Designing Bkd Website Based In Industrial Engineering Department Of Universitas Pembangunan Nasional “Veteran” Jawa Timur

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Abstract

Lecturer Workload (BKD) is a portrait of the lecturer workload in the implementation of University’s Tri Dharma in the next semester. In college academic activities, the reporting of Lecturer Workload (BKD) is important because it is concerned with the productivity of lecturer’s performance. The lecturer workload is commensurate with a minimum of 12 credits and a maximum of 16 credits in each semester in accordance with academic qualifications. The Department of Industrial Engineering of UPN “Veteran” Jawa Timur has implemented a manual lecturer workload reporting system and indirectly the high potential obstacles to the evaluation process. So that in its application Lecturer Workload reporting (BKD) must be able to facilitate between lecturers, assessors and head of department in coordination. This research aims to produce Lecturer Workload Information System (BKD) effectively and efficiently. The design of this system uses the System Development Life Cycle (SDLC) method. From the results obtained, the output of this system is that lecturers report their performance online, assessors can verify files easily, and study programs can monitor lecturers’ performance. It is hoped that the Lecturer Workload Information System (BKD) can help the Industrial Engineering Study Program of the East Java National Veterans Development University in conducting the lecturer workload reporting process (BKD).

Keywords: Information Systems, Archives, Lecturer Workload, SDLC, Website.

1. Introduction

According to Law Number 12 of 2012 education, research, and community service are later called Tri Dharma. The main task of the lecturer is to implement Tri Dharma with a workload of at least 12 credits and a maximum of 16 credits in each semester with a variety of academic qualifications. The implementation of the lecturers' performance needs to be evaluated and reported periodically as a form of accountability of the lecturers' performance to the stakeholders. So each lecturer must make a lecturer performance report that has been conducted periodically (one semester) with the provisions of the predetermined report.

In fact, the Department of Industrial Engineering UPN "Veteran" Jawa Timur is still implementing a system of lecturer workload reporting manually. The lecturer must make an appointment in advance for the revision process of the lecturer performance report, the file archiving is still in the form of paper, and the head of the department is also an admin. From the problems obtained, the lecturer workload reporting process requires quite a long time and low effectiveness in the implementation of the reporting. It is also very prone to human errors that often make a job have to be done repeatedly (due to minor or fatal mistakes) so that there are many documents that have to be reprinted, this
means additional costs for necessities paper, ink and printers will be doubled or even more. BKD sequence in conventional system, can be shown in Figure 1.

![Conventional BKD sequence](image1)

Thus, in order to overcome the problems that occur in the Department of Industrial Engineering UPN "Veteran" Jawa Timur related to lecturer workload reporting will be developed Website-based Lecturer Workload Information System with the Sequence Development Life Cycle (SDLC) method, the SDLC method can be used to engineer the system and software by changing systems, models, and methodologies in order to be developed in designing computer systems and their information content. With this system, lecturer workload reporting where had the old system can be designed easily and the computational implementation will help in optimizing the effectiveness of lecturer workload reporting. The Likert scale test shows the system BKD's digital repository information is considered very positive. With the Information System Web-based Lecturer Workload is expected to overcome difficulties in workload data management lecturer so it becomes easier and efficient.

### 2. Material and Method

In this research, Sequential Development Life Cycle (SDLC) is used to solve the problem. SDLC mechanism can be shown in Figure 2.

![SDLC Waterfall Model](image2)

Some of the steps used by Waterfall Model for solving the problem are mentioned as follows:

a. **System Engineering**
   System Engineering is needed because software is usually part of a larger system. Making a software can be started by seeing what is needed by the system. Of these needs will be applied into the software system that will be made.

b. **Analysis**
   System requirements analysis is the process of gathering software requirements. To understand the basis of the program to be made, an analysis must know the scope of information, the functions needed, the performance capabilities to be produced (performance) and the design of the user interface (user) of the software.

c. **Design**
   System requirements analysis is the process of gathering software requirements. To understand the basis of the program to be made, an analysis must know the scope of information, the functions needed, the performance capabilities to be produced (performance) and the design of the user interface (user) of the software.

d. **Coding**
   Software coding is the process of writing a program language so that the software can be run by a machine or computer.

e. **Testing**
   This process will test the program code that has been created by focusing on the inside of the software. The goal is to ensure that all statements have been tested and also ensure that the input used will produce the appropriate output.

f. **Maintenance**
This process is done after the software is used by the user. Changes will be made if there are errors, therefore the software must be adjusted again to manage the changing needs desired by the user.

3. Results and Discussion

3.1. Entity Relationship Diagram

The first step in designing system engineering needs to know who is involved in this system. The facts in the field there are four users, they are lecturers, assessors, head of industrial engineering department and administrators. Fig. 3 shows the four user relationships using the entity relationship diagram.

