<Undergrad Student Registration and Monitoring Platform >

User Manual

Version X.X

MM/DD/YYYY

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1. Introduction

This User Manual provides the information necessary for students and system operators to effectively use the Undergraduate Student Registration and Monitoring Platform.

System Name: Undergraduate Student Registration and Monitoring Platform

Version/Release: Release x.x (month 2025)

Institution: Bachelor of Engineering Program, Assumption University

The purpose of this document is to guide end users in registering for courses, monitoring seat availability, generating QR receipts, and verifying registrations through both the web-based and hardware-based modules.

The intended audience for this manual includes:

- Students – for course registration, seat monitoring, and QR receipt usage
- Support staff – for system setup and maintenance

This document will evolve with future updates to the platform, and an updated PDF version will be available online.

Security and Privacy Considerations:

- Students must use their authenticated university accounts to log in.
- QR codes are unique to each registration and must not be shared.
- All data is transmitted securely via HTTPS and stored in Supabase cloud database under university control.

1.1 Overview

The Undergraduate Student Registration and Monitoring Platform is a hybrid system designed to modernize the university course registration process. It combines:

Web-Based Application:

- Provides a graphical interface accessible through modern browsers (Chrome, Edge, Firefox).
- Allows students to register for courses, view schedules, and monitor seat availability in real time.
- Automatically generates a registration receipt with a QR code.

Hardware-Based Verification Module:

- It consists of an ESP32 microcontroller, QR code scanner, and OLED display.

- Faculty/staff can scan the student's QR receipt to confirm registration in real time.

Key Features:

- Real-time seat monitoring through cloud database (Supabase).
- Visual schedule with time axis and courses.
- QR-encoded receipts for students.
- ESP32-based QR scanning for quick verification.

System Architecture (non-technical terms):

- The platform is web-based (client-server).
- Student devices (PCs, laptops, smartphones) connect to the system via the internet.
- All registration data is stored in a cloud database (Supabase).
- The ESP32 module communicates with the database over Wi-Fi to validate QR receipts.

User Access:

- Through a graphical user interface (web application) for students.
- Through a hardware module (ESP32 + QR scanner) for on-site verification.

System Environment:

- Requires an internet connection.
- Accessible from modern browsers.
- ESP32 hardware requires Wi-Fi and power supply.

2. Getting Started

This section provides a step-by-step walkthrough of the Undergraduate Student Registration and Monitoring Platform, from login to logout. It introduces cautions and warnings, setup requirements, user access levels, navigation of the system, and proper exit procedures.

2.1 Cautions & Warnings

- **Authorized Use Only:** The system is intended solely for registered students and authorized support staff of Assumption University.
- **Account Responsibility:** Users must keep their login credentials secure. Sharing accounts or QR codes is prohibited.
- **Data Accuracy:** All course registration data is considered official. Users should verify their selections before final submission.
- **Privacy Notice:** Student data is stored securely in Supabase cloud servers. Unauthorized access or distribution of student information may result in disciplinary or legal action.
- **Hardware Safety:** Do not expose the ESP32 module, QR scanner, or OLED display to water, dust, or extreme temperatures.

2.2 Set-up Considerations

To use the Undergrad Student Registration and Monitoring Platform system, the following setup is required:

- **For Students and Faculty (Web Application):**
    - Device: Laptop, desktop, tablet, or smartphone.
    - Browser: Modern web browser (Chrome, Edge, Firefox).
    - Network: Stable internet connection (Wi-Fi or LAN).
    - Input Devices: Keyboard and mouse (or touchscreen on mobile).
    - Output Devices: Display screen.
- **For Hardware Verification Module (ESP32):**
    - ESP32 microcontrolle.
    - QR code scanner connected via UART interface.
    - OLED display connected to ESP32 for output.
    - Wi-Fi connection to synchronize with the Supabase database.
    - Power supply via USB cable or adapter.

2.3 User Access Considerations

The system provides different levels of access:

- Students
  - Register for courses.
  - View schedule and seat availability.
  - Generate QR-coded registration receipt.
- System Developers / Support Staff
  - Maintain the web application, database, and hardware firmware.
  - Restricted access to backend systems and configuration tools.
  - Verify QR receipts using the ESP32 hardware unit.

