

# Implementation of ERP for Educational Institutions

Mr. Akshay R Nair, Ms. Anitta Lukose, Ms. Akhila A Sasikumar, Ms. Rachel Mathew George Mr. Rahul Ajithkumar (Guide)  
Dept of CSE, Mar Baselios Christian College of Engineering and Technology, Peermade, Affiliated to Kerala Technological University

**Abstract**—Enterprise Resource Planning (ERP) system consists of different sets of software that are used to integrate the business functions in a company or organization. It is a modularised system which mainly saves paper by reducing the paper work and maintains huge amount of data. This paper focuses on the implementation of ERP systems in educational institutions. Educational sector is a rapidly growing sector where the flow of data is very high. Thus implementing the ERP systems in educational institutions will effectively manage the data in such organisations. The implementation needs careful planning and organization. In the institute all the elements stay connected and updated with the current affairs. The system improves efficiency by eliminating data redundancy. The system will provide beneficial to the institute by making it faster and efficient as most of work done by the ERP system. The information provided in this paper may be used to guide educational institutions in the implementation of ERP systems..

## INTRODUCTION

Enterprise Resource Planning (ERP) system has been emerged since 1970 which integrates information within and across the several areas in an organization. It was developed in the concept on Material Requirement planning (MRP) firm production management to decision making by integrating the functionality of sales, human resource management, accounting and financial services. Since 2000, ERP has extended version of ERP II systems that have enabled integration across supply chain such as advanced planning systems (APSs), analytics, transportation management systems (TMSs), warehouse management systems, business intelligence (BI), customer relationship management (CRM) systems and supplier relationship management (SRM) systems.

Expanding knowledge and advanced technology brought new competitive era for the higher education sector to meet global customer requirements on quality and performance. These have forced educational institutions to improve their service quality level and innovation by implementing ERP system which in turn enhance their performance and efficiency. The ERP system replace the existing administration and management-related computer systems in order to increase the performance of the end users by providing better tools to enhance levels of efficiency and performance. Therefore, ERP system plays a significant role in integrating information of an organization. ERP for educational institutions is the complete enterprise solution for higher ed institutions viz. colleges & universities looking to automate their Academic and Administrative processes. This comprehensive suite streamlines complete student life cycle from Enquiry to Graduation as well as administrative

processes such as College, Hostel, Library, Human Resources etc. The product is built on cutting-edge Java technology and is robust & scalable. ERP impacts all the functions & departments and removes manual intervention as far as possible, making execution of processes smooth and leading to increased efficiency and greater control on the system. This paper propose complete enterprise solution for higher educational institutions viz. educational institution &

universities looking to automate their Academic and Administrative processes. This comprehensive suite streamlines complete student life cycle from Enquiry to Graduation as well as administrative processes such as Inventory, Hostel, Library, Human Resources etc. ERP impacts all the functions & departments and removes manual intervention as far as possible, making execution of processes smooth and leading to increased efficiency and greater control on the system. SMS ensures standardized and effective School processes, reduced costs & effort, greater accountability & faster decision making. The system contains modules such as student, staff, accounts where each module provides different privileges for its users.

## I. OBJECTIVE

Nowadays, companies need to be able to efficiently and effectively react to rising globalization as well as changing markets and economic conditions. However, public bureaucracy and especially higher education institutes (HEIs) such as universities and universities of applied sciences are facing similar challenges as private enterprises. They not only have to respond to far reaching changes in government and society but also have to compete nationally and internationally. Challenges include declining financial support from state-level governments, unpredictable fluctuation of student numbers, globalization, and global competition among universities as well as increasing competition on the national level for students, scientists, and third-party funds. Therefore, as a result of these changing conditions, universities need the highest possible efficiency and effectiveness in their administrative processes as stated by several researchers. Given these numerous and varied challenges, the task is to find organizationally and technologically suitable solutions to these requirements. In order to create effective and efficient management and administrative processes and to bundle resources and databases, educational institution (mostly large HEIs) have started to implement integrated application systems (e.g. ERP systems) beginning in the mid- 1990s, and especially during the 2000s. Attention is given to similar concepts that have been effective in

integrated information processing in the corporate world. Several benefits result from the implementation of ERP systems for educational institution:

- improved information supply and flow for planning and controlling processes of the college.
- improved service for faculties, students, and staff;
- lower business risks.
- reduced expenditures through increased process efficiency.

The implementation of integrated application systems such as ERP systems is a complex and time-consuming project during which organizations face both great opportunities and enormous risks. Furthermore, these implementations often require significant organizational changes. Implementation at

universities represents a doubly difficult task as these systems influence both the academic and administrative fields. Here, approaches that have proven successful during the last decades for the implementation of application systems in private companies cannot be transferred equally to projects in HEIs. This must be taken into account when implementing ERP systems at HEIs. In addition, vendors have less experience with the implementation of application systems in universities than in enterprises. To take advantage of the potential opportunities rather than get caught by the risks of these implementation projects, it is essential to focus on those factors that support a successful implementation of an information system. By being aware of these factors an organization (private enterprise or HEI) can positively influence the success of the implementation project and effectively minimize the project's risks.

## II SYSTEM DESIGN

### A. Detailed Problem Statement

An ERP software system for Educational Institutions will include the following primary modules/components: The Admin, the Student, the Staff and the Parent. Other than that to make work a little bit more easy we have data warehouse, reporting and analytics, workflow, document management. Implementation services will include: technical services, data migration and conversion services, integration services, database management services, and system/end-user training.

