

# Design and Development of Lecture Planning System in Informatics Study Program

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**Abstract:** In everyday life, the existence of the internet is increasingly becoming an important part, including for students. Students can easily find information via the internet, but the function of the internet is not only that, especially for students, one of which is to arrange schedules, and find out grade information online. Strategy greatly influences students in undergoing lectures, it can even affect student achievement and graduation time. Therefore, this research produces a system for managing student strategies in lectures, for example scheduling lectures. The system developed is the Lecture Planning System. The development model used in this study is a procedural model in the form of the Extreme Programming (XP) application development methodology. Extreme Programming includes planning and analysis, so it is very helpful in determining learning and planning strategies. The results of the test obtained a score of 100% which indicates that this lecture planning application system is very feasible to use.

**Keywords:** Achievement; Extreme Programming; Planning; Scheduling; System;

## 1. INTRODUCING

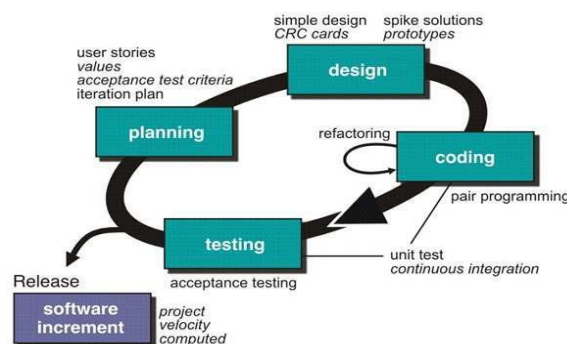
Currently, in everyday life, the existence of the internet is increasingly becoming an important part, including for students. We can easily find information via the internet. However, the function of the Internet is not only that, especially for students, one of which is to make schedules, as well as find out grade information online[1]–[4]. The use of information and communication technology in the teaching and learning process must be carried out properly and directed so as to be able to provide good quality learning. So that there is a need for joint improvement in learning methods, communication and interaction between students and teachers which facilitate sharing activities (sharing) learning resources and discussion activities without being hindered by space and time[5]. Learning is a process of interaction between teachers and students. The teacher is the most dominant factor that determines the quality of learning. The quality of good learning, of course, will produce good learning outcomes as well. One of the demands of the teacher is to be able to choose the right learning method for teaching. If the learning method used by the teacher is appropriate, the achievement of learning objectives will be more easily achieved, so that the value of student learning completeness will increase, student interest and motivation will also increase and a pleasant learning atmosphere will be created between teacher and students. The development and improvement of education both

academically and non-academically is carried out continuously to achieve maximum results.

State and private universities in each semester always design a course schedule in each department, as is the case with XYZ University. Sometimes planning a class schedule in its implementation there are still changes that occur. There are several problems in preparing the schedule at XYZ university. taken from the results of interviews with the head of the XYZ university study program, one of the problems that occurs is that in scheduling each semester it takes quite a long time, because there are many students in one class, sometimes students don't think long in choosing which courses to take taken. Strategies when taking courses during preparation will greatly affect students in undergoing lectures, and can even affect student achievement and graduation time. In determining the strategy itself it is very difficult for the head of study program to detect the number of students who have taken and who have not taken the required, prerequisite or elective courses, because there is no information recapitulation in each scheduling carried out by each student, it is difficult to know the number students who have or have not taught courses in the current period or semester and this is what causes the problem of shortage and excess of classes. In addition, sometimes the desired courses are not opened for classes in the current semester, even though there are enough enthusiasts to meet the quota per class. As a result, students have to wait for the preparation of the next period to be able to choose to take these courses. As a result, because there are frequent changes in designing class schedules, it is difficult for students to find replacement classrooms for lectures, and to determine classes whose lecture time does not collide with others, takes a long time to change lecture plans. Therefore, a system is needed to managing lecture scheduling planning at XYZ University. The system developed is the Lecture Planning System Design. The development model used in this study is a procedural model in the form of the Extreme Programming (XP) application development methodology[6]. Extreme Programming development activities include planning and analysis, design, coding, and testing and deployment. This research is implemented in the form of a website application with the PHP programming language and the CodeIgniter framework[7]–[9].

## 2. METHOD

CodeIgniter is an open source application in the form of a framework with the MVC model (Model, View, Controller) to build dynamic websites using the PHP programming language. MVC separates application development based on the main components that build an application such as data manipulation, user interface, and parts that become application controls[10]–[13].



**Figure 1.** Extreme Programming Method

Functional requirements analysis of the system created is as follows.

