified Process) method is an interactive system development stage specifically aimed for object-oriented programming. The results of this study are the development of SIM PKL that has experienced improvement such as the content of supervisors editing data, data synchronization with simpeg, data editing of group, and content that allows letter printing. UAT Test Result is submitted to the perpetrators of the information system, that the coordinator of study program and PKL administration in the department and the faculty shows that the results of SIM PKL development are 100% well received.

1 INTRODUCTION

PKL is a compulsory activity for diploma and undergraduate students to gain experience, knowledge, attitude, and skill in the world of work of each study's competence of program and skill. Professional placement aims to allow students to get work experience that is relevant to their disciplines, to possess knowledge, attitudes, and skills in accordance with each study's competency of the program. In order to improve the quality of administrative management of professional placement in the Faculty of Engineering, the professional placement administration system that has been carried out manually for years will be upgraded to an online system. This need is based on the development of UNNES which is IT-based and the increasing administrative problem of the professional placement. The limited number of human resources in managing correspondence for all students of the Faculty of Engineering and the complicated administrative mechanism are the reasons why this system is urgently necessary to be realized.

The professional placement administration system of Faculty of Engineering of UNNES is one of the online administration systems of professional placement run on UNNES and has been initiated by the Faculty of Engineering. This system was self-developed by the Faculty of Engineering students and has been initiated since 2012. However, the system readiness and implementation are constrained by several internal problems of the professional placement management in the Faculty of Engineering. Having through the development of a system and management of the professional placement management information system, at the beginning of 2015, this system began to be implemented for administrative purposes of the professional placement implementation in the Faculty of Engineering. However, this system has not fully responded to the needs of professional placement administration in the Faculty of Engineering. It is shown with the still many reports regarding the weaknesses if this professional placement management information system, either the flow of the professional placement implementation and the content of the professional placement management information system itself. This evaluative report

comes from the information system practitioners, which are the study program coordinators, Quality Assurance Team of Faculty of Engineering and professional placement administrators in the department and faculty. Therefore, there is a need of further research related to the performance of professional placement management information system based on the perception of its users to contribute in the improvement of management and administration of professional placement management information system of Faculty of Engineering of Universitas Negeri Semarang.

2 METHODOLOGY

The method used in this study is RUP (Rational unified Process) method, which is an interactive system development stage specifically for object-oriented programming (Rosa U.S, 2011, p.106). The description of the 4 working stages of RUP is as follows: (1) Inception Phase (beginning). This stage is more about modeling the management and administrative process needed and defining the system requirements that will be made (Rosa AS, 2011, p. 109). In determining the problem-related needs, several data collection techniques are used, such as: a. Observation Study, it is a data collection method by observing directly an object to be studied in order to provide precise and clear information. b. Interview Study. It is a data collection technique by conducting Focus Group Discussion to the information system practitioners which are study program coordinators, Quality Assurance Team of Faculty of Engineering and professional placement administrators in the department and faculty, which is conducted systematically. c. Literature Study. It is a data collection technique of collecting information by studying scientific books that support the research. (2) Elaboration Phase (Planning). At this stage, the researchers conduct analysis of problem, needs, feasibility such as benefit and technical analysis, makes a display interface design that will be used in the system improvement, then conducts initial testing of the new system. (3) Construction Phase (Construction). At this stage, researchers conduct an examination of inception and elaboration stages. This is conducted to find out whether the design analysis and planning are in accordance with the aimed needs. In addition, there will also be a problem and needs analysis which is then put into the programming language so that it becomes a complete system and could be used to support the company's activities. (4) Transition Phase (Transition). At this stage, the

researchers carry out the deployment process, which is a system installation activity made for the agency and an activity where the researchers conduct system usage training made for the prospective users of the system.

3 RESULT AND DISCUSSION

3.1 System Analysis

3.1.1 Problem Analysis

To identify the problems faced by the practitioners / users of the professional placement management information system, the researchers developed a problem solving framework. The problem solving framework used is the PIECES framework. Problem analysis was carried out using the PIECES framework (Performance, Information, Economics, Control, Efficiency, Service). The problems occur are identified using the PIECES framework as follows:

a. Performance

The administration department at the Faculty level faces difficulty to manage the data of advisors, because the data is not synchronized with the one of UNNES. Thus, there needs to be an edit menu either for name, title and rank.

b. Information

The Study Program Coordinator is not yet able to obtain data about the places of professional placement industry that they have cooperated as well as their addresses, based on their respective study programs.

c. Economics

To obtain data per study program, they still need to check it in each study program, due to the integrated system with the faculty data.

d. Control

The difficulty of the study program coordinators controls the number of students who have already implemented and who have not carried out PKL activities per class

e. Efficiency

The administration section at the department and faculty level still face difficulty in editing the correspondence so that the service is still inefficient.

f. Service

There is a complication in editing student data into data of students joining professional placement due to some error done by some students in registering members in their group.

