**Phase 2: Business Process Modeling** for the **Academic Records Management System (ARMS)-PEAOCKS\_wed**

**1. Scope Definition**

* **Business Process**:
  + The primary business process is managing academic records for educational institutions (e.g., universities, colleges, and schools).
  + This process includes storing, retrieving, and updating information such as student details, course information, enrollment records, and performance data.
* **Objectives**:
  + To create a centralised system that enhances the efficiency, security, and accessibility of academic record management.
  + To streamline workflows, reduce data redundancy, and maintain data integrity across departments and roles.
* **Expected Outcomes**:
  + **Streamlined Record Management**: automated, centralized management of academic records to reduce manual work and errors.
  + **Enhanced data accessibility**: authorized stakeholders can access relevant data more easily.
  + **Accurate Performance Tracking**: The system supports performance monitoring, helping in decision-making.
  + **Improved Decision-Making**: Real-time access to data for academic planning, reporting, and analytics.

**2. Key Entities**

* **Students**:
  + Each enrolled student has an ID, name, contact details, and enrollment status.
  + They are associated with various courses through an enrollment relationship.
* **Courses**:
  + Course entities include attributes like course ID, title, credit hours, and prerequisites.
  + Each course can have multiple enrolled students and may be taught by one or more instructors.
* **Enrollments**:
  + An intermediary entity that records each student’s enrollment in courses, capturing dates and term info.
  + Connects students to courses with a many-to-many relationship using foreign keys.
* **Instructors**:
  + Contains instructor-specific information like ID, name, department, and associated courses.
  + Each instructor may teach multiple courses, creating a many-to-many relationship with the Courses entity.
* **Grades**:
  + Stores student performance data, including grade, term, and comments.
  + Links students and courses to document performance in each course.

**3. Swimlane Diagram Process Flow**

1. Student Services initiates the Register Student process.
2. The Academic Department then creates/updates courses as needed and assigns instructors to each course.
3. Student Services proceeds to Enrol students in courses.
4. The registrar processes the enrollment details and updates academic records.
5. Instructors enter grades and performance data, which are then stored in the Grades entity.
6. The IT Department ensures system accessibility, monitors permissions, and maintains data integrity.

**Swimlane Diagram**

THE SWIMLANE DIAGRAMS ARE HERE BELOW

A screenshot of a diagram

Description automatically generated

**4. Business Process Model (Using BPMN Notation)**

Using BPMN (Business Process Model and Notation), we can represent the ARMS process in a way that emphasises interactions, tasks, and decision points. This method is useful for visualising how each department interacts with the system.

Key BPMN Symbols:

* 

Events (circles) represent triggers (e.g., “Student registers”).

* 

Activities (rounded rectangles) for tasks (e.g., “Enrol in Course”).

* 

Gateways (diamonds) to indicate decision points (e.g., “Check Prerequisites”).

* 

Sequence Flows (solid arrows) to show the order of tasks.

* 

Pools and Lanes to represent different departments.

**BPMN Code with Logical Flow**

A diagram with text boxes and arrows

Description automatically generated with medium confidence

**5. Diagram Summary and Components**

1. Student Services:

Responsible for registering students and collecting key information (student ID, name, contact details).

Manages student enrollment into courses, verifying prerequisites before proceeding to the next stage.

1. Academic Department:

Manages course creation and updates, defining details such as course ID, title, credit hours, and prerequisites.

Assigns instructors to specific courses, facilitating instructional oversight.

1. Registrar:

Processes enrollment records, capturing dates and term information once prerequisites are satisfied.

Updates academic records at the end of each term by incorporating final grades and performance data.

1. Instructor:

Records student performance in assigned courses, entering grades and comments to document student progress.

1. IT Department (not shown in detail):

Manages access control and ensures data integrity by enforcing permissions and performing regular checks.

Interactions and Process Flow

The process begins with the Student Services department registering students and collecting their details. This information is then used for course enrollment, where the system checks course prerequisites. If requirements are met, the Registrar department records the enrollment and updates the term information. Instructors input grades after course completion, which the Registrar finalises in the academic records.

The decision point—checking prerequisites—ensures that students meet necessary requirements before enrollment. If students do not meet prerequisites, they are informed by the system, and the process stops at that stage.

Significance in Relation to MIS

The ARMS process aligns closely with MIS principles by facilitating data collection, processing, storage, and accessibility, supporting key objectives:

Enhanced Decision-Making: The ARMS provides administrators with real-time, accurate data on enrollments, performance, and academic progress, supporting informed decision-making for resource allocation, academic planning, and student support.

Organisational Goals: By ensuring seamless record management, ARMS promotes operational efficiency, data integrity, and a unified platform for record-keeping across departments. This alignment with organisational goals helps improve the quality of education services and meets compliance requirements.

Supporting Organisational Goals and Strategic Planning

The ARMS helps educational institutions achieve their strategic goals by:

Reducing Redundancy: Centralised data storage minimises duplicate data entries, saving time and reducing human errors.

Improving Data Accessibility: Authorised stakeholders (e.g., academic planners, instructors, administrative staff) can access relevant information instantly, facilitating effective collaboration and communication.

Ensuring Data Accuracy and Integrity: With IT controls and regular updates, the system maintains high standards for data integrity, which is crucial for long-term academic and strategic planning.

Overall, this process model supports an effective MIS framework by organising data flows, enhancing data-driven decisions, and aligning with the institution’s operational goals. The ARMS enables a systematic approach to managing academic records, creating a reliable foundation for institutional growth, student success, and efficient administration.