1. The system can log in: The system can log out Students can log in using a username and password, the Head of Study Program can log in using a username and password, BAAK can log in using a username and password.
2. The system can process data as a student: Users can register for course planning, users can submit courses they want to open.
3. The system can process as BAAK: Users can confirm data received, Users can make announcements, Users can input course masters, Users can input master lecturers.
4. The system can process as head of study program: Users can input knowledge, Users can input curriculum, Users can make class plans, Users can determine the number of classes.

### 3. RESULT AND DISCUSSIONS

#### Usecase Diagram

The design of use case diagrams in the lecture planning application can be seen in Figure 2 below.

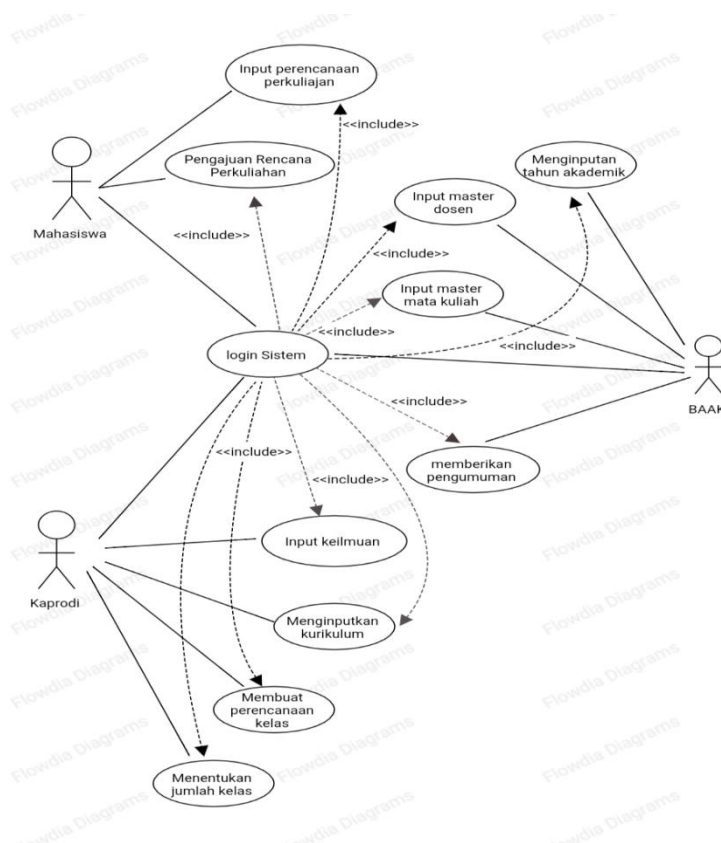


Figure 2. Usecase Diagram

After conducting research, analyzing, designing and creating applications that have been built and will be implemented at XYZ University to test the feasibility of the system being built and strengthened by testing the Black Box Testing functionality. Then the researcher also conducted a system demo for admins, and users who will use this system aim to introduce the application so that later students and admins can understand how to use the application. So as to reduce errors in the use of applications that have been built. Then with this system it aims to make it easier for students to submit the desired class (Lecture Planning).

## System Implementation

The Student Home menu is the main page which has sub menus that can be managed by students. Students can manage lecture planning, input the desired course data. The following display of the Home Admin menu can be seen in Figure 3.

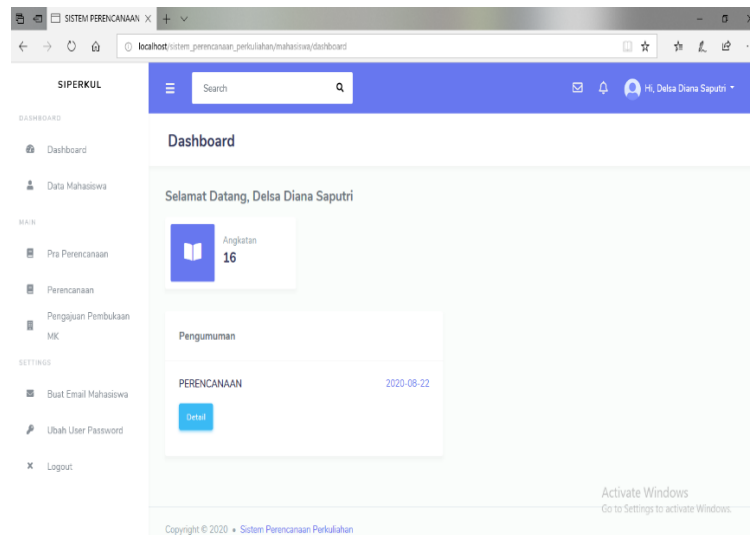


Figure 3. Student Home View

The Head of Study Program Home Menu is the main page which has a sub menu after successfully logging in which can be managed by the Head of Study Program, the Head of Study Program can manage lecture planning, input course data that will be opened. The Head of Study Program can manage schedules and information about planning lectures, the Head of Study Program can manage course data and the number of enthusiasts, the following display of the Home Admin menu can be seen in Figure 4.

