

STUDENT PERFORMANCE MONITORING SYSTEM

CSE303: DATABASE MANAGEMENT SYSTEM

REPORT 2

GROUP 3

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Chapter 1: Introduction

BACKGROUND OF THE PROJECT

Our goal is to deliver a project that will design and build to help universities to promote a productive way for student performance monitoring system. We intend to provide a wholesome experience for students, faculties, head of departments and all the higher authorities. This application is a one-stop place for students to track their progress, for faculties to track course curriculum and all the higher authorities to monitor quality of education provided. We have added features to track students CGPA trend and sleeker way of workflow. This application gives the power to generate new student accounts much faster

OBJECTIVE OF THE PROJECT

This project will be helpful for all user such as student vc dean head of department UGC spm admin and so on. This project will help student in future life and we can also learn how to implement a technology into our education

SCOPE OF THE PROJECT

- Track school-wise, department-wise and program-wise student enrolment comparison
- School-wise, department-wise and program-wise student performance trends
- Course-wise student performance trends
- Instructor-wise student performance trends
- Track PLO achievements
- Problem analysis
- Data-collection and data sharing
- Monitor project
- Team working

Chapter 2: Requirement Analysis

RICH PICTURE (AS-IS)

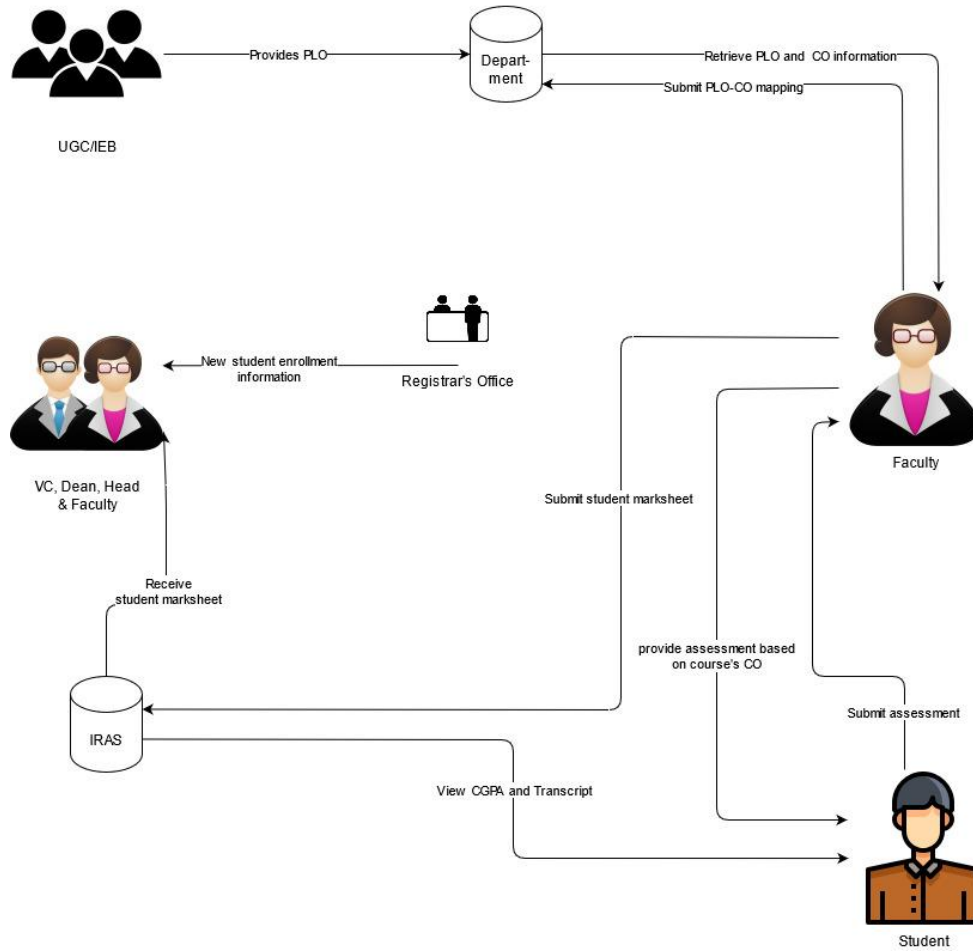


Figure: Rich Picture As-Is

SIX ELEMENTS (AS-IS)