### B. System Architecture

A System Diagram (SD) in software engineering and systems engineering is a diagram that represents the actors outside a system that could interact with that system. This diagram is the high level view of a system. System Designs shows a system, often software-based, as a whole and its inputs and outputs from external factors. System Diagrams are diagrams used in systems design to represent the more important external factors that interact with the system at hand. The objective of a System Diagram is to focus attention on external factors and events that should be considered in developing a complete set of system requirements and constraints.

### Core Modules of the System

- Admin
- Student
- Staff
- Parent

#### 1.Admin Module

An admin has all the access rights to the system. An admin manages the student Admission, Staff Registration, Academic Records, SMS gateway, Bus ticket booking system and Parent Portal. First he adds all the staff members of the respective departments. Then the classes are added and the respective staff members are allocated as a class coordinator. After adding class and subjects the student registration process starts. All these tasks are managed by an admin only. This access is forbidden for the rest of users. Admin can manage the accounts of the all the students, staff and parents

also. He is responsible to create and send student reports to their respective parent. All the logs of student information can be viewed and managed by Admin itself.

Workflow of an Admin module:

1. Start
2. Login
3. Add/Delete Staff
4. Add/ Delete Student
5. Add/delete/Edit Class
6. Add/delete/Edit Parent
7. Leave Form Management
8. Bus Ticket Booking system
9. Manage Compliant system
10. Manage SMS.
11. Hostel Facilities (if needed)
12. Logout
13. Stop.

#### 2.Student Module

Students are admitted by admin only to the system. When the student successfully gets registered into the system he/she gets an automatically generated username and password on their registered e-mail id and can be managed by student from that point on. Student has access to personal profile, current attendance record, Class Tests records, Daily Class Routines and all the notifications and upcoming events which are managed by admin. Students also view his respective bus route and bus number through the bus ticketing system. Another important facility provided for students is to view the notification of his/her respective department. Students can register compliants for an instance if a light goes out of order in his/her hostel room.

Workflow of Student Module :

1. Start
2. Login
3. View personal information
4. View subjects
5. View teachers
6. View marks
7. Register Compliant if an issue occurs
8. Book bus ticket
9. View attendance
- 10 Logout

### 3. Staff Module

Staff members are registered by admin and login details are generated by admin which can be managed by the staff afterwards. Staff has access rights to manage all the data of their subjects of respective class. They can manage daily attendance of all students of respective subjects and classes. Staff members are able to give notifications and can upload some documents related to their respective subjects. Staff can generate the daily, monthly or yearly report of individual student as well as class.

Mark sheet generation is also available for staff. Instead of manual work this application gives automatic work.

Workflow of Staff Module: -

1. Start
2. Login
3. View student information
4. View/Edit student's marks
5. Manage daily attendance of students
6. Add notes
7. View subjects
8. View personal class routine
9. View transport

### 4. Parent Module

Parents are able to track all the information and academic records of their respective child. They are not able to view the information relevant to other students. The parents are added by the admin after the admission of their child. Parents can view result sheets, attendance records, notifications etc. This module lets a parents to keep track of its respective child's educational growth. Parents are able to communicate

with teachers if they wish. In short this module facilitates to view educational growth of respective child.

Workflow of Parents Module :-

1. Start
2. View Student Information
3. View student Mark sheet
4. View attendance
5. View Fees payment details.
6. Logout
7. Close

## III. RESULT ANALYSIS

The following figures show the user interface for the ERP system. Fig(a) shows the login page for the admin, student, staff and parent. Fig(b) shows the Admin interface. Fig(c) shows the Student interface.

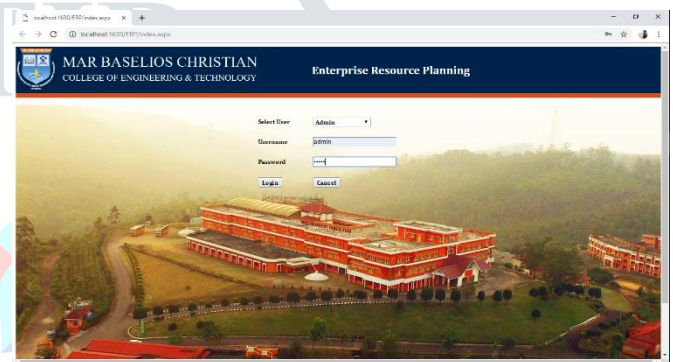


Fig (a)

Fig (b)

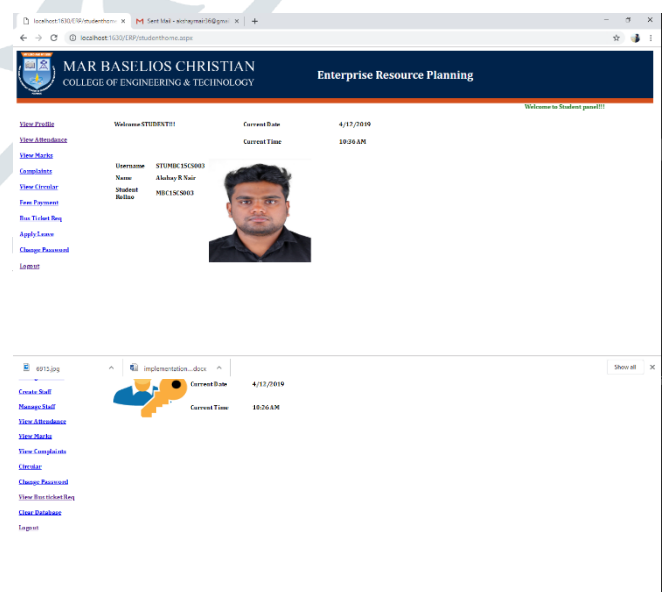


Fig (c)

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