COLLEGE ADMINISTRATIVE SYSTEM

Phani Kishore Rompicharla[1], P Sumanth[2], Md Inamullah[3]

[1]Assistant Professor, [1,2,3]Department of CSE, Dhanekula Institute of Engineering & Technology

---***---

Abstract - *An Engineering College is a combination of many complex problems. Without an automation portal, there will be a lot of manual work that takes a lot of effort, time and massive calculations. The proposed system would reduce all the manual work in outcome-based education.*

Key Words: Automation, Admissions, Marks, Timetables, Attendance, Invigilation, Remunerations, Course File, Attainments, Result Analysis, Feedback Analysis, Fee Module, Alumni module

1. INTRODUCTION

College management is an essential component of outcome-based education. With the help of the College Administrative System, we can gather all the useful information needed for the staff, management or students with a few clicks. College Administrative System consists of different modules which together automates all the manual work carried out in the college. The major modules are:

- Admissions
- Timetables & Attendance
- Examinations
- Feedback Analysis
- Result Analysis
- Attainments
- Course file
- Fee module
- Alumni

The interconnectivity among these modules reduces the time to perform different operational tasks.

This system is a web application developed using JSP (Java Server Pages) and MySQL database. Several Web Technologies like HTML, CSS, JavaScript, jQuery, Bootstrap, are used. The whole application is designed in NetBeans 8.1, which is an open-source integrated development environment (IDE).

2. EXISTING SYSTEM

Nowadays, all educational institutions are getting attracted to Automation systems, that reduce the manual work in a college. There are many automation systems available, but all of them are very good for the colleges that follow the content-based education system. But the automation systems should be in line with the trend in education. There are very few automation systems that monitor the outcome-based education. But all these systems are costly.

3. PROPOSED SYSTEM

The proposed system will follow the outcome-based education trend and is available at a low cost. This system has a rich, user-friendly interface and can be used by everyone with a minimum knowledge of computers.

In this system, the performance of both students and staff can be analyzed and viewed by the admin, i.e., Principal and Head of Departments. The attainments of an individual course can be obtained, and weak spots can be identified in the curriculum, and corresponding actions can be taken.

This system provides fault-less, efficient calculations during result analysis, that follows the university's standard procedure for calculation of CGPA's and SGPA's of students.

4. TIMETABLES & ATTENDANCE

Timetables and attendance play an essential part in daily academics. The order of activities of this module are as follows:

- **Adding a list of courses in the curriculum:** All the courses will be uploaded to the database which includes the course information such as regulation, branch, year, semester, name of the course, course code, maximum and minimum marks, etc.,

- **Assigning course coordinator to each course:** A course coordinator will teach each course. Each head of the department would select a course coordinator for each course and assign them. After this is done, the course coordinator can find their course in their logins where they can post the students' marks & attendance for that course.

- **Assigning courses to each student:** All the regular courses will be assigned to the student, and in the case of electives, only the chosen course will be assigned to the student. These courses will be assigned once a semester.

- **Adding timetables for all the sections:** Now after the subject registrations are completed, i.e., assigning subjects, the timetables coordinator would be responsible for adding timetables in the system. After the timetables were added, the students can view their timetable in their logins. And the course coordinator can also see their classwork in their logins.

- **Posting attendance for each period:** After the classwork has been commenced, the course coordinator needs to post attendance for each period, for all the courses they

---

teach. The attendance will be finalized at the end of each month, by the head of the department and cumulative reports will be printed at the end of the semester.

- **Adjustment of classwork:** This system also provides a way for course coordinator to adjust their classwork. This adjustment will also get reflected in students' and course coordinator logins.

The students can view their attendance in their logins, where the date range is taken as input, or they can see the attendance percentage till now directly on their home page.

5. EXAMINATIONS

The examination is a fundamental part of the educational process of any institution. With examinations comes the marks of the student, invigilation for the exams and their remunerations. So, this module can be divided into three sub-modules:

5.1 Invigilations

This system provides the easiest way to manage invigilations during examinations (internal or external). First, the schedule is prepared for the examinations which include exams list, the number of students for each exam. And then it is uploaded into the system which calculates the number of course coordinator required for invigilation.

The exam section in charge will break the requirement among departments. The head of each department will assign invigilation duties to the staff based on the need. The course coordinator can view invigilation duties in their logins. They can also adjust their invigilation duties to another course coordinator. This system keeps track of these adjustments.