Process	System Roles					
	Human	Non-Comp Hardware	Computing Hardware	Software	Database	Network & Communication
RECEIVE NEW STUDENT ENROLLMENT INFORMATION	Registrar office: 1) log in to computer 2) Receive request for enrolment information from VC, head of department, faculty, and dean. 3) Retrieve enrollment information from registrar office's DB 4) Provide requested enrolment information to faculty, dean, head of department, VC as soft copy or printed copy. Faculty, dean, head of department, VC: 1) log in to computer 2) Sends request for student enrollment information	Paper and Stationary : Send student enrollment information as printed copy to VC, head of department, faculty, and dean. Folders Store student enrolment information as printed copies.	Computer: 1) Used by registrar office employees to send and/or receive new enrolment information to VC, head of department, faculty, and dean. 2) Used by VC, head of department, faculty, and dean to request and receive new student enrollment information. Registrar's Office DB server : Used registrar's office store student enrollment information Printer: To print new student enrollment information.	Operating System: Used in Registrar's office, VC, head of department, faculty and dean's computer. Email client: Used by Registrar's office, VC, head of department, faculty and dean to send and receive new student information. Office suite: Used by VC, head of department, faculty and dean to generate enrollment trend.	RDBMS: Used by Registrar's office database to store new student enrollment information. Excel Files: Used to store new student enrollment information in local computer.	Internet: Used to send or receive student enrollment information between Registrar's office and VC, head of department, faculty, dean Telephone: Used for verbal communication between Registrar's office and VC, head of department, faculty and dean.

	to registrar's office. 3) Receive enrollment student information from registrar's office.		Networking Device: Used for internet access, internal database access or communication use.			
Receive student mark-sheet	VC, head of department, faculty, dean : 1) Log in to their corresponding IRAS account. 2) Search for course wise, semester wise department wise student mark-sheet. 3) Download the mark-sheet.	Paper and Stationary : Used to print the downloaded mark-sheet. Folder : Store the printed mark-sheet.	Computer: Used by VC, head of department, faculty, and dean to retrieve and download student mark-sheet from their IRAS account. printer: Used by VC, head of department, faculty, and dean to print downloaded mark-sheet. IRAS DB server: Used by IRAS to store student mark-sheet. Networking device: Used for internet access, internal database	Operating system: Used in VC, head of department, faculty and dean's computer. IRAS: To retrieve mark-sheet. Office suite: Used by VC, head of department, faculty and dean to generate student performance trend.	RDBMS: Used by IRAS to store student mark sheet. Excel Files: Used to store student mark-sheet local computer.	Internet: Used by VC, head of department, faculty, dean to retrieve student mark sheet from their corresponding IRAS account.

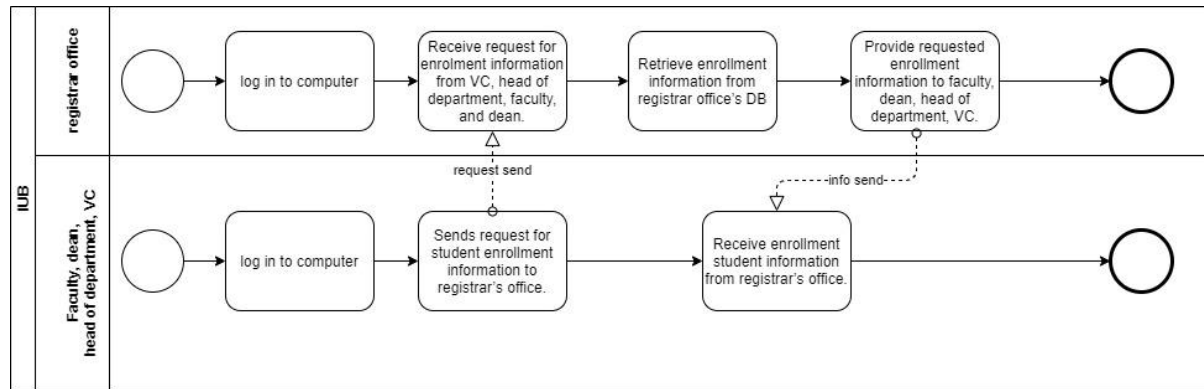
			access			
View CGPA and Transcript	Student: 1) Students have to login to their IRAS account at first 2) They can view their CGPA from their IRAS dashboard 3) In order to view their transcript, they have to enter year and semester from their dashboard and click on "Transcript" button to download the transcript of that particular semester	Paper: May be used by students to print their transcript Folder: To store the printed transcript	Computer: Used by students to visit the IRAS website and view CGPA and transcript Printer: Used by students to print the transcripts IRAS DB server: Used by IRAS to store student CGPA and transcripts Networking device: Used for internet access, internal database access	Operating system: Used in students' computer. IRAS: To retrieve student CGPA and mark-sheet. PDF Viewer: Used to view the downloaded transcripts	RDBMS: Used by IRAS to store student CGPA and transcripts	Internet: Used by students to login to their IRAS account and access their CGPA and transcripts.
Record student assessments and submit mark-sheet	Faculty: 1) Take classes, record student attendance and student class participation 2) Request department for PLO and CO	Pen and paper: 1) Used by department to send PLO and CO as printed form to faculty. 2) Used by teacher to make	Computer: 1) Used by faculty to create assignment and exam paper. 2) Used by department to store PLO and CO	Operating system: Used in faculty, department and student's computer. Office suite: Used by	RDBMS: Used by faculty to store student mark sheets in IRAS DB.	Internet: 1) Used by faculty and department to receive and send PLO and CO information. 2) Used by student, faculty and department