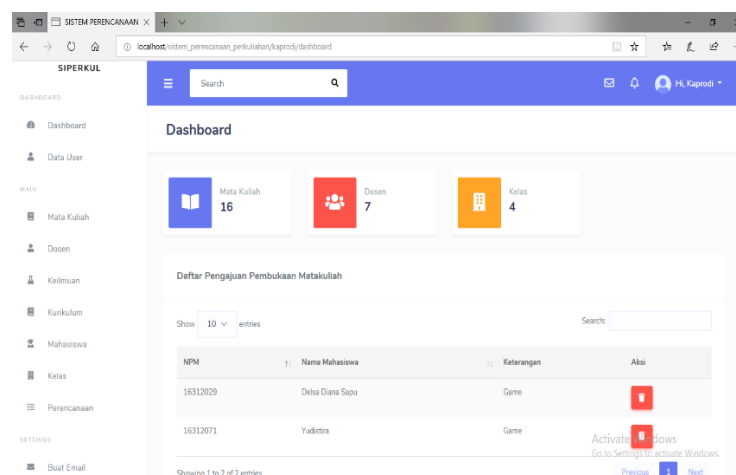
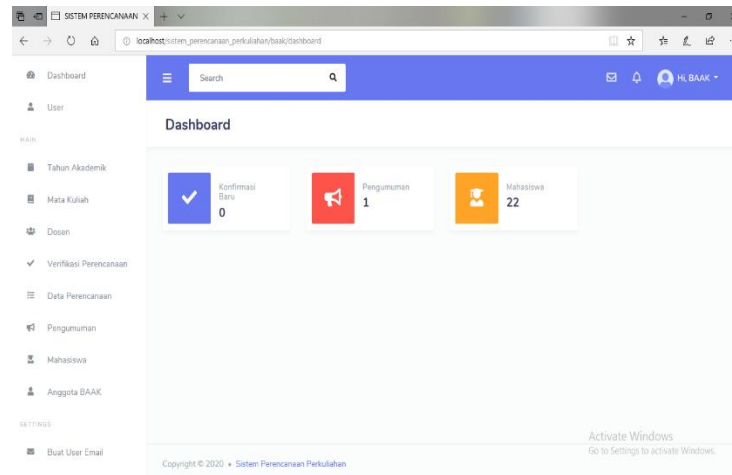


Figure 4. Head of Study Program Home Menu

The Baak Home menu is the main page which has sub menus after successfully logging in which can be managed by Baak, Baak can manage Course Masters, input master lecturer data and their areas of expertise, Baak can manage information regarding lecture planning,

Baakucan manage announcements and notifications, Here's what it looks like Admin Home menu can be seen in figure 5.



**Figure 5.** Home view BAAK

### Blackbox Testing

In the functionality test, the questionnaire was filled out by 22 respondents, 1 of whom had expertise in software engineering who worked as the Head of Study Program, one of the respondents who worked as BAAK staff, and 20 respondents from students at XYZ University. Tests were conducted to find out whether the functions in the lecture planning system application can run as expected or not. There are 10 questionnaires that are asked with each having a value and points in the test. Then do the calculation of the percentage for testing functionality[14], [15].

$$Total\ Score = \left( \frac{220}{220} \right) \times 100\% = 100\%$$

So that it can be concluded that in terms of the functionality aspect of the lecture planning system application, this score is 100%, which means that this application can run properly and correctly and the system is feasible to use.

## 4. CONCLUSION

The development of the Planning Registration Application is carried out through data collection which is carried out by observing and interviewing the head of the XYZ University study program, as well as analyzing the running system using the PIECES Analyst which is used to identify problems with performance, information, economy, application security, and efficiency in service to its users. Then the solution that will be offered in this Lecture Planning System is in the form of a local website, only limited to course planning and does not discuss the existing scheduling system, using the Extreme Programming development method. With the design done using PIECES. For making websites using the CI Framework with the PHP programming language with MySQL database storage. The Lecture Planning application system can only be accessed using localhost. To test whether this system is feasible to implement, the authors carry out tests in a functional way using the Blackbox testing model by conducting a questionnaire with 22 respondents through BAAK Lecturers & Staff with a total of 10 questions. And the results of the test obtained a score of 100% indicating that the planning application system This lecture is very feasible to use.

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