

Palestine Technical University – Kadoorie College of Engineering and Technology Department of Computer Systems Engineering

Course name:

# Software Engineering

Project title:

DEVELOPING A CENTRALIZED COURSE PORTAL FOR ACADEMIC CENTERS IN PALESTINE

By:

# Abrar Arman - 202110760

# Maysam Rashed - 202110544

# Mayar Qasarwa - 202110541

# Shahd Qalalwa - 202110543

# Azza Eid – 202110543

Supervisor:

# Dr. Osama Hamed

Tulkarm, Palestine

Spring Semester 2023-2024

**Table of content:**

**Chapter 1:Introduction**

**--in progress**

**Chapter 2: The Entity Relationship Data Model**

**2-1-1 Entities:**

To make our database ER diagram simpler to understand, we have divided **the entities** into several functional groups:

* **User Management:** Student, UserAccount, Admin, Teachrer.
* **Course Management**: Course, Center, CourseMaterials, CourseSchedule.
* **User Preference:** CenterFotSchoolStudent, AcademicCenter.
* **Scheduling & Events:** CourseSchedule, ClassRoom, Event.
* **Notifications & Communications:** Notifications ,Phone.
* **Financial Transactions:** Payment.
* **Feedback:** Feedback.

**2-1-2 Entities Description:**

**UserAccount:** Manages login credentials and user profiles. Attributes often include username, password, and user role.

**Admin:** Users with elevated privileges to manage the system. Attributes could include admin ID and access level.

**Teacher:** Instructors responsible for teaching courses. Attributes may include teacher ID, name, and subject expertise.

**Student:** Represents individuals enrolled in the academic center. Holds personal information, academic major, and enrollment status.

**Course:** Contains details of courses offered, including name, associated class rooms, and related materials like syllabus.

**CourseMaterials:** Educational content provided for courses.

**CourseSchedule:** Timetable details for courses- Manages when and where courses are held, detailing the weekly schedule and location.

**Centers:** Details the centers or departments within the academic center, including the courses they offer and a bio for the center.