	<p>information of a particular course</p> <p>3) Receive and download PLO and CO from department</p> <p>4) Set assignment and exam paper based the CO.</p> <p>5) Organize schedule and room for exam and notify students.</p> <p>6) Collect exam paper and assignment from students.</p> <p>7) Checks the assignment and exam paper and records marks on mark-sheet</p> <p>8) Log in to IRAS and Submits mark-sheet to IRAS.</p> <p>Department:</p> <p>1) Receive request for PLO and CO for a particular course from faculties</p>	<p>exam paper and assignment.</p> <p>3) Used by student to take exam and assignment.</p> <p>Folder:</p> <p>Used by department student and faculty to store paper.</p>	<p>information.</p> <p>3) Used by student to view exam paper or assignment.</p> <p>IRAS DB server:</p> <p>Used by faculty to store student mark sheets.</p> <p>Printer:</p> <p>1) Used by department to print PLO and CO information.</p> <p>2) used by faculty to print assignment and exam paper</p> <p>Networking device:</p> <p>Used for internet access, internal database access</p>	<p>faculty to create assignment and exam paper.</p>	<p>to communicate.</p> <p>Telephone:</p> <p>Used for verbal communication between faculty and student.</p>
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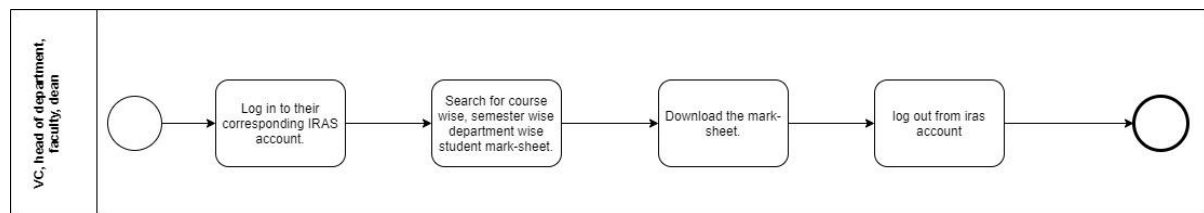
	<p>2) Send PLO and CO to faculties</p> <p>Student:</p> <p>1) Attend classes and participates in class discussion</p> <p>2) Receives assignment and exam notifications from faculties</p> <p>3) Attempts assignment problems and submits them to faculties</p> <p>4) Takes exam on designated schedule and classroom and submits exam paper to faculties</p>					
PLO CO mapping	<p>Faculty:</p> <p>1) Request department for PLO and CO information.</p> <p>2) receive PLO and CO information from department</p> <p>3) Download the PLO co information.</p> <p>4) Discuss with</p>	<p>Pen and paper:</p> <p>Used by faculty to view PLO and CO information as printed form.</p>	<p>Computer:</p> <p>Used by faculty and department to receive and send PLO and CO information.</p> <p>Printer:</p> <p>Used by faculty to print the PLO and co information.</p>	<p>Operating system:</p> <p>Used in department and faculty's computer.</p> <p>PDF viewer:</p> <p>To see the PLO and co information.</p>		<p>Internet:</p> <p>Used by faculty and department to receive and send PLO and CO information and communicate with each other.</p> <p>Telephone:</p> <p>Used for verbal communication between</p>