3.2 System Design

3.2.1 Problem Analysis

Researchers use Data Flow Diagrams (DFD) which is a diagram that uses notations to describe the flow of system data, which the use is very helpful to understand the system logically, structured and clearly. It is a normal thing that when describing a contextual system, the first diagram flow data appears is the interaction between system and external entities. DFD is designed to show a system that is divided into a smaller sub-systems and to underline the data flow between both things above. This diagram is then "developed" to find out more details so that the models inside can be seen.

Once the DFD is arranged, the next step is to establish the relationship between the existing entities with the Relationship Diagram (ERD). The relationship of ERD between entities is shown in Figure 1.

Figure 1: Entity Relationship Diagram (ERD).

ERD is used to systematically describe various entities and data components in a system and the relationship between each entity. E-R Diagram is a modeling language in which the position can be analogized as the story board in the film industry, the blue print architecture of a building, miniature, and others. In reality, building a system starts with a planning. Modeling is a subsection of a planning, which as a whole is one of the feedback to evaluate the completion of a plan. E-R Diagram as a modeling has at least some characteristics and benefits as follows:

a. Allows an early analysis and system change, which is cheap and fast

b. Provides an overview of the system that will be made to facilitate the developers.

c. Produces good documentation for the client as a material for discussion with the form of the E-R Diagram itself, and

d. Becomes data dictionary for the database developers

e. Displays an overview of the relationship between one entity to another and describes a database.

3.2.2 Interface Design

In the interface design, the user will see the main menu page first. Figure 2 shows the display of the main menu page.

Figure 2: Main Menu Page.

It is a page where the professional placement management information system user either student, supervisor, coordinator of study program and administration officer at the department and faculty level can enter the system by entering the user and password. The authentication requirement appears in login page of professional placement management information system as shown in Figure 3.

Figure 3: Login page of professional placement management information system.

Figure 4 is a page where after login, the user can use the available features prepared according to the needs of each user.
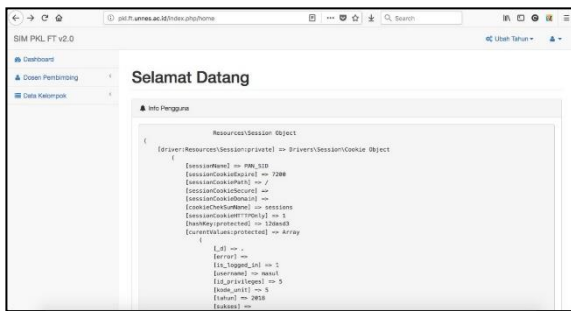
Figure 4: Homepage after login.

Figure 5 is a page where administration officer at the faculty level can change the advisor data based on the latest data.
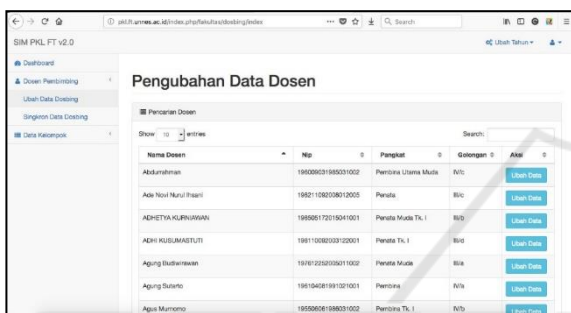

Figure 5: Page of Lecturer Data Edit.

Figure 6 is a page where the administration officer at the faculty level can edit the data of the advisors based on the name of the lecturer, full name, employee number, rank, class and functional position.
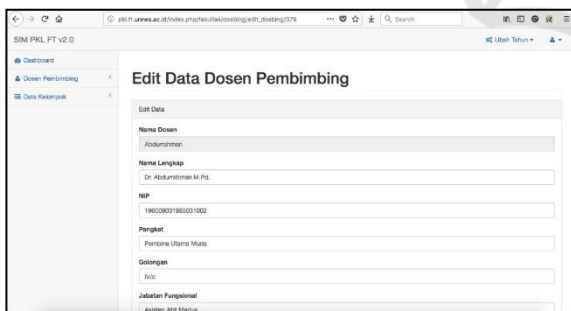

Figure 6: Page of Supervisor Data Edit.

