# Learning Management System Application Development
# at BINUS University

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*Abstract* — The purpose of this research is to develop the distribution of information about the lecture material and discussion forum lecture, these two parts is My Class and Forum, where the second part uses the lecture material is arranged in a lecture materials management system, that system is the Learning Management System (LMS) . Development of LMS applications are expected to support the new material in the form of Course Outline. Research methodologies used include methods of analysis, design methods, study libraries, and search internal company documents. The results showed that Binus University needs a new LMS application that supports the new course material shaped Course Outline. With the construction of this application, is expected to need the information in the learning process at Binus University can be met.

Keyword
***Development applications***, ***Learning Management System***, ***Course Outline***.

## I. INTRODUCTION

Learning Management System (LMS) is the lecture material management system which is managed and developed by the supporting unit in curriculum development, teaching materials, and e-learning at the University of Bina Nusantara.

Binus University is a university that focuses on quality service and education provided, to comply with 20/20 vision and mission of Binus University, A World Class University in continuous pursuit of innovation and enterprise.

Thus was completed the LMS with a variety of additional features that further enhance and streamline the process of learning and teaching at Binus University.

**Objectives:**

1. Develop a database [4] to adjust the LMS Course Outline form [2].
   2. Designing and implementing data migration scheme to suit the LMS Course Outline form.
   3. Developing applications on binusmaya LMS 3 to adjust the LMS Course Outline form.
   4. As a tool to present lectures and discussion of information materials produced by the LMS lecture forum Course Outline form.
   5. As a tool to generate report information generated LMS Course Outline to the user.
   6. Designing database design and content management screen Course Outline on back end systems to accommodate the LMS Course Outline form.

**Benefits:**
1. Provides information on the Course Outline to the user, where such information can support the process of delivering the material in the ordinary course.
2. Course Outline generate reports information to the user.
3. Provide different kinds of forums that allow interaction of faculty, student and assistant in a discussion forum.
4. Provide material shared facilities where faculty can share content with other relevant lecturer at the same course outline.
5. Providing facilities summary assignment in which students and faculty can see the overall distribution of tasks on each topic of a course outline.

**Problems faced:**
Based on the analysis of the issue above, so we can find problems with the system running, among others:
1. LMS applications cannot fully support the Course Outline.
2. LMS applications do not support previous data storage.
3. In terms of Project Management, Application LMS is still in a single module Binusmaya Project with other applications, this resulted in difficult to maintain (maintenance) for changes to each application Binusmaya.

4. LMS application does not support sharing of learning materials (shared materials) given the other lecturers.
5. LMS applications do not support discussion forum with the required criteria.
6. There are currently no data base design and screen design for the development of applications that support systems are computerized preparation of course material.

## II. METHOD

The study begins by collecting data by:

### 1. Analysis Method

- Survey of ongoing system
  Data collection techniques and information directly from the project, carried out by conducting interviews or interviews and discussions directly with the parts that are involved in the project to obtain the necessary data.
- Analysis of survey findings
  Conducting an analysis of survey results have been obtained to find the weaknesses and problems found on systems running.
- Identify information needs
  Identify the system requirements necessary for the development of LMS.
- Identify system requirements
  Identify the system requirements needed to design a system that is expected.

### 2. Design Methods

a. Making *Data Flow Diagram* (*DFD*) [6]
b. Making *Use Case Diagram* [7]
c. Making *Activity Diagram* [8]
d. Making *Document Flow Diagram* [8]
e. Making *Class Diagram* [8]
f. Making *Class-Responsibility-Collaborator Card* (*CRC Card*) [8]
g. Making *Entity Relationship Diagram* (*ERD*) [4]
h. Making *View Model* (Design Screen + *Navigation Diagram*) [8],[9],[10]

### 3. Methods Study Library

The methodology of collecting data obtained from literature by reading literature books and other articles related to existing problems.

### 4. University Internal Document Search

The methodology of collecting data obtained by searching the document - the document university [1],[2],[3] to produce the system needs and problems experienced in previous systems.