	<p>other faculty member to create PLO and CO map.</p> <p>5) sends PLO CO map to department</p> <p>Department:</p> <p>1) Receive request from faculty for PLO and CO information.</p> <p>2) Send PLO and CO information to faculty.</p> <p>3) Receive PLO and CO mapping from faculty.</p> <p>4) Store PLO co map.</p> <p>5) Download the PLO co map.</p>					faculty and department.
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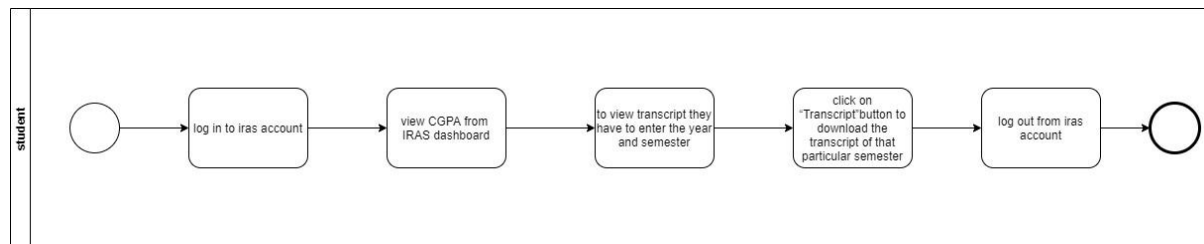
BUSINESS PROCESS DIAGRAM (AS-IS)



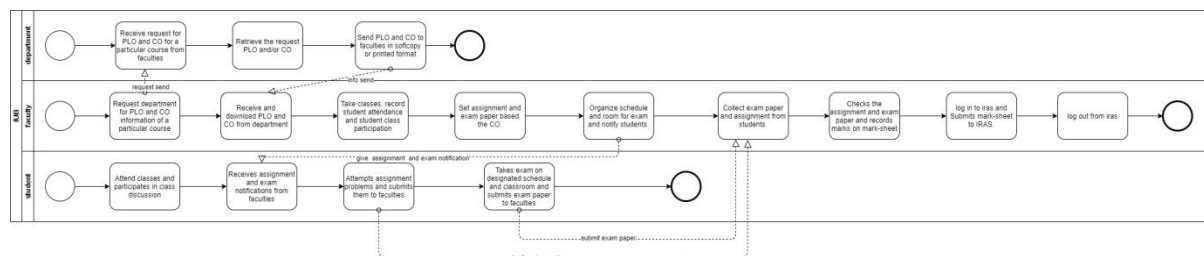
BPMN (AS-IS) FIGURE 1: View new enrollment data



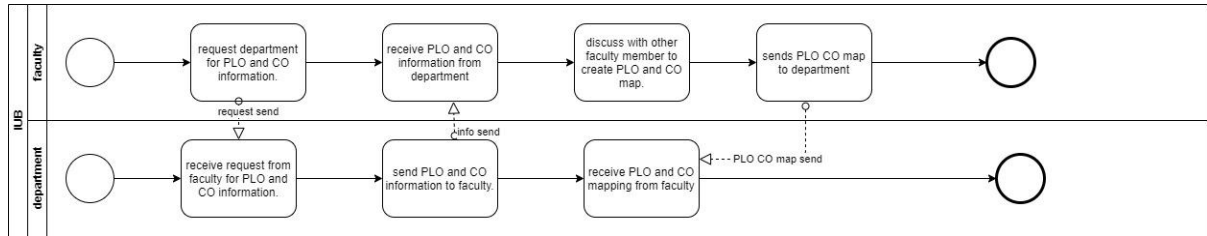
BPMN (AS-IS) FIGURE 2: View Student Mark-sheet by VC, Dean, Head, and Faculty



BPMN (AS-IS) FIGURE 3: View Transcript by Students



BPMN (AS-IS) FIGURE 4: Record Student Assessment



BPMN (AS-IS) FIGURE 5: Map PLO to CO

PROBLEM ANALYSIS

Process Name(s)	Stakeholders	Concerns	Analysis	Proposed Solution
"Record Student Assessment and submit marksheet", and "Map PLO CO"	Faculty Department	Faculties have request the department to send PLO and CO details and the Department has to respond to the request	This process is time consuming as the request from the faculties has to be received by the department and retrieve necessary documents to be sent. Also, this process is resource consuming as well, as the faculty may have to send request using paper form or use any third party software for the task.	Rather than keeping the PLO and CO documents to themselves they will upload the documents to the SPM DB and faculties can easily access the files without needing to request the department
View new enrollment information	VC, Dean, Head, Faculty Registrar's Office SPM Admin	In order to view the enrollment data, VC, Dean, Head and Faculty have send request to registrar's office and in response the registrar's office will send the data	This process can be time consuming and hard to manage over time, as the registrar's office may have find manually for the request data. Also, the data sent may be just raw data and no overall trends will be shown. Users may have to use third party software to achieve that and if the data is hard copy version then	Instead of requesting the registrar's office, VC, Dean, Head and/or Faculties can view enrollment data from the enroll record on the SPM DB. Also, SPM software can show them a nice graphical analysis of enrollment

			generating trends will be even more difficult	
View Student CGPA Trend	VC, Dean, Head, Faculty	In order to see PLO achievement and CGPA trends of students, VC, Dean, Head and Faculty has to get the raw mark-sheet data from IRAS	The mark-sheet that they download from IRAS contains raw course-wise marks for each student. It is hard to produce overall trend from the mark-sheet as they contain raw marks for specific courses. In order to generate the trends, they might require scripts to calculate the CGPA from the mark-sheet and keep track of all the entities. It becomes even complicated when they want to see trends for range of semester or for a particular department or program. Most of the users might not be skilled enough to write scripts themselves.	In order to solve this problem, the marksheets can be stored to SPM DB and generate the desired trends whenever the users need them.