From this relation, the lecturer uploads the file and saves the uploaded file archive, for assessors that provides recommendations for evaluating lecturers' performance reports, while for the head of department that monitors lecturers who have met the lecturer workload requirements and for administrators has the right of access to regulate the system in it such as restrictions on access rights to users.

3.2. Website Interface

The third step, designing the appearance of each user's web interface, the layout of features on the side bar and nav bar as well as the input to output process of each feature. The fourth step is coding, this information system is designed using php (codeigniter) framework for backend and bootstrap 4 for frontend. The fifth step is testing, where the functional program on this website is tested whether it can run according to function or fail. Fig. 6 shows the login page display.
The lecturer uploads the performance report file on the management information system of the lecturer workload, then the final result is the lecturer can see the performance value according to the lecturer workload calculation formula listed in the assessor assessment guide issued directly by the rector of UPN "Veteran" Jawa Timur. Besides seeing the performance value, the lecturer can also look for files that have been uploaded in the archive feature. Fig. 9 shows the display of the archive features.

There is a view document and download feature on the performance report file archiving page. Fig. 10 shows the appearance of document view feature.

| User Expectation | User Status |
|------------------|-------------|
| Lecture          |             |

**Data Input Process**

Lecturer workload information system has provided a form for Lecturers to manage data files (insert, update and delete). In addition, the lecturer can also change the name and upload a profile picture.

**Data Output Process**

The lecturer workload information system successfully displays the results of the data file that has been pasted by the Admin which consists of the Archives, and the Conclusions from the results of the assessor's verification results that produce the lecturer status qualifying or does not qualifying the reporting requirements. Then the system successfully displays the profile page of the lecturer who is logged in. In addition, lecturers can also view uploaded documents and download them.

**System Process**

The lecturer workload information system successfully performs functions for Insert, Update, Delete which aim to Mastering file data. Then successfully perform the function to login. Furthermore, the system also succeeded in
changing the lecturer password and also changing the lecturer name and profile picture. The system also managed to perform file archiving functions and view and download document features.

| User Expectation       | User Status   |
|------------------------|---------------|
| Data Input Process     | Assessor      |
| The lecturer workload information system has provided a form for assessors to input data on the lecturer workload values. |
| System Process         |               |
| The lecturer workload information system has successfully carried out the verification process of lecturer performance sheet evaluation in accordance with reporting requirements so that it automatically enters the system that makes the lecturer status qualifying or not. |
| Data Output Process    |               |
| The lecturer workload information system has succeeded in producing the results of lecturer worksheet verification in accordance with BKD requirements and can also directly produce the results in PDF format. |

| User Expectation | User Status       |
|------------------|-------------------|
| System Process   | Head of Department|
| The lecturer workload information system has successfully mastered the data mastering process so that the Head of Study Program can monitor which lecturers have met the requirements. |

| User Expectation | User Status | Managerial Access |
|------------------|-------------|-------------------|
| User Expectation | User Status |                  |
| Expectation      | All User    |                  |
| Data Input       | All users starting from admin, lecturer, assessor, and head of department can edit their profile starting from their identity, and change their password. |
| Process          | The lecturer workload information system successfully documents all data managed by the user automatically into the database. |
| Performance      | The system successfully provides security with email and password validation that can only be accessed by one user according to the rights of each user. Then the website cannot be accessed if it is not logged in first. And when the user logs out, the user's session has been lost and if you want to access the dashboard page, you have to log in first. |
| Security System  | The lecturer workload information system successfully documents all data managed by the user automatically into the database. |

The lecturer workload information system is an information system that aims to assist the lecturer in verifying files to the assessor, where the lecturer must upload the files to the system then the assessor must check the file files that have been uploaded by the lecturer concerned then fill in the grades on the assessment form. The system automatically masters data regarding lecturers, files, grades, conclusions (qualifying or not) and monitoring. After mastering the data, the system will automatically display the results of the SKS lecturer workload calculation and the status of the lecturer meets / does not meet the relevant lecturer. The status will be sent to the user (head of department) to carry out the monitoring feature process. Besides the files that have been uploaded by the lecturer will automatically be stored in the archive system so that the lecturer can view them later when they need them. There is also a view document feature where the system is programmed so that uploaded files can be viewed without having to be downloaded first so that the user is not burdened in storage memory.
4. Conclusions

From the results of the analysis and discussion described in the writing of this report, the conclusion is that the website-based lecturer workload information system has provided advantages regarding the lecturer workload reporting process compared to the old system. Where when compared with the old system that the reporting process is still using manual methods and is less effective in terms of coordination, so the proposal system is made namely the lecturer workload information system where in this system produces an automatic lecturer workload reporting archiving system in accordance with the data mastered by the system, and also the output of the lecturer workload information system is in accordance with the boundaries of the problem. That way, the proposed system can be said to have effectiveness in carrying out lecturer workload reporting activities.

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