**System Requirements**

# **Introduction**

Based on our Proposed System Analysis, we have to make separate user interfaces and functionalities for the following users:

1. Student
2. Faculty(Course Coordinator/Instructor)
3. Head of Department
4. VC/Board of Trustees
5. Department Office Staff
6. Registrar’s Office Staff
7. Admin
8. IEB/UGC/Ministry of Education

We break down the business operations for SPMS Application into 8 processes:

1. Mapping Course Outcomes(COs) to Program Learning Outcomes(PLOs)
2. Record Student Assessment Data
3. Produce OBE Marksheet and Course Assessment Report and other docs
4. View Grades, Download Transcripts and View COs and PLOs achieved by a student for a course
5. Create Student/Faculty Accounts and Edit/Customize Necessary Data
6. View Records of OBE Marksheets, Course Assessment Reports over a time period for inspection and analysis of student performance trend
7. Request for review and change of grades
8. Populate SPMS Database with operational data each semester (courses, offered courses, course outlines, faculties under each courses)

# **Process Requirements**

## Mapping Course Outcomes(COs) to Program Learning Outcomes(PLOs)

1. The stakeholders involved in this process will be IEB/UGC/Ministry of Education, Head of Department, Department Office Staff and Faculty (Course Instructor/Coordinator).
2. The IEB/UGC personnel will have an option to ***“Upload Accreditation Manual”***, they can add a title to the uploaded file, specifying what the file is, a description of the file saying what it contains and specify which semester the Accreditation Manual is for. (e.g. Summer 2020, Autumn 2021, etc).
3. On the Head of Department side of the interface, they will be able to view a notification when an Accreditation Manual is added by an IEB personnel.
4. The Head of Department can forward the Accreditation Manual to relevant Department Staff.
5. The Department Staff can also see a notification when an Accreditation Manual is forwarded in their interface by the Dept Head(or we can add functionality for them to be able to view the uploaded directly when the IEB personnel uploads it).
6. The Department Staff can forward the Accreditation Manual using a window where they can view all the courses being offered for a specific semester. By selecting the courses, the SPMS system can see which course instructors/coordinators are assigned to which courses and forward it to the relevant faculty members.
7. Faculty members can view the Accreditation Manual in their interface. They will then map the Course Outline to the Course Outcomes(COs), create course assessments, map the COs to specific assessments for the courses, decide how many marks each of the mapped questions will carry, and map COs to PLOs.
8. Faculty members will have access to all the courses they are taking for each semester, and be able to view courses they took for previous semesters. In the courses for the current semester, they will have the option to ***“Map Course Outcomes(COs)”***. They will have the option to add which parts/topics of the course are mapped to which Course Outcomes(COs) and PLOs according to the Accreditation Manual.
9. Faculty can ***“Create Assessments”*** for each of their assigned courses and store them in the system. They can use this option to name the assessments (quiz 1, midterm exam, final exam, etc.), create questions for each assessment, assign those questions a mark, and map them to COs pre uploaded in the system and then save them. The faculty can later edit the assessments too. They can also view all the students registered for this course under each ***“Assessments”***.
10. Faculty can also use our interface to specify columns needed to be added to output a sum total, or a conversion. In case of conversion, they can specify a formula.

## Record Student Assessment Data

1. Only the Course Instructor is needed for this process.
2. As mentioned in the process before, the Course Instructor will be able to ***“Create Assessments”*** for each of their assigned courses.
3. After each assessment in real life, they can upload the marks achieved by each student in that course for that assessment and save them. They will also be able to edit the marks entered for a time-period after which it will not be editable.
4. Faculty gathers hardcopy/softcopy of assessment papers as pdf files from emails, google forms, google classroom of each assessment for each student and uploads those under those students for those courses under respective assessments.

## Produce OBE Marksheet & Course Assessment Report & other docs

1. This process will be used by the Course Instructors/Faculty Members.
2. They can then use the option ***“Generate OBE Marksheet”*** to generate OBE Marksheet for the course of a specific section for a specific semester, and separately upload the Course Assessment Report file.
3. They will have the option to ***“Generate Analysis Report”*** based on the OBE Marksheet, and ***“Generate Verdict Report”*** based on the OBE Marksheet in the interface.