RICH PICTURE (TO-BE)

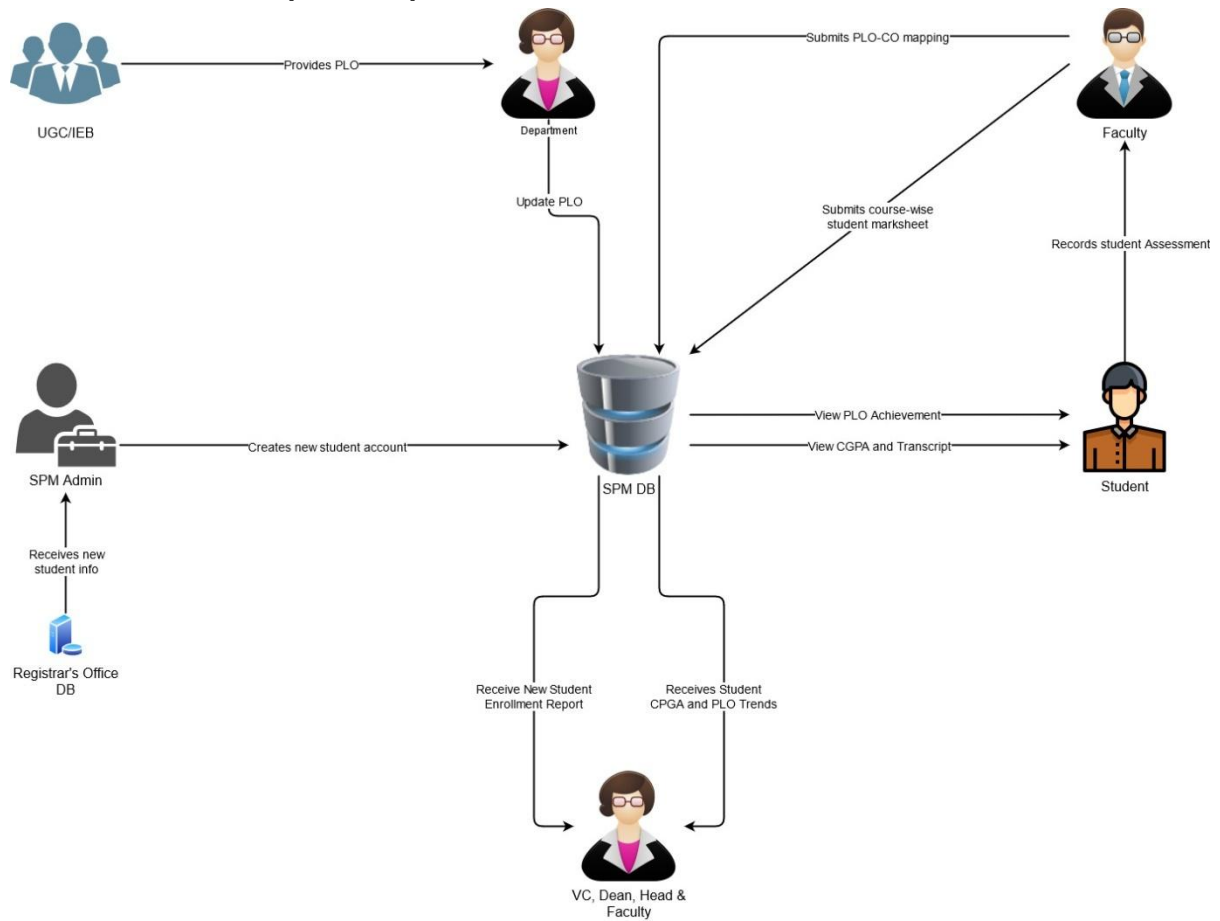


Figure: Rich Picture TO-BE

SIX ELEMENT ANALYSIS (TO-BE)

