# University Examination Management System – Database Schema Documentation

**Current date reference**: February 05, 2026
**Version**: 1.0 (based on provided CREATE TABLE statements)
**Purpose**: This document explains the full database schema, table relationships, data flow, and practical usage/maintenance guidelines for both non-technical users (exam committee, admin staff) and technical users (developers, DB admins).

## 1. Overview – What the System Does

This database supports **complete exam lifecycle** in a university (especially Computer Science / Technology programs):

- Define exams (subjects, dates, times, target years/programs)
- Manage rooms (capacity, type, seating layout)
- Assign exams to rooms + mix student groups from different years/programs
- Assign individual students to exact seats
- Assign teachers/invigilators to supervise specific rooms
- Track students and teachers (who they are, their status/workload)

Goal: Organized, fair, space-efficient exams with minimal conflicts and clear records.

## 2. The 7 Core Tables

| Table Name | Real-world name | Main job (simple words) | Key fields summary |
|---|---|---|---|
| `student` | Student registry | Who are all the students? Year, major, retake? | student_id, student_number (unique), name, year_level, major, sem, specialization, retake |
| `teacher` | Teacher / invigilator list | Who can supervise? Rank, department, current duties count | teacher_id, name, rank (⚠ unique – probably mistake), department, total_periods_assigned |
| `room` | Room catalog | Which rooms exist? Size, type, chair layout | room_id, room_number (unique), capacity, room_type, rows, cols, is_available |
| `exam` | Exam timetable | Which subject/exam happens when? For whom? | exam_id, subject_code, exam_name, exam_date, session, semester, academic_year, year_level, program, specialization, start_time, end_time, day_of_week |
| `exam_room` | Exam-to-room assignment + group mixing | Which exam in which room? Which years/programs share? | exam_room_id, exam_id, room_id, assigned_capacity, year_level_primary/secondary, sem_primary/secondary, program_primary/secondary, students_primary/secondary |
| `seating_assignment` | Student seat map | Which student sits in which exact chair? | seating_id, exam_room_id, student_id, seat_number, row_number, column_number |
| `teacher_assignment` | Invigilator duty roster | Which teacher watches which room (and when)? | assignment_id, exam_room_id, teacher_id, role, shift_start, shift_end |

## 3. How the Tables Connect (Relationships)