5.2 Marks

The marks module helps to maintain all kinds of student marks, starting from internal marks. This system provides a provision for course coordinator to keep the scores of each student. Marks are maintained separately for theory courses and laboratories. For theory courses, marks of class tests, quiz marks, and mid marks are maintained. For Laboratory courses, experiment-wise marks are maintained, and finally, internal lab exam marks are maintained.

A lot of reports can be generated using these marks such as an overall internal report, CO-wise reports, university reports. In these reports, all the students are identified who have. Since this system follows the outcome-based trend, the marks are stored in such a way that every course outcome (CO) can be assessed individually.

Marks are stored in the database, and they can be used for any future reference. The students can view their marks in their logins.

5.3 Remunerations

This system provides a provision for automating the relieving process of an external. And it also generates the remuneration bills and relieving letter.

The external (or) observer fills out his details in the system and at the time of relieving, his relieving letter will be printed in the system and duly signed by the Exam Section in charge. And his remuneration bill will also be generated which is verified by the external and submitted to the exam section.

After all the exams are completed, the reports like university report, day-wise report, external-wise report, etc., can be generated by a single click.

6. FEEDBACK ANALYSIS

Feedback forms the base for any further development in an institution or teaching methods. This system provides a way of collecting feedback from all the students. And different types of feedback are collected such as feedback on teaching, feedback on Course Outcomes (CO), Committee wise feedback, etc.,

The feedback on teaching will be received twice a semester, i.e., before mid-I and mid-II. The feedback coordinator will add the questionnaires at the commencement of the semester. He/she will have a provision for opening or closing the feedback for a single section or whole college. After the feedback is collected, the feedback coordinator finalizes the feedback, which generates the course coordinator-wise report, phase-wise report, semester wise report, year-wise report, etc.,

The feedback on Course Outcomes (CO) is collected at the end of the semester, which will further be used in the calculation of Attainments. The principal can generate the report for the course coordinator audit process. All the committee's feedback can also be collected from the students then finalized before generating the reports.

The students' responses are kept confidential and only their averages are used in the reports. And the students' suggestions are collected and submitted to the principal by the feedback coordinator.

There's also a provision for activity-wise feedback. For example, events like workshops, seminars, guest lectures, etc., feedback is collected by its respective event coordinator. They are responsible for adding questionnaires and an auth key through which the student can access the feedback page. An auth key is mandatory since not all the students in a section participate in an event.

7. RESULT ANALYSIS

Result analysis is one of the most crucial works carried out by the exam section assessing each student based on their semester results. This system provides a way where the results can be stored in the database, and further reports can be generated.

The manual process of result analysis involves the conversion of PDF result file into an excel sheet, frame the data in the required format then start doing the analysis manually, which consists of a lot of calculations and a whole lot of errors. Now, this system makes the process a lot easier just by uploading the PDF file and generating reports with a few clicks.

The students can also view their results in their respective logins which forms the base for them applying for their supply examinations, which will be a part of the fee module.

There are a lot of reports that can be generated using this result data such as PDF wise analysis report, student wise analysis report, year-wise analysis report, section-wise analysis report, etc.,

8. ATTAINMENTS

The attainment decides the output of outcome-based education. To calculate the attainment of a course, one needs to maintain all internal marks, external marks and CO feedback, which includes a lot of manual calculation and managing whole excel sheets for marks and writing excel formulae for calculations.

As already all these class test marks, quiz marks, mid marks, external marks, CO feedback are stored in the system, it becomes easier to calculate the attainments of each course. The values for attainment can be 3,2 or 1. The head of the departments fixes the target and the percentages of students above that target are calculated which in turn calculates the attainment. If the percentage is above 70, attainment is 3. If the percentage is between 70 and above 51, attainment is 2. If the percentage is less than 51, the attainment is 1.

The attainment can be calculated Course Outcome wise (CO wise). And then PO/PSO outcomes can also be calculated based on the course mappings given at the commencement of the semester. The attainments can be calculated section-wise or all-sec wise.

The calculation of attainment has four prerequisites. They are:

- Adding course mappings

- Finalization of internal marks of both cycles

- Finalization of CO feedback

- Uploading of result PDF

Thus, this module reduces most of the manual work during the calculation of attainments.

9. COURSE FILE

A course file is essentially a document that includes all the necessary details regarding the batch, assessment, and overall outcomes of the course. Now, this system provides a provision for maintaining these files online without being maintained physically.

This system stores tutorial plans, teaching aids, etc., for every period of classwork. It also stores the PDF or word files of lecture notes which were uploaded by the course coordinator. These files can be accessed by all the students, currently studying in the institute or alumni students.

