**PROJECT X: Automated Attendance System**

1. The system shall record roll call attendance.
2. Only registered devices shall be allowed in the system.
3. The system shall support location-based (GPS) verification to confirm student attendance
4. The system shall validate the user against the QR codes.
5. The system shall enforce OTP authentication to enhance security.
6. The system shall generate reports:
   1. Attendance
   2. List of Students
   3. List of Lecturers
   4. List of Courses
   5. Students’ enrolment per course
7. The system shall enable Administrator to capture student pictures using a registered device and store:
   1. A passport-style photo
   2. The student’s name and student ID.
   3. The photo as a file and the student’s details in the database
8. The system shall support three primary roles:
   1. Administrator
   2. Instructors
   3. Students
9. Authorized users shall be able to:
   1. Only authorized user shall be able to use a registered phone, tablet, or computer to identify students.
   2. Phones used for attendance tracking shall be registered and linked to a specific authorized user.
   3. Each instructor may have multiple registered devices.
   4. The system shall provide functionality to locate a lost registered lecturer's phone.
   5. Authorized users shall be able to create, read, update and delete (CRUD) courses.
   6. Only authorized user shall assign schedules and enrol students.
   7. Scan students' QR codes to record attendance in real time.
   8. Remove students from a course if they drop out.
   9. Access all course-related data, including student enrolment, attendance records, and course details.
10. Students shall be able to:
    1. View their attendance records in the provided interface for attendance verification.
    2. Students shall NOT be allowed to modify or delete attendance records.
11. The database shall be hosted on a cloud server.
12. Database access shall be restricted to authenticated users via a secure API.
13. Testing shall be conducted at multiple levels:
    1. User Acceptance Testing (UAT): Validate system compliance with client expectations.
    2. System Testing: Ensure seamless integration of all system components.
    3. Unit Testing: Verify the correct functionality of individual components.
14. The system’s formal documentation shall include:
    1. System Requirements
    2. System Design
    3. User Acceptance Test (UAT)
15. The system’s high-level documentation shall include:
    1. A Use Case Diagram to representing system interactions and workflows.
    2. A UML Diagram is used to illustrate relationships between system entities.
    3. A Conceptual Diagram providing a high-level representation of system architecture, key components, and their interactions.