2.4 Accessing the System

1. Open a modern web browser (Chrome, Edge, Firefox).
2. Go to the official Undergrad Student Registration and Monitoring Platform web application link: https://----------/
3. Log in using your Assumption University credentials (student ID and password).

2.5 System Organization & Navigation

The system is organized around a main dashboard (home page) with the following navigation elements:

- **Top Navigation Bar:**
  - Login – Login to the system
  - Search bar – Search for courses.
  - Course Registration – Search and register for courses.
  - Schedule – View timetable and registered courses.
  - QR Receipt – Generate and download QR-coded registration proof.
  - Day bar – Search for courses by day.
  - Session time – Showing courses for each session.
  - Refresh – Refresh the timetable.
  - Help – Access Tutorial.pdf and FAQs.

Navigation is designed for point-and-click interaction, with mobile-friendly menus on smartphones.

2.6 Exiting the System

1. **Web Application:**

- Click the “Logout” button in the top-right corner of the screen
- Closing the browser window will also terminate the session after a short timeout.

2. Hardware Verification Module:

- Disconnect the ESP32 power supply (USB cable).
- Ensure the module is stored in a safe, dry place after use.

3. Using the System

This section provides step-by-step instructions on how to use the functions available in the Undergraduate Student Registration and Monitoring Platform. Each sub-section corresponds to a feature accessible from the main dashboard.

3.1 Overall Courses Schedule

The system allows students to view the courses schedules.

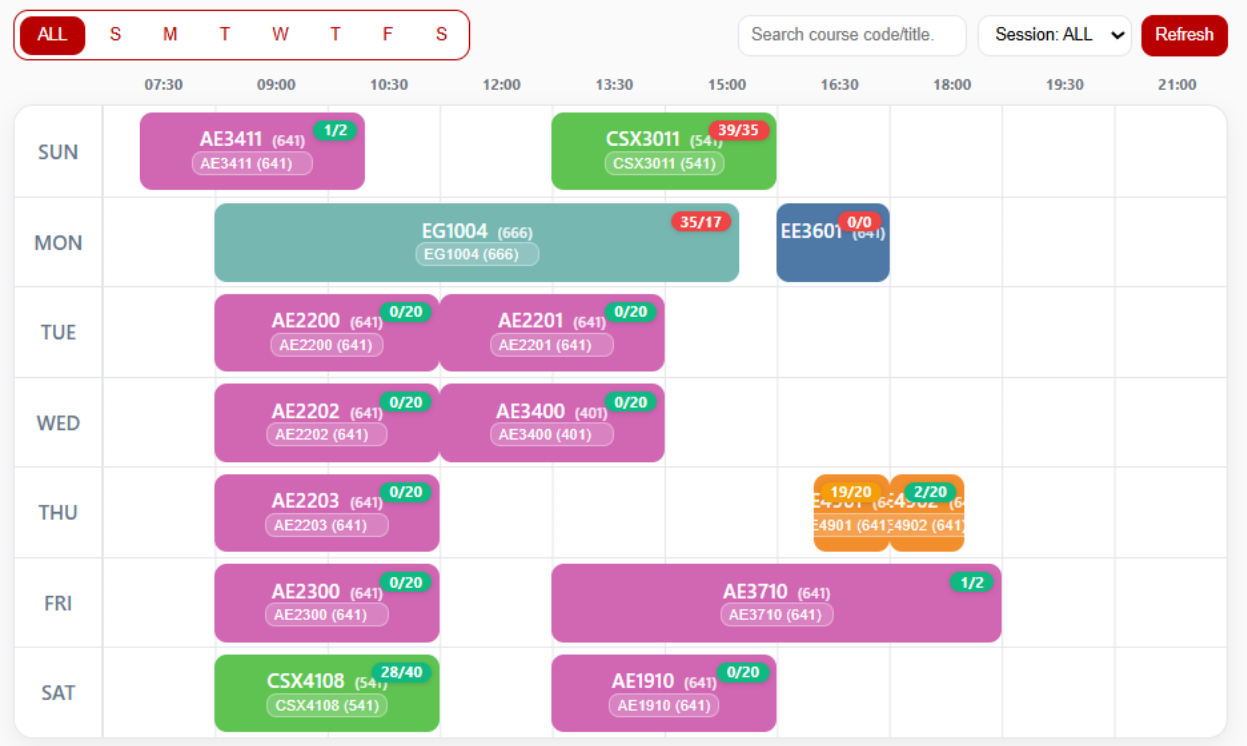
Procedure:

1. Login to the website.

Output:

- A single schedule view displaying all selected courses.
- Overlapping courses are highlighted with a conflict marker.

Figure 3-1. Summarized Schedule View



3.2 Search Box

The search box allows users to find courses by course code or title.

Procedure:

1. Enter the course code (e.g., “MCE4103”) in the search box.

2. Press Enter or click the Search icon.

Output:

- A list of matching courses is displayed on schedule.

Figure 3-2.1 Course Search Box

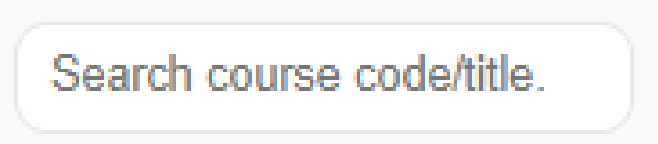
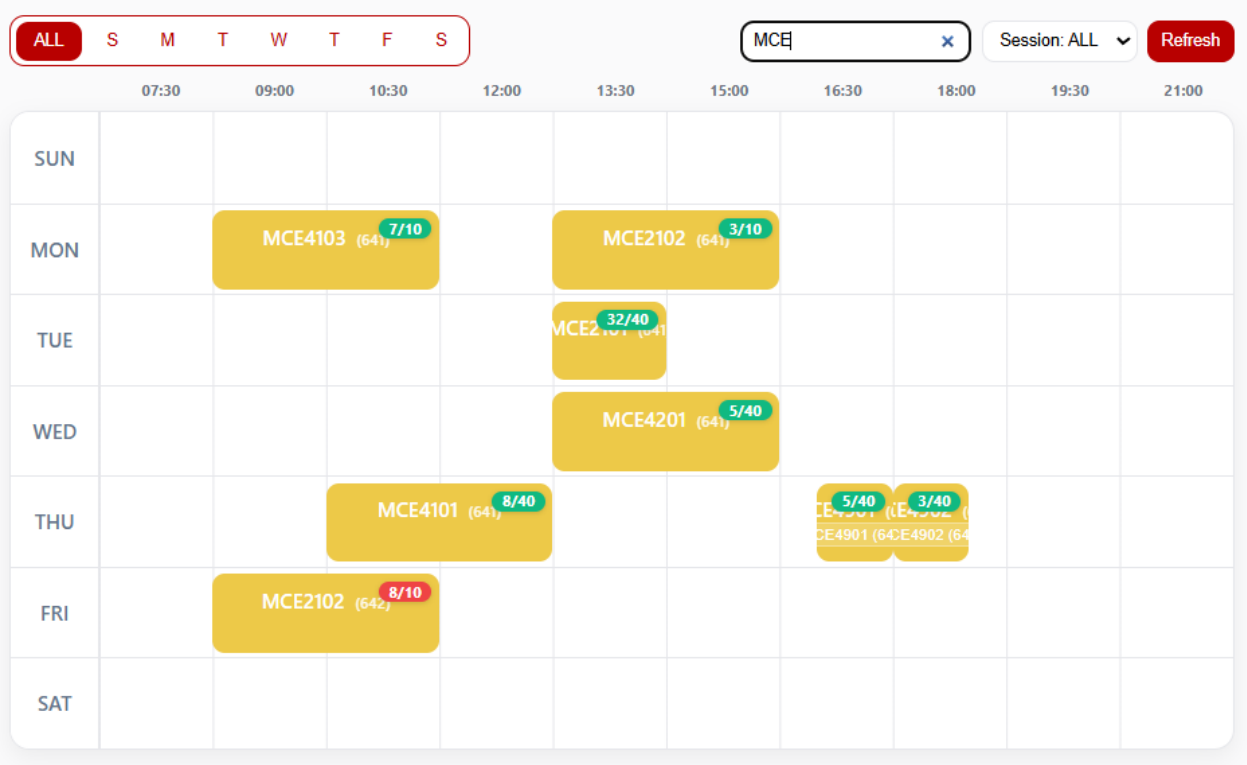