It stores the course mappings for every course, which later be used for internal marks entry and attainment calculations. It generates some of the course files like Day to Day assessment attainment (FT14), course outcome attainment (FT19), Gap document (FT04) (includes both in the curriculum and beyond the curriculum), attainment calculations (RC05) for every course.

The department assessment coordinator takes up the responsibility of making the assessment manual for the entire academic year. The assessment manual is a set of 80+ pages document which consists of course wise attainments, PO/PSO wise attainments, course wise mappings, etc., of every course in the academic year. This document consists of a lot of manual work and calculations such as CO wise averages, PO wise averages, Year wise averages, etc., These calculations take up a lot of time.

This system provides a way of generating the assessment manual branch wise after all the attainments of the courses are finalized by the assessment coordinator. The entire document can be viewed in a single click. Thus, the manual work can be reduced to a maximum extent and a lot of effort and time are saved.

10. FEE MODULE

The fee module forms the most crucial part as it is related to the administration of the institute. The fee is maintained manually by the administration office which involves a lot of paperwork. Speaking of fee, there can be a lot of types of fee such as exam fee, tuition fee, other fees, hostel fee, transportation fee, etc., But here let's consider fee as two types:

- Examination fee

- College Fee

Note that the college fee includes all types of fees except for the examination fee.

10.1 Examination Fee

The examination fee is a heavy task including collection of applications and involves a huge paperwork. At the end of notification, the exam section should collect all the applications, sort them in order to check the paid/not paid lists.

This system provides a provision for students to print their exam application in their respective logins. And, passed out students can also print their exam applications for their supply exams.

First, the exam section in charge adds a exam notification and also last dates of fee with no fine, 100/- fine and 1000/- fine. Then the students can print their applications in their logins and can pay the fee at exam section and a receipt can be generated. Thus, this reduces the effort of students to fill out the application.

Since the applications are stored in the database, the exam section in charge can generate the required reports such as date-wise report, amount-wise report, student-wise report, not paid list, etc.,

10.2 College Fee

The college fee includes all the other fee such as Tuition fee, Hostel fee, Transportation fee etc., These are maintained either in registers or in excel sheets manually. Whenever a student pays a fee, it requires an amount of computation to update the fee.

Now, this system automated this process and stores the fee in database for every student. The office staff takes up the responsibility of adding/modifying/deleting the fee transactions of the students. The details like roll no, academic year, amount, type of fee, transaction ID, remarks, etc., are stored in the database.

The students can view their fee details in their logins. It contains the details of amount paid, due amount etc., And, the office staff can generate required reports with a few clicks.

11. ALUMNI

An alumnus or an alumna of a college, university, or other school is a former student who has either attended or graduated in some fashion from the institution. Whenever an alumnus meet takes place, an alumni survey is taken by them.

This system provides a way of managing alumni surveys where the forms can be generated easily, including their details. Their responses are collected and stored in the database. And corresponding reports can be generated.

12. CONCLUSION

This paper assists in automating the existing manual system. This is a paperless work. It can be monitored and controlled remotely. It reduces the manpower required and provides accurate information. Malpractice can be reduced. All years together gathered information can be saved and can be accessed at any time. Therefore, the data stored in the repository helps in taking decision by management. So, it is better to have a Web Based system. All the stakeholders, faculty and management can get the required information without delay. This system is essential in the colleges and universities.

REFERENCES

[1]. Gateways to portals research. International Journal of web portals, 1(1), 1–15.

[2]. Usability.gov. (n.d.).What does usability measure. Retrieved September 2, 2012, from: http://www.usability.gov/basics/index.html.

[3]. Marjan Mansourvar, NorizanMohdYasin, (2010), Web portal as a Knowledge Management System in the Universities, World Academy of Science, Engineering and Technology

[4]. Sulaiman, N. & Burke, M. 2009. A case analysis of knowledge sharing implementation and job searching in Malaysia. International Journal of Information Management.

[5]. Tate, M., Evermann, J., Hope, B. & Barnes, S.2009. Stakeholder Expectations of Service Quality in a University Web Portal. Self-Service in the Internet Age, 1-21.

[6]. Telang, R. &Mukhopadhyay, T.2005. Drivers of Web portal use. Electronic Commerce research and applications, 4, 49- 65.

[7]. Maedche, A., Motik, B., Stojanovic, L., Studer, R. &Volz, R. 2003. Ontologies for enterprise knowledge management.IEEE Intelligent Systems, 26-33