Process	System Report					
	Human	Non-computing Hardware	Computing Hardware	Software	Database	Internet & Communication
Create new students account	SPM Admin: 1) Receives new Students info from Registrar's office database 2) Log in to SPM DB. 3) Generate new student accounts from provided information. 4) Log out from SPM DB.	Pen, Paper and Stationeries : 1) May be used by SPM admin note-down any corrupted information sent from registrar's office	Computer: 1) Used by SPM Admin to receives data from registrar's office database & generate new Students accounts Database Server: 1) Registrar's office DB from which new students information will be sent 2) SPM DB in which new students account will be stored	Operating System: Used by SPM Admin to operate their computer Office Suite: May be used to store information locally in Excel format	RDBMS: 1) Used by both SPM DB & Registrar's office DB to stored information Excel Software: May be used to store information locally in Excel format	Internet: 1) Used to access and modify SPM database 2) Communicate between SPM Admin & Registrar's office Telephone: Used for verbal communicate between SPM Admin & Registrar's office

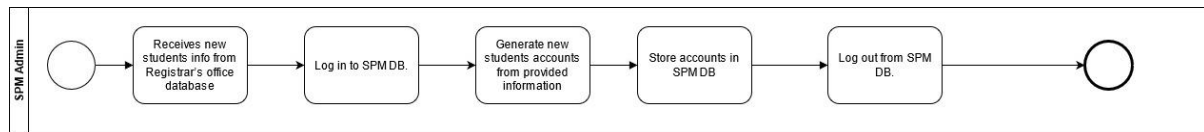
Update PLO on SPM DB	Department : 1) Gets PLO from UGC/IEB 2) Log in to SPM DB. 3) Stores PLO in SPM DB 4) Log out from SPM DB. UGC/IEB: Send PLO to department	Pen, Paper and Stationeries : 1) May be UGC/IEB Send printed version of PLO.	Computer: 1) Used by UGC/IEB to send PLO 2) Used by department to store PLO Database Server: Store PLO information for SPM	Operating System: Used by both department and UGC/IEB to operate their computer Office Suite: Used by UGC/IEB to create or modify PLO	RDBMS: Used for SPM DB to stored PLO information Internet: 1) Used by UGC/IEB to provide PLO to department 2) Used by department to stored PLO in SPM DB 3) Used to communicate between department and UGC/IEB Telephone: Used for verbal communication between department and UGC/IEB
Record student assessment and submit mark-sheet	Faculty: 1)Take classes, record student attendance and student class participation 2)Log in to SPM DB. 3) Fetch PLO and CO information of a particular course from SPM 4) Set assignment and exam paper based the CO. 5) Organize schedule and room	Pen, Paper and Stationeries : 1) May be used by students to take lecture, write assignments , reports or take exam. 2) May be used by faculty to write lecture outline or print exam questions Folder: May be used by teacher to store students' assignments , exam	Computer: 1) May be used by student to send assignments , reports or take online exams 2) May be used by faculties to view and mark the reports, assignments or exams Database Server: Used by SPM DB to store student mark sheets	Operating System: 1) Used by both faculties and students to operate their computers Office suite: 1) Used by students to write assignment s and reports 2) Used by faculty to write lecture outline or print exam questions	RDBMS: Used to store students' course wise mark sheet to SPM DB Excel Sheet: Used by faculties to store student mark sheets locally Internet: 1) Used by students to submit the reports, assignments or take online exams 2) Used by faculty to receive student assessment 3) Used by teacher to store students course wise mark sheet to SPM DB 4) Communicate between student and teacher

