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| **Process Name** | **Stakeholders** | **Concerns(Problems)** | **Analysis(Reason of the problem)** | **Proposed Solution** |
| Map Course Outcomes(COs) to Program Learning Outcomes(PLOs) | **Head of Department / Dean of School** | 1. Head of Department/Dean of the  School might not  receive the Accreditation  Manual with PLOs  Defined sent by IEB Staff due to lost mail if hardcopy is sent. The Manual could even be received a long time after sending it.  2. Soft copies sent by email could also cause a lag in time or loss of the Manual.  3. The Head/Dean could forget to direct their staff around the tasks needed to be done for circulating the Accreditation Manual(for example, forget to mention which Course Coordinators/Instructors should be tasked with which courses for the Course Assessment Report) to Course Instructors. | This lag in receiving the Manual and/or the possibility of the loss of it, through email or traditional mail could potentially cause large delays in the business process. Misunderstanding or lack of communication between Head/Dean and Department Staff may also cause obstruction or delay to the business process. | Make this process completely facilitated on a private online platform(let’s call it SPMS App) and provide an interface on our proposed system through which IEB Personnel can directly send necessary files and documents to the Head of Dept/Dean of School as well as leave necessary comments with the attachment. |
| **Department** | 1. Department Staff could accidentally not send the Accreditation Manual to the Course Instructor/Coordinator at all or send it to the wrong Instructor/Coordinator. | Due to a large number of faculties and courses, it could be harder to keep track of which faculties are taking courses for which semesters and as a result, once again, cause delay in the business process, while making it time consuming to go through so many records and keeping track of all that information. | Our online platform can be connected to a database that hosts the data of all the courses, faculties, as well as updated tables every semester to keep track of which courses have been assigned to which faculties in a given semester. |
| **Course Instructor/Coordinator** | 1. The process of making lists of course content and course outcomes(COs), mapping them to each other and the PLOs and designing the Course Assessment Report and Course Outline may be prone to errors. | Without the oversight of an expert or a concerned stakeholder(IEB), or both, there may be lackings in the report and the Course Outline as well as the Course Outcomes(COs). | Requires constant communication among IEB, Head of Department, Course Coordinators and Instructors, and requires constant updates and referencing by the Course Coordinators and Instructors of every course.  Upload mapping of Course Outcomes(COs) to specific questions of specific assessments as a table on our system to be used later when producing OBE Marksheet and OBE Analysis Report. |
| Record Student Assessment Data | **Faculty/ Course Coordinator** | 1. Some of the questions in the question paper might go wrong while setting it. | A duplicate question can occur in the same paper or some typing mistakes can happen. There might not be  enough space to write the answers as well. | Faculties should recheck the question paper before printing it.  They should provide extra sheets to the students during the exam. |
| 2. Students might cheat from any kind of website in their assignments. | Students can commit plagiarism in their assignments/quizzes / project work. | Faculties should check with a plagiarism checker if they have done any plagiarism or  not and take actions accordingly. |
| 3. Faculty might cause errors while calculating marks for assessments. | Mistakes can happen while calculating manually or while automating it in Excel Sheets during inserting the equation for calculation. | Faculties should double check before putting the marks and the equations for automating calculations in the Marksheets.  Faculties should provide the marks to the students before  updating it in the marksheet. |
| 4. Sometimes the faculties do not evaluate the answer scripts evenly or according to the curriculum/course assessment. | Papers aren’t checked by other faculties and for which few faculties do evaluation on their own likings and disliking. | The grading scale has to be stored by the system and the system must have abilities of  computing marks and generating the grade accordingly. The grades will be calculated by the system itself using the marks of various exams provided to it. |
| 5. Different faculties have  different grading systems. | Not all faculties have the same grading systems and can cause confusion for students, and other stakeholders who want to track student performances in those courses. | Create a database to store the grading system of all courses and necessary user interfaces that can be used to view grading policies by their respective faculties and students, university leadership/upper management and IEB officials alike to be on the same page as everyone else. |
| Produce OBE Marksheet & Course Assessment Report | **Faculty/ Course Coordinator** | 1. Calculation of total marks received for each CO, total percentages of each CO could be prone to error. | This calculation, done manually or in an Excel Sheet while formatting columns to automate calculation is prone to errors which could lead to wrong determination of a student receiving COs and related PLOs as well as affect the Analysis and the Verdict phase of the reports. | Calculations and declarations of students receiving COs and related PLOs can be done automatically on a customizable interface provided by our SPMS App where the mapped table of specific questions of specific assessments of a course under a faculty is saved (was entered into the SPMS App during the Mapping of COs to PLOs process). |
| 2. Sending a hardcopy and softcopy of OBE Marksheet and Course Assessment Report to the Registrar's Office or Department Office for storage could increase time consumption and delays or loss of information and important data. | As sending hardcopy and softcopy to the Department Office and Registrar’s Office involve multiple actors and different processes, it could easily lead to confusion, loss of important data and reports. | Can be uploaded to our database by the faculty and viewed by interested departments, offices, outside parties and faculties using user interfaces on respective ends. |
| **Department Office** **&** **Registrar’s Office** | 1. Storing softcopies and hardcopies becomes laborious and hard to manage. | Storing softcopies and hardcopies can become extremely difficult to manage when the organization has been operating for years.  It also gets increasingly tedious to track documents to study student performance trends for a certain timeline.  Updating information for a specific document would require tracking them, which in turn would make it harder to retrieve them and would require personnel to update various copies. | These problems can be fixed by maintaining these data tables in our database and giving necessary departments, offices and outside parties(IEB) access via a user interface to view and print them. |
