

ERP MODEL FOR EDUCATION SYSTEM

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Abstract - In India, National Board of Accreditation (NBA) has been mandated with the quality assessments and accreditation of engineering programs. NBA has introduced the accreditation system based on Outcome Based Education (OBE) with paradigms like program educational objectives (PEO), program outcomes (PO), course outcomes (CO), assessments, continuous improvements etc. In today's competitive world, every institute needs to keep their academic standard as high as possible. It becomes mandatory for all most all the institutes to maintain the quality in technical education as well as to produce the skilled graduates. In order to produce the skill graduates, the Institute always rely on different programs which is responsible for producing the high caliber graduate. As of now, there is no such application available which will automate at least the process of reducing the clerical work required for preparing the course file to evaluate the Course Outcome with Program Outcome.

Key Words: NBA, OBE, ERP, CO, PO.

1. INTRODUCTION

Huge amount of data is being generated by everything around us at all time and is produced by every digital process and social media exchange through system, sensors and mobile devices etc.

The new accreditation system necessitates a major shift in Indian engineering education system, which so far rallied as an input-output based system. The new 'Outcome Based Education' system has introduced newer paradigms like Program Educational Objectives (PEO), Program Outcomes (PO), Course Outcomes (CO), Assessments, Continuous Quality Improvements (CQI) etc., which are aliens to Indian faculty and students, parents, alumni, employers etc. The new accreditation process necessitates a change of mind-set of the traditional engineering faculty members, asking them to spell out the course objectives, course outcomes, program outcomes mapping, gaps in the syllabus, topics beyond syllabus, additional value addition activities and various methodologies to assess Course Outcome and Program Outcome [2].

Outcome based education (OBE) has been adapted in major education institutions particularly in engineering education. This has been used extensively since the

National Board of Accreditation (NBA) has made it mandatory for program accreditation. The OBE focusses on outcomes of the program rather than curriculum framed for the courses. Outcomes may refer to the knowledge or Skill gained, competency and employability of the graduates of the program. In order to achieve this outcome, the syllabus has to be carefully and meticulously planned with scope for continuous improvement [1].

2. PROBLEM DEFINITION

The implementation of outcomes-based assessment and reporting systems in educational programs has been accompanied by a range of political and technical problems, including tensions between the summative and formative purposes of assessment and doubts surrounding the validity and reliability of teacher-constructed assessment tasks [2].

In college, faculty are facing problem regarding storing detailed information of student. Currently faculty are doing manually and they do not have any software solutions to store the overall information about the students. The current educational system does not involve any prediction about pass or fail percentage based on performance. The system does not deal with dropouts, low achievers and unemployed students. There is no efficient method to caution the students about the deficiency in attendance. It does not identify the weak student and inform the teachers. The faculty cannot find out students' abilities and their interest easily so that they can enhance them in it. Thus, it may affect with poor university results, placement and career of individual [2].

NBA has laid down the guidelines for each program through the means of rubrics to undergo this evaluation process which implies the accreditation grade to be given from NBA committee. The application calculates the Program Outcome attainment which helps the faculty about the existing gap which further can be improved in the next semester. Hence such type of application will assist the faculty to reduce their workload regarding the individual course [3].

3. LITERATURE SURVEY

Enterprise resource planning (ERP) is a process used by companies to manage and integrate the important parts of their businesses. Many ERP software applications are important to companies because they help them implement resource planning by integrating all of the processes needed to run their companies with a single system. An ERP software system can also integrate planning, purchasing inventory, sales, marketing, finance, human resources, and more. The College ERP (Enterprise resource planning) refers a large software application, designed to manage or track entire college campus activity such as student, human resources, fees payment, admission, attendance, multi-branch tracking, hostel/PG, inventory, etc. [3].

Every college has to maintain a management system for various sections which may include performance analysis, attendance system, syllabus, course outcome, program outcome and their mapping and many more. Managing all these sections manually on paper becomes very time consuming and complex tasks. In such system there is high possibility of data redundancy and misplacement of collected data in the form of paper records in order to overcome these drawbacks there is a need to design and implement College ERP system where a college staff can track a student profile in all aspects of academic course [3].