	<p>for exam and notify students.</p> <p>6) Collect exam paper and assignment from students.</p> <p>7) Checks the assignment and exam paper and records marks on mark-sheet</p> <p>8) Log in to SPM and Submits mark-sheet.</p> <p>9) Log out.</p> <p>Student:</p> <p>1) Attend classes and participates in class discussion</p> <p>2) Receives assignment and exam notifications from faculties</p> <p>3) Attempts assignment problems and submits them to faculties</p> <p>4) Takes exam on designated schedule and classroom and submits exam paper to faculties</p>	papers or mark sheet		<p>Google Classroom and Google Form:</p> <p>May be used for online classes and online examination</p>		
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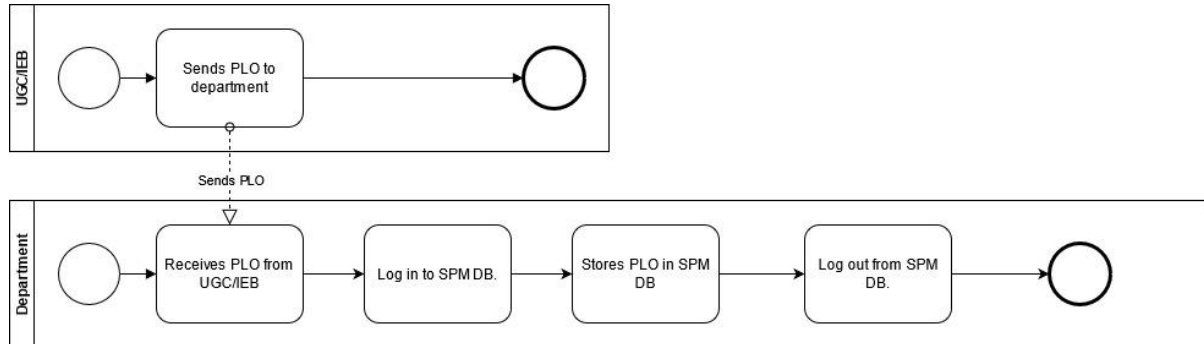
Update PLO-CO mapping to SPM DB	Faculty: 1) Login to SPM and retrieve PLO and CO information for a certain course from SPM 2) Discuss PLO-CO among several faculties 3) Map PLO-CO 2) Submit PLO-CO mapping in SPM DB	Pen, Paper and Stationeries : 1) May be used by faculty to print the PLO-CO mapping	Computer: 1) Used by faculty to view PLO chart and submit PLO-CO mappings Printer: May be used by faculty to print the PLO-CO mapping Database Server: Used by SPM to store PLO info and PLO-CO mappings	Operating System: Used by faculty to operate their computer Printing software: May be used by faculty to print the PLO-CO mapping	RDBMS: Used by SPM DB to store PLO-CO mapping Telephone: Used for verbal communication between faculties and higher authorities	Internet: 1) Used by faculty to store the PLO-CO mapping 2) Used to communicate with faculties and higher authorities
View student CGPA, transcript and PLO achievements	Student: 1) Login to SPM and move the "achievements". 2) CGPA will be displayed by default 3) To view transcript, they have to enter semester and year. 4) PLO achievements will be displayed on the dashboard	Paper: May be used to print transcript Folder: May be used by store printed transcripts	Computer: Used to view or download, PLO achievements, CGPA and transcripts Database Server: Used by SPM to store student mark sheets	Operating System: Used by students to operate their computer Printing software: May be used to print transcript PDF Viewer: Used to view transcripts in printable format	RDBMS: Used by SPM DB to store student mark sheets Excel Sheet: May be used by students to store CGPA locally	Internet: Used by students to access SPM and view their CGPA and transcripts

Receive student CGPA and PLO trends	VC, Dean of School, Head of Department and Faculties: 1) Login to their SPM account 2) They have to enter semester range to view the CGPA and PLO achievements trends. 3) They can optionally enter particular school, department or program to view overall CGPA and PLO achievements 4) Leadership team can also view faculty-wise student CGPA and PLO achievements 5) Faculties can view overall CGPA and PLO achievements for students instructed by them.	Pen and paper: Used by the users to note down any particular trends in CGPA and PLO Folder: Used to store the papers	Computer: Used to view CGPA and PLO trends Database Server: Used by SPM to store student CGPA and PLO trends	Operating System: Used by the users to operate their computer	RDBMS: Used by SPM DB to store student CGPA and PLO trends	Internet: Used by the users to access SPM and view their CGPA and PLO trends
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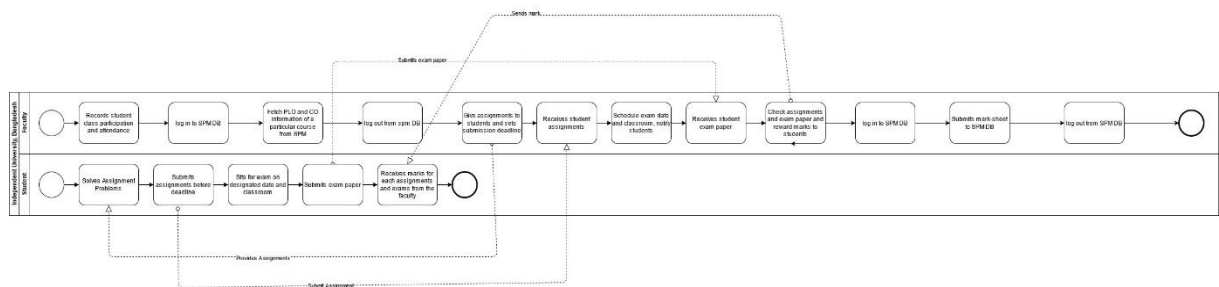
BUSINESS PROCESS DIAGRAM (TO-BE)