| View grades and download Transcripts | **Students** | 1. IRAS becomes slow  when the grades are submitted into IRAS and are ready to be viewed by the students. | A large number of students accessing IRAS and making browser requests at once will cause a huge load on the system and the server and cause it to function slower than normal causing delay in the business process. | 1. Better server maintenance and scaling of all areas of the web technology for an increasing number of users. Hire a professional, dedicated and in-house IT Team for regular updates.  2. Email a comprehensive transcript document to each respective student at the end of each semester. That way, students can check their grades without necessarily  logging into IRAS every time. Resulting in a reduction of online student traffic to IRAS. |
| 2. Auto-logout after a long period of intentional inactivity may disrupt process flow (such  as managing grade-related paperwork). | IRAS logs anyone out if they are AFK (Away From Keyboard) for long enough, regardless of whether they want it or not which could be a design decision not thought of before. | Add interface option to disable auto-logout. |
| 3. Even after the grades are submitted, it takes a lot of time to update the transcript, which makes a problem for the graduating students. | Transcripts are updated late, while the old version of the transcript remains online. Maybe due to a lack of automation and reliance of human intervention. | Automate processes of updating transcripts, and grades into the database instead of depending on human intervention. |
| 4. Students are unable to view the COs and PLOs they have received for each course. | May also be because of being a design decision not considered before. By being unable to track their own performance throughout their undergraduate years for each course, students can not measure their skill levels or in particular topics or evaluate themselves. | An interface in our SPMS App where students can view all the courses they have completed for each semester and the COs and mapped PLOs they received for each of them. |
| Create student/faculty account and enter/customize necessary data | **Admin** | 1. Information for students and faculties could get lost.    2. Typing errors could be made/missed information by admin while copying student/faculty data.  3. Student and faculty account data entry at the beginning may cause problems and delays with being able to do university related work online and required to be done manually through physical administrative channels. | Since initial data is collected on hardcopies, these loose papers and included documents could easily get lost.  Due to a large set of student/faculty data being added into the system, typing errors could easily be made, and important information could be lost.  Having to enter large sets of student/faculty data by copying them from hardcopies can be tedious, daunting, time consuming and prone to errors/information lost. | Collect initial data from students/faculty themselves onsite using an online platform and interface. |
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| 4. Customization of information for students and faculty when needed could cause operation overhead for Admins. | Any number of students and faculties may need to update their information on a day and cause obstruction of other important admin work, as well as be time consuming to change the information for any student/faculty. | Allow students and faculty to update their own information in the system by themselves using an interface in the SMSP App. |
| View Records OBE Marksheets, Course Assessment Reports over a time period for inspection and analysis of student performance trend | **IEB/ UGC/ Ministry of Education,**  **VC/Board Of Trustees,**  **Department Staff,**  **Head of School/Dean** | 1. The current process of requesting the Head of Dept to view records for analysis and inspection can result in delays due to various problems in communication.  2. Since the OBE Marksheets, Course Assessment Reports and other necessary documents are only saved in softcopies(without database management) and hardcopies, it can get tedious and time consuming to retrieve them when needed. | Using phone calls and emails can result in delayed time to the business process as calls might not get through due to network errors and emails could end up in spam folders or not seen due to too many emails in the list.  Retrieval of necessary documents can be extremely difficult as requirement for document storage increases over the years and can be hard to track.  Will require personnel to go through thousands of documents to track trends and performance of individual students and university/department as a whole thus making any evaluation virtually impossible. | Since these documents/files are stored in our database,  IEB officials can be given access to necessary documents and reports prepared and stored in the system (SPMS App) by Course Coordinators/Instructors.  We can also show necessary charts and graphs in the App using proper web technologies and user interfaces for making it easier for IEB or UGC Personnel or VC/Board of Trustees to view easily. |
| Request for review and change of grades | **Students** | 2. Throughout the semester, students are virtually unaware of their current/ potential grade and have to manually assess their potential total marks by calculating their marks obtained for assessments. | Grades are uploaded at the end of the semester- a point where they have negligible  influence over their grades.  In some cases, students are also unaware of the breakdown of marks for each assessment which leaves in space for some faculties to mark unjustly with making students being unable to ascertain what went wrong with their grading for a specific assessment (quiz, test, midterm, final). | Faculties should update grades at the end of each major assessment. There should also be an interface for faculties to be able to add assessments, name them, upload marks for each question in the assessments. |
| **Faculty/ Course Coordinator** | 1. Incorrect grades may be  submitted to IRAS by the  faculties/ Students may  feel that the faculty has  graded them incorrectly/  unjustly. | Calculation errors/  Conflicting perceptions by faculty members. | Faculties should inform detailed assessment breakdown to the students after each assessment as well as update those breakdowns for each assessment on our SPMS App. |
| **Admin** | 1. At the end of each semester, there could be a huge number of students requesting for grade review/change. | A large number of requests like this may cause overhead on admins, time delays in this process as well as others due to lack of manpower and be prone to errors in the grade as well that would cause a huge problem for the students. | Having a separate user interface on the faculty and admin end to allow faculties to upload a students’ grade by themselves. If grade change is needed, the faculty sends a confirmation request to an Admin on our SPMS App. All the admin needs to do then is click a button to approve or cancel the grade change for the student.  On approval, the grades are automatically updated as well as marks for specific questions in any assessment if needed. |