Faculty can add the courses and its description, they can add the subjects and its description, then can add the class which consists of level and sections. They can also add the class per subject which consists of class, faculty, subjects and this fields help for student attendance. After that faculty can add the attendance of students with the help of courses, class, subjects, and faculty. The system also generates a monthly report for the summary of the class student attendance. They can also do Course Outcome Program Outcome mapping of a particular subject [4].

The new accreditation system involves a drastic change in Indian Engineering education system, which so far called as a input-output based system. The new 'Outcome Based Education' system has introduced newer programs like Program Outcomes (PO), Course Outcomes (CO), Assessments, etc. The new accreditation system process involves a change of the traditional engineering faculty, asking them to spell out the course objectives, course outcomes, program outcomes mapping, gaps in the syllabus, topics beyond syllabus, additional activities and various methodologies to assess Course Outcome and Program Outcome [4].

This system allows the faculties to store the attendance record of his/her student each subject and by simply selecting the class per subject for checking the attendance, the list of a student under the selected class per subject will be displayed automatically along with the checkboxes for identifying if the student is present, late, or absent on the selected date of the class. Also add the course outcome and program outcome and after that mapping of the course outcome and program outcome [7].

4. IMPLEMENTATION

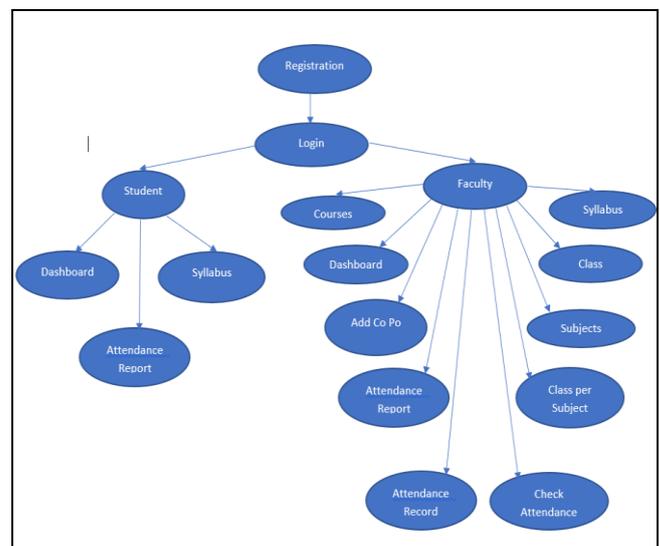


Fig -1: Flow Diagram

Firstly, a user needs to register themselves as a student or faculty in portal. After these different logins are provided from where they can login as a student or faculty. Different fields are provided to the students and staff after logging in [7].

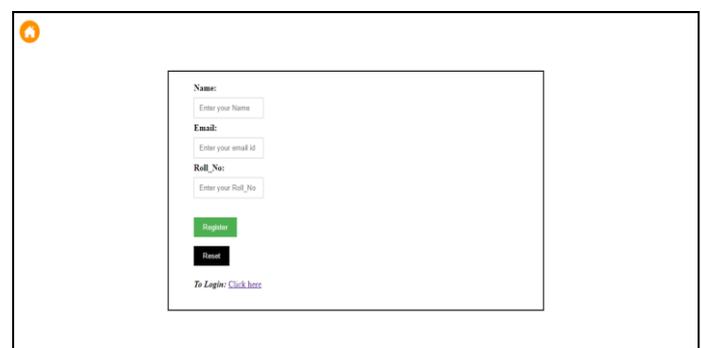


Fig -2: Login Page

Students are provided with the fields such as viewing syllabus, and viewing monthly attendance report.

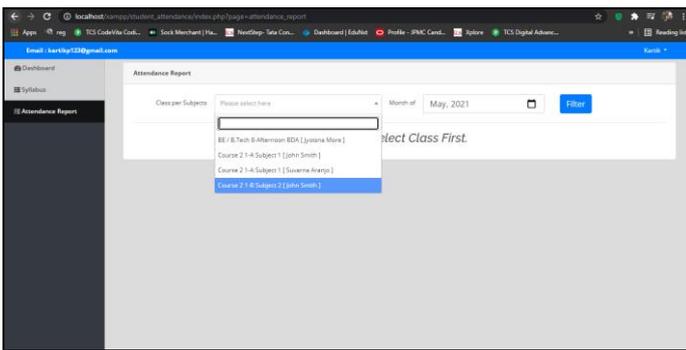


Fig -3: Attendance Report of Students

Staff members are provided with the fields from where they can add course, subject, class, class per subject and faculty for a particular subject.