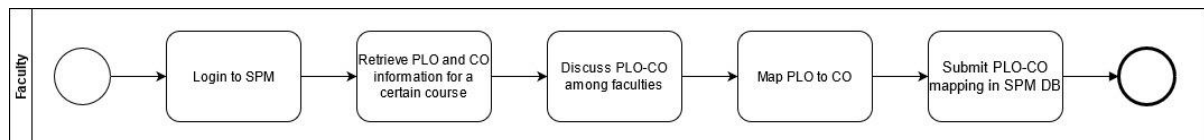
BPMN (TO-BE) FIGURE 6: Create new student account



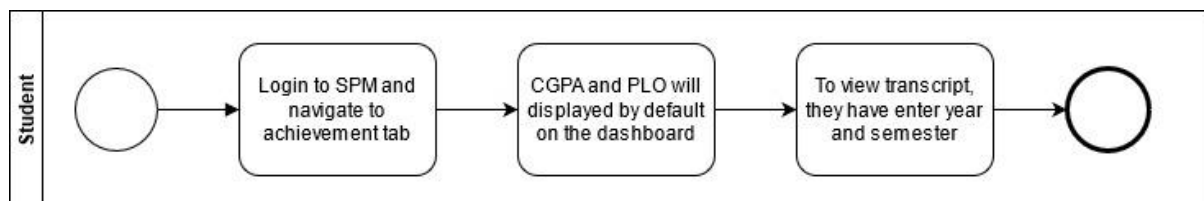
BPMN (TO-BE) FIGURE 2: Update PLO on SPM DB



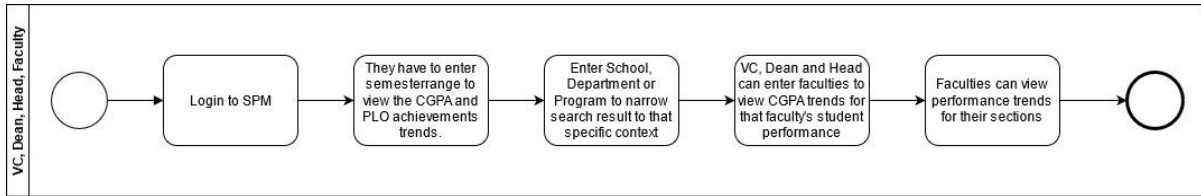
BPMN (TO-BE) FIGURE 3: Record student assessment and submit mark-sheet



BPMN (TO-BE) FIGURE 4: Update PLO-CO mapping to SPM DB



BPMN (TO-BE) FIGURE 5: View student CGPA, transcript and PLO achievements



BPMN (TO-BE) FIGURE 6: Receive student CGPA and PLO trends

Chapter 3: Logical System Design

BUSINESS RULE

Registrar's office may send one or more new student information. Each student information is sent by one and only one Registrar's office. SPM admin may receive one or many new student information. Each student information is sent to one and only one SPM admin. SPM admin may create one or many student account. Each student account is created by one and only one SPM admin.

UGC/IEB may send one or more PLO. Each PLO is sent by one and only UGC/IEB. A department may receive one or more PLO. Each PLO is received by one and only department. Each department may store one or more PLO. Each PLO is stored by one and only one department. SPM DB must store one or more PLO. Each PLO is stored by one and only one SPM DB.

SPM DB may send one or more student enrollment information. Each student enrollment information is sent from one and only one SPM DB. VC, Dean, Head and/or Faculty may receive one or more student enrollment report. Each student enrollment is received by one and only one VC, Dean, Head and/or Faculty.

SPM DB may send one or more student CGPA, transcript and PLO trends. Each student CGPA, transcript and PLO trend is sent from one and only one SPM DB. VC, Dean, Head and/or Faculty may receive one or more student CGPA, transcript and PLO trends. Each student CGPA, transcript and PLO trend is received by one and only one VC, Dean, Head and/or Faculty.

SPM DB may send one or many PLO and CO information. Each PLO and CO information is provided by one and only one SPM DB. Each faculty may retrieve one or more PLO and CO information. Each PLO and CO information is retrieved by one or many faculties. Each faculty may submit one or more PLO-CO mapping. Each PLO-CO mapping is submitted by one and only one faculty. Each faculty must record one or more student assessments. Each student assessment is recorded by one and only one faculty. Each faculty must submit one or more student mark-sheet. Each student mark-sheet is submitted by one and only one faculty. SPM DB must store one or more student mark-sheet. Each student mark-sheet is stored on one and only one SPM DB.

SPM DB sends zero or one student CGPA, transcript and PLO achievement. Each student CGPA, transcript and PLO achievement is sent by one and only one SPM DB. Each student may view one student CGPA, transcript and PLO achievement. Each student CGPA, transcript and PLO achievement is viewed by one and only one student.

Entity Relationship Diagram

