

Republic of the Philippines

DAVAO ORIENTAL STATE UNIVERSITY

Guang-guang, Dahican, City of Mati, Davao Oriental

Faculty of Computing, Data Sciences, Engineering and Technology

Information Technology Program

# ITC 130 – Applications Development in Emerging Technologies

**PROJECT X: Automated Attendance Tracking System Requirements Document**

PRESENTED BY:

NEIL ROY G. OMONGOS

WENONA MARIE M. MONTEMAYOR

SHAMAIAH LEE CADUT

**System Overview**

The Automated Attendance Tracking System aims to improve the efficiency, accuracy, and security of student attendance monitoring. Utilizing barcode scanning technology, cloud-based storage, and secure access protocols, it offers a dependable solution for educational institutions looking to enhance their attendance management processes.

**System Users**

The system shall have three primary roles:

* **R00.01** Administrator – Oversees user management and ensures accurate report generation for institutional oversight.
* **R00.02** Instructor – Manages class attendance, records student attendance through barcode scanning, and oversees assigned courses.
* **R00.03** Student – Gains secure access to personal records, including attendance history, through the student portal for self-monitoring and accountability.

**1. User Management Requirements**

The system shall enable authorized users to manage accounts for both students and instructors in a secure and efficient manner.

* **R01.01** Authorized users shall register instructors by uploading their ID photos, full names, instructor IDs, programs, and faculty details.
* **R01.02** Authorized users shall register students, including their ID photos, full names, student IDs, year levels, programs, and faculty details.
* **R01.03** Authorized users shall have the ability to modify, delete, and review all system records to ensure accurate and organized data.
* **R01.04** Authorized users shall assign one or more devices to an authorized user for attendance recording.
* **R01.04.01** Each registered device shall be designated to a single instructor.
* **R01.04.02** Approved devices may include:
  + - **R01.04.02.01** Mobile phones
    - **R01.04.02.02** Computers
* **R01.05** Authorized users shall register for courses and input relevant course details.
* **R01.06** Authorized users shall assign instructors to courses, specifying the sections they oversee and their corresponding schedules.
* **R01.07** Authorized users shall enroll students in courses, ensuring proper assignment to instructors, schedules, and sections.
* **R01.08** Authorized users shall unregister an instructor’s device when necessary to maintain security.
* **R01.09** Authorized users shall locate lost registered devices to prevent unauthorized access.
* **R01.10** Authorized users shall generate reports.
  + **R01.10.01** Reports shall include:
    - **R01.10.01.01** Lists of registered instructors per faculty
    - **R01.10.01.02** List of registered students per faculty
    - **R01.10.01.03** List of registered courses per faculty

**2. Attendance Tracking Requirements**

The system shall provide a precise and efficient attendance tracking mechanism to ensure reliable student monitoring.

* **R02.01** Authorized users shall record student attendance by scanning barcodes using officially registered devices.
* **R02.02** Authorized users shall update their status as "dropped" in the system if a student accumulates three consecutive absences.
* **R02.03** The system shall automatically generate detailed attendance reports and enable authorized users to download records in CSV format on a monthly basis for analysis and documentation.
* **R02.04** The system shall allow students to:
  + **R02.04**.**01** View their personal attendance records through a dedicated student portal.
  + **R02.04**.**02** Track their attendance history and monitor their presence in each enrolled course.

**3. Security Requirements**

The system shall integrate robust security protocols to safeguard data integrity, confidentiality, and privacy.

* **R03.01** The system shall implement Role-Based Access Control (RBAC) to restrict data access based on user roles and permissions.
* **R03.02** **The system shall** employ data encryption to safeguard sensitive information and maintain confidentiality.
* **R03.03** **The system shall** require Multi-Factor Authentication (MFA) for instructor logins to enhance security and prevent unauthorized access.
* **R03.04** **The system shall** utilize Hypertext Transfer Protocol Secure (HTTPS) with Secure Sockets Layer (SSL) encryption to secure all communications.

**4. Infrastructure & Deployment Requirements**

The system shall leverage cloud-based solutions to improve scalability, accessibility, and efficient data management.

* **R04.01** **The system shall** utilize a secure and scalable cloud-based database to store and manage data effectively.
* **R04.02** **The system shall** be designed for both accessibility and scalability, ensuring seamless performance as user demand increases.
* **R04.03** **The system shall** operate as a standalone platform without Application Programming Interface (API) integration with other university systems at this stage.

**5. Project Timeline**

* **R05.01** The system shall undergo initial checking on **May 15, 2025.**
* **R05.02** The system shall be fully operational and deployed by **May 22, 2025**.

By adhering to these structured requirements, the system will optimize attendance management, strengthen security, and enhance data visualization, enabling more informed decision-making.