## View Grades, Download Transcripts and View Achieved COs and PLOs by a student for a Course

1. The stakeholders needing access to this process are Admin, Registrar’s Office Staff and Students.
2. Students, Admins, and Registrar’s Office Staff alike can view grades and download transcripts from IRAS as in the as-is system.
3. They can also view the COs and PLOs achieved by a specific student for a specific course in a specific semester in the SPMS app.
4. Students can only view their own courses and the COs and PLOs they received for each course in a semester belonging to the department in question, and also the breakdown of each CO, as in how many marks were received for each question in an assessment and which CO that question was representing during the semester through the SPMS app.
5. Admin and Registrar’s Office Staff can view all students sortable by name, id, department, admission date, course enrollment date/semester, and/or other criteria and view their overall CO and PLO achievements and a breakdown of it for each course.

## Create Student/Faculty Accounts and edit/customize necessary data

1. The stakeholders involved in this process are Admins and Registrar’s Office Staff.
2. Registrar’s Office Staff sends hard copy data collected of students and faculties which are then entered into relevant fields present in our interface under ***“Add New Student”/”Add New Faculty”***. They can also view a list of students and faculties under ***“Students/Faculties”*** and are notified if the adding of student/faculty data was successful or not.
3. They can also search for students and faculty in a search bar using id, name, dept and other such criteria if applicable and customize/add necessary data that was previously unavailable or was requested for change by student/faculty.

## View Records of OBE Marksheets, Course Assessment Reports over a time period for inspection and analysis of student performance trend

1. The stakeholders for this process are Admin, Department Office Staff, Registrar’s Office Staff, Faculty/Course Instructors, Head of Department, VC/Board of Trustees, IEB/UGC/Ministry of Education.
2. Faculty then clicks on the “Semesters” tab, specifies search criteria (course/semester/year/student) and time period for Performance Assessment reports.
3. Faculty clicks on “Generate OBE Marksheet/Verdict Report/Analysis Report” if the report is not already generated and stored in the system and downloads reports in PDF/Excel form if needed.
4. The Admin, Department Office Staff, Registrar’s Office Staff, VC, Head of Department, IEB all use the user interface for this process in similar ways.
5. The Admin, Department Office Staff, Registrar’s Office Staff, VC, Head of Department can view department assessment reports, view Course Assessment Reports & OBE Marksheets/Verdict Report/Analysis Report, searchable by year, courses, faculty and student. Click on “Generate OBE Marksheet/Verdict Report/Analysis Report” if the report is not already generated and stored in the system. Download reports in PDF/Excel form and view individual student reports.
6. The IEB user interface can do all of the above except for being able to view student reports.

## Request for review and change of grades

1. The stakeholders involved in this process are Students, Faculty, Admin
2. Students can use the interface to submit grade change for a specific course they enrolled in some previous semester.
3. The faculty gets notified in his interface about a grade change request.
4. The faculty then goes under ***“Semesters”*** where all the courses and their sections are listed and can be sorted by Semester and Year, course title, course id, etc.
5. The faculty then reviews all the assessments of the student and the softcopies stored in the SPMS Application.
6. If change is needed, the faculty requests to change grades, and uses our interface to include breakdowns of grade change (i.e. which questions of which assessment of a particular student for a particular course offered in a semester) to admin.
7. The Admin gets notified of requests to change grades, reviews the breakdowns, and has the option to allow grade change for a temporary time set by them.
8. The faculty then gets notified of the Admin allowing grade change, makes the necessary changes to the grades and marks for the questions in specific assessments and saves them.

## Populate SPMS Database with operational data each semester

1. Stakeholders are Admin & Department Office Staff
2. Admin will add two consecutive Semesters ahead of time every semester, including the year, season, and start and end date(prospective).
3. Admin will create accounts for Head of Dept, VC/Board of trustees, IEB personnel.
4. The Department Office Staff upon getting the list of offered courses by the head of department will update the offered courses table for a semester by selecting courses saved under all courses in the database and input number of sections for it. They will then assign each section of each offered course to relevant course instructors and assign a course coordinator to an offered course.
5. The Department Staff will also separately add and update all courses into the database using the interface, offered or not, for future reference.
6. The Department Staff will also upload and update if necessary the PEOs and PLOs that are needed to be achieved by the department set by IEB for faculties who will be using them as input data for course assessments. These PEOs and PLOs can then be selected to map to Course Outcomes of a Course. Course Outcome types are also uploaded by Department Office Staff.