Figure 7 is a page of the lecturer data that has been synchronized with UNNES employee management information system data.
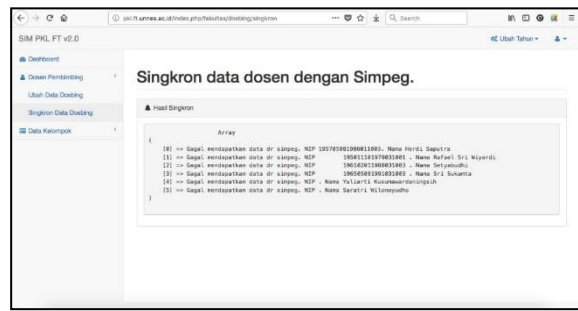
Figure 7: Page of synchronized data of lecturers with employee management information system.

Figure 8 is a page where administration officer at department and faculty level can edit student group data.
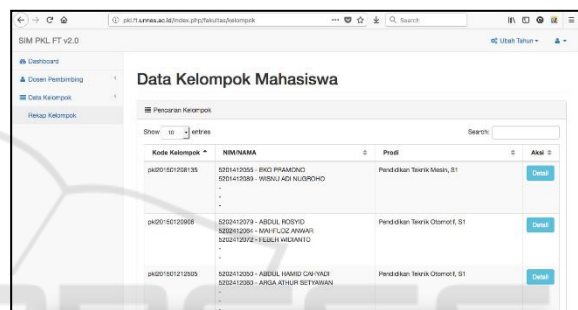
Figure 8: Page of Student Group Data Edit.

Figure 9 is a page where the administration officer at the faculty level can print the professional placement related letters such as application letter, assignment letter, advisor assignment letter, visit duty letter and withdrawal letter.
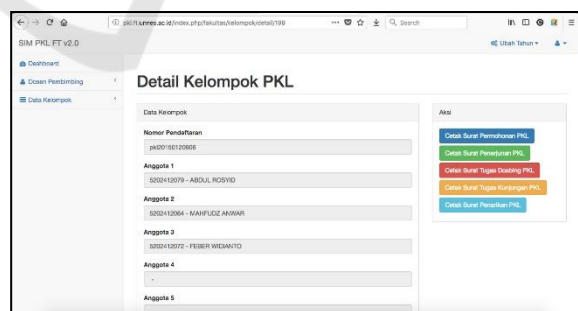

Figure 9: Page of Detail Edit the Letters printing.

3.3 User Acceptance Test (UAT) Assessment

UAT assessment is submitted to the practitioners of information system, which are the coordinator of the study program, Quality Assurance Team of Faculty of Engineering and the administration section of

professional placement in the department and faculty. Based on the 3 questionnaires, the result shows that the system is 100% accepted.

4 CONCLUSIONS

The conclusions from this research are: (1) problems of the professional placement management information system implementation according to the users are: (a) Performance, it is when the administration at the Faculty level has difficulty managing the advisor data, since the data is not synchronized with UNNES data. Thus, there needs to be an edit menu in name, title and rank. (b) Information, it is when the Study Program Coordinator is not able to obtain data of places of professional placement industrial that have been collaborated as well as their addresses, based on their respective study programs. (c) Economics, it is when data collection of each study program is still done by checking each study program, since the current system still combine all faculty data into one integrated data. (d) Control, it is the difficulty faced by the study program coordinators in controlling the number of students who have and who have not joined professional placement activity per class. (e) Efficiency, it is where the administration section at the department and faculty level still has difficulty in editing correspondence so that the service is still inefficient, and (f) Service, it is when there is a difficulty in editing student data in student professional placement group data. This is due to errors by some students who incorrectly entering the members in their group. Meanwhile in the development of professional placement management information system, there are several improvements in (1) the content of editing the data of advisors, synchronizing data with employment management information system, editing group data and content that facilitate letter printing. (2) The UAT Assessment Results submitted to the practitioners of the information system, namely the coordinator of the study program and the administration of professional placement in the department and the faculty shows the results of the development of professional placement management information system which is 100% accepted.

ACKNOWLEDGEMENTS

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