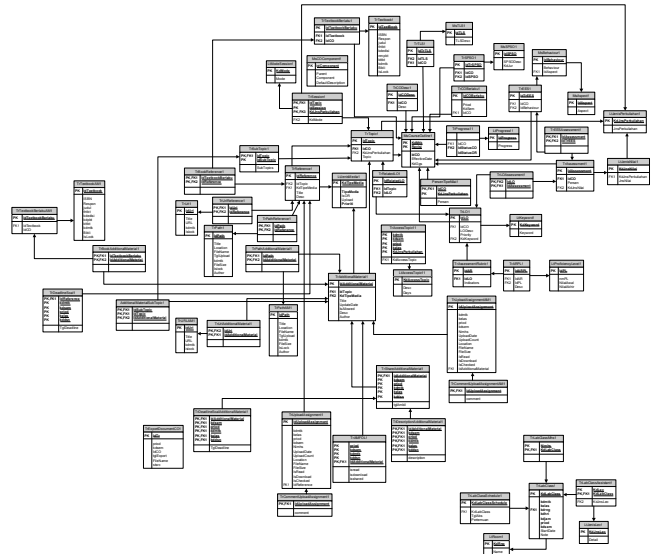So design by Pressman [6],[7],[8] and the ERD [4] formed:
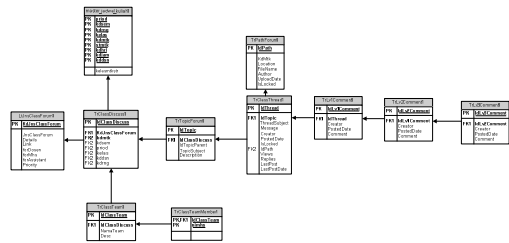


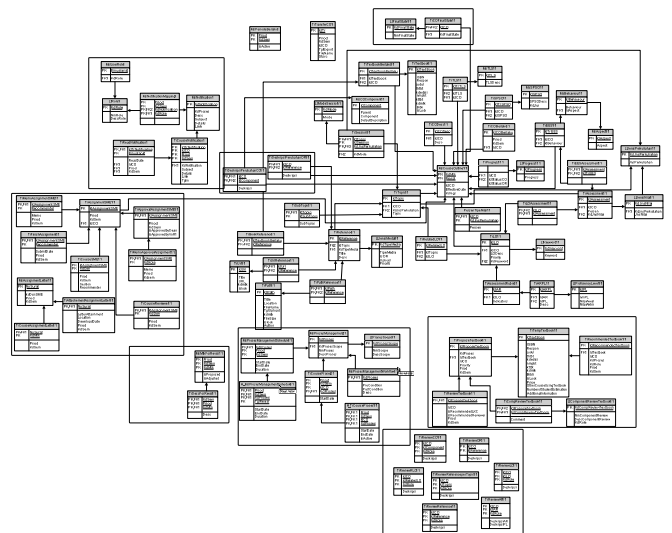**Figure 1 ERD LMS**



**Figure 2 ERD Forum**



**Figure 3 ERD CMS**

## III. RESULT

LMS applications that can be accessed from http://newbinusmaya.binus.ac.id . At the site accessed via the menu MyClass LMS and Forums.

## IV. CONCLUSIONS AND RECOMMENDATIONS

Based on the description of the LMS discussion that has been presented in previous chapters, the conclusion can be drawn that:

1. LMS application fully supports the Course Outline.
2. Applications LMS supports previous data storage.
3. LMS application into separate modules from other application modules in Binusmaya, it is easier to maintain (maintenance) for changes to each application Binusmaya.
4. LMS application supports the process of sharing learning materials (shared materials) given the other lecturers.
5. Applications LMS supports discussion forums with specific criteria.
6. The design of the database and screen design for the preparation of the course material can be developed for application development that supports the preparation procedure.

Based on the conclusions above, there are suggestions that may be filed for the system to work well for effectiveness in the implementation and further development include:

1. Need for socialization applications to all users who are involved for the existing system can be beneficial.
2. Applications that are not efficiently designed so that required the optimization of query statements and coding to accelerate application performance.
3. Applications should be developed to support the procedure for preparing the course material from the database and screen design have been made.
4. Applications should be developed to support the provision of information on historical data from the database classes that have been made.

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