**CenterForSchoolStudent:** Preferences for students regarding centers..

**AcademicCenter:** Specialized centers focused on academic excellence.

**Notifications:** Sends messages to users, such as reminders or alerts, and tracks whether they have been read.

**Phone:** Contact information for communication.

**Payment:** Handles financial transactions related to course enrollments, including payment amounts and methods.

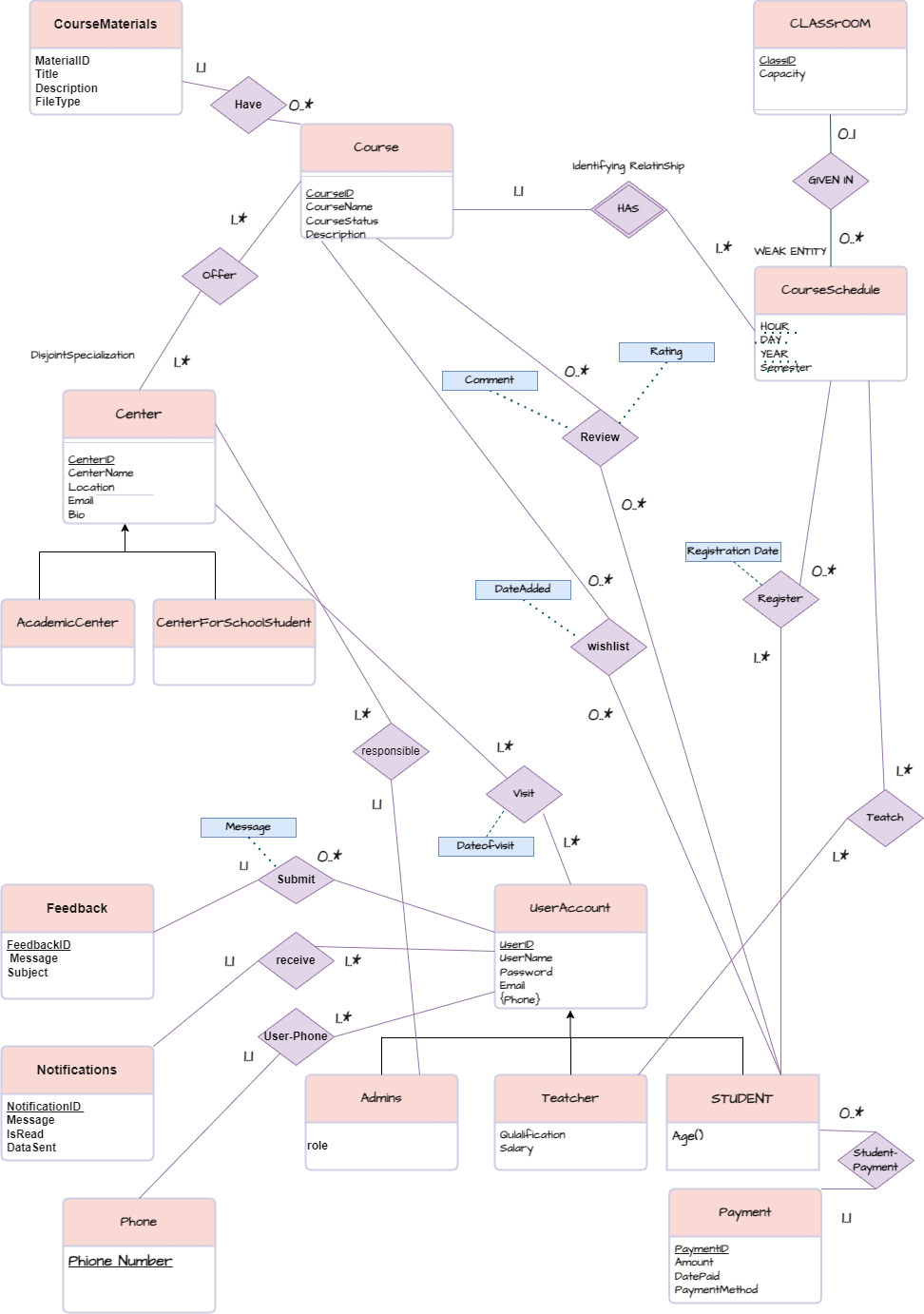
**Feedback:** User-submitted evaluations and comments.

**2-2 Relationships:**

* **Student** to **CourseSchedule**: student can be scheduled for many course sessions, and a course schedule can include many students.
* **Student** to **Course**: A student can review multiple courses, and a course can have multiple reviews.
* **Student** to **Course**: students can list multiple course they wish to take, and a courses can be in many students wish list.
* **Payment** to **Student**: Each student has a payment record.
* **Teacher** to **CourseSchedule**: A teacher can teach many course appointments, and a course can be taught by many teachers.
* **UserAccount** to **Students/Admins**/**Teacher**: A user account is linked to one subclass which represented by disjoint specialization.
* **Notifications** to **UserAccount**: A user account can receive multiple notifications.
* **Feedback** to **UserAccount**: A user can submit multiple feedback entries.
* **Phone** to **UserAccount**: A user can have multiple phone numbers.
* **Center** to **Course**: A center offers multiple courses.
* **Center** to **UserAccount:** multiple users can visit multiple centers.
* **Center** to **AcademicCenter\ CenterForSchoolStudent**: A center is linked to one subclass which represented by disjoint specialization.
* **CourseSchedule** to **Courses**: Each course has multiple schedules.
* **CourseSchedule** to **ClassRoom**: A classroom can be used for many course schedules.
* **CourseMaterials** to **Courses**: A course can have multiple materials.

**2-4 Entity Relationship Model for Educational Center:**

Our ERD model serves as a foundation for building a robust and efficient database system that supports educational processes, user interactions, and administrative tasks. By understanding these entities and their relationships, we can create a well-structured and reliable database to meet our system’s requirements (shown in Figure 2-1).

****