**Six Elements System Analysis - Student Performance Monitoring System**

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| **Process** | **System Roles** | | | | | |
| **Human** | **Non-Computing Hardware** | **Computing Hardware** | **Software** | **Database** | **Network & Communication** |
| Mapping COs with PLOs | Department:  1. IEB/UGC sends accreditation manual with PLO’s defined to the department  2. Department then gathers information regarding Course Outcome from the website/ IEB manual.  3. If the course content exist in the course outline, review the course content else create a list of the course content.  4. Creates a list of the course outcomes.  5. Login to the system with user ID and password. Map the CO with the course content.  6. Map the received CO’s to specific PLOs.  7. Map CO’s to specific questions of mid-term, final & project. | None. | Computer:  1. All related data is searched and stored using computer. | None. | Other Sources: 1. All related information are stored in the specific location. | All related data are searched through the internet. |
| Course Registration | Student:  1. On the reserved day for registration log in to IRAS with their id and password.  2. Go to registration page, load courses and select courses.  Can only select courses of which prerequisites have been completed and the course capacity is not exceeded.  3. Click on ‘DONE’ button to complete the registration process.  4. A message prompts saying ‘’Registration Successfully Done”. | Pen & Paper:  1. Sometimes course registration is done manually. | Computer:  1. All related data is searched and stored using computer. | IRAS:  1. IRAS has an interface for doing registration. | MS SQL Server:  1. IRAS is integrated with MS SQL Server.  Other Sources: 1. All related information are stored in the specific location. | Internet:  IRAS is a web-based application and requires internet to access. |
| Gather Student Marks from Courses they have enrolled | Instructor:  1. Receives CO’s to be achieved in that particular course.  2. Takes exams such as mid-term, final & project to assess students in various course outcomes.  3. Gather marks for different assessment including student id, course id, section, semester.  4. Convert the total marks for mid-term, final.  5. Calculate total for all the CO’s. | Pen & Paper:  1. Written exams conducted by the faculty to evaluate the students. | Computer:  1. All related data such as student name, id is searched and stored using computer. | MS Excel: 1. All related information are stored. | Other Sources: 1. All related information are stored in the specific location. | None. |
| Enter Student Marks | Instructor:  1. Login to the system with ID and password. Enter students total CO marks achieved in all CO’s in mid-term, final & project into the system including student id, course id, section, semester.  2. System stores students marks achieved in all CO’s based on mid-term, final & project with student id, course id, section, semester.  3. Calculates CO percentages.  4. If greater than or equal to 40% CO’s have been achieved, a student passes that certain CO otherwise fails.  5. The corresponding CO’s are mapped against PLO’s and PLO achievements are recorded. | None. | Computer:  1. All related data is searched and stored using computer. | MS Excel:  1. All related information are stored. | Other Sources: 1. All related information are stored in the specific location. | All related data are provided through the internet. |
| Generate Report | Department:  1. User will login to the system and retrieve the student information of PLO achievement from previously calculated OBE marksheet.  2. Generate reports after comparing results of multiple students.  3. Percentage of successfully passed or failed to achieve are calculated based on the total number of students. | None. | Computer:  1. All related data is searched and stored using computer. | MS Excel:  1. All related information are stored and calculated. | Other Sources: 1. All related information are stored in the specific location. | None. |
| Request to Generate Report | UGC/ IEB/ Higher Management:  Login to the system with user ID and password.  Asking to generate report for:  1a. Viewing number of students passing or failing in a certain PLO.  1b. Viewing progression of students with charts and graphs. | Paper:  1. Paper is required for the printing purpose. | Printer:  1. Print the report based on users’ request. | None. | Other Sources: 1. All related information are stored in the specific location. | None. |