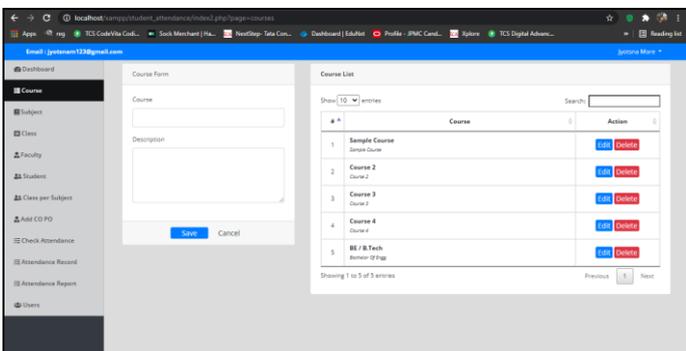


Fig -4: Tools Provided to the Staff Members

Faculty can mark student’s attendance for a particular class per subject by using check attendance field and they can view the attendance of the students on single day basis or monthly basis [7].

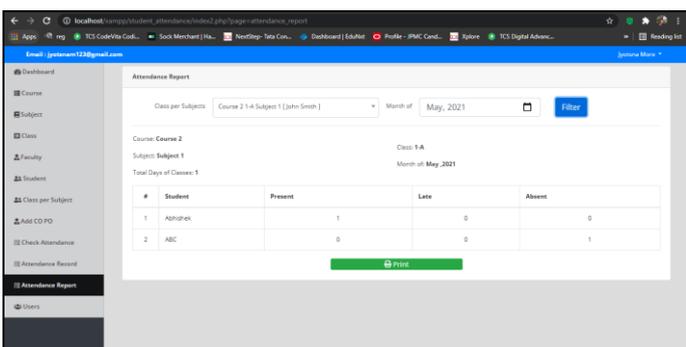


Fig -5: Monthly Attendance Record of Students

Staffs are provided with a field from where they can add Course Outcomes (CO) and Program Outcomes (PO) statements for a particular subject. They can also view Course Outcome to Program Outcome mapping for a particular subject [7].

CO PO MAPPING

| CO ID | CO Statements | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|-------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| 1 | User Interaction | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 1 | 0 |
| 2 | Big data | 0 | 0 | 1 | 1 | 0 | 1 | 3 | 2 | 1 | 0 | 0 | 2 |
| 3 | understanding of machine learning algorithms | 1 | 0 | 1 | 0 | 0 | 3 | 0 | 1 | 1 | 2 | 0 | 0 |

Fig -6: Assigning CO and PO Statements for a Particular Subject

After that Both the students and faculty can also logout themselves from the dashboard.

5. FUTURE SCOPE

The combination of ERP system and technology in educational institutions is a need of the hour because of the ever-increasing necessity for centralized access to data. The need to optimize resources leads to better preparation of staff members which is achievable through integration of the ERP system. Some basic and evident importance of an ERP solution is that it does not require a very high capital investment to get things rolling but gives you very high returns and helps in reducing manpower expenses.

This system can also be implemented in different non-educational institutes like business corporates, sports academies and manufacturing companies where the challenge would be taking into consideration the current market scenario as one of the most important factors affecting quality of their products and employee.

6. CONCLUSIONS

OBE has facilitated the faculties to assess the students’ performance by developing innovative ways by using various assessment tools. This has led to an improvement in the teaching learning process and attain better PO levels which in turn has helped the students to achieve better academic performance as well as better equip them to face challenges in their professional and personal life. The data which is stored in the database helps in taking intelligent decisions by the management. So, it is better to have a Web Based Information Management system. All the stakeholders, faculty and management can get the required information without delay. This system is essential in the colleges/hostels and universities.

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