Figure 3-2.2 Course Search Example



3.3 Search by Day

Users can filter courses based on the day of the week.

Procedure:

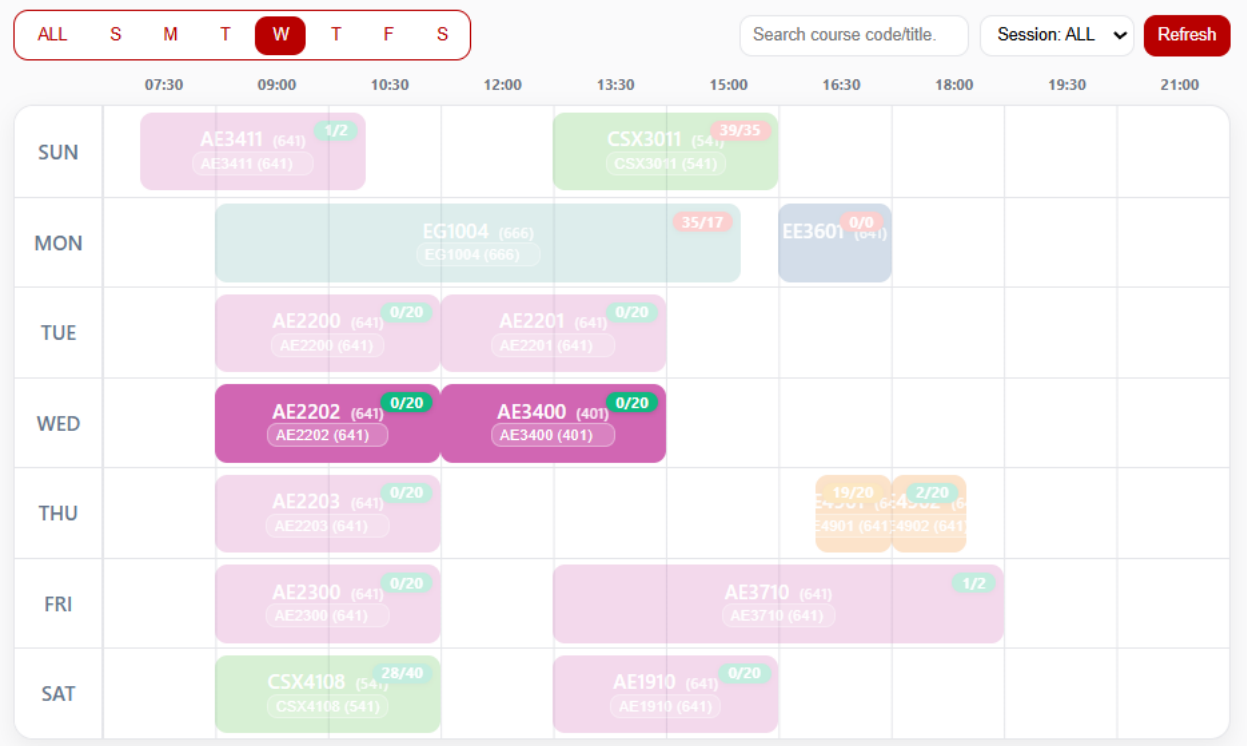
1. Select the day on the day filter on the top left of page.
2. The schedule will be updated to show only courses held on the selected day.

Output:

- Timetable filtered by chosen day.

Figure 3-3.1 Day Filter

Figure 3-3.2 Day Filter Example



3.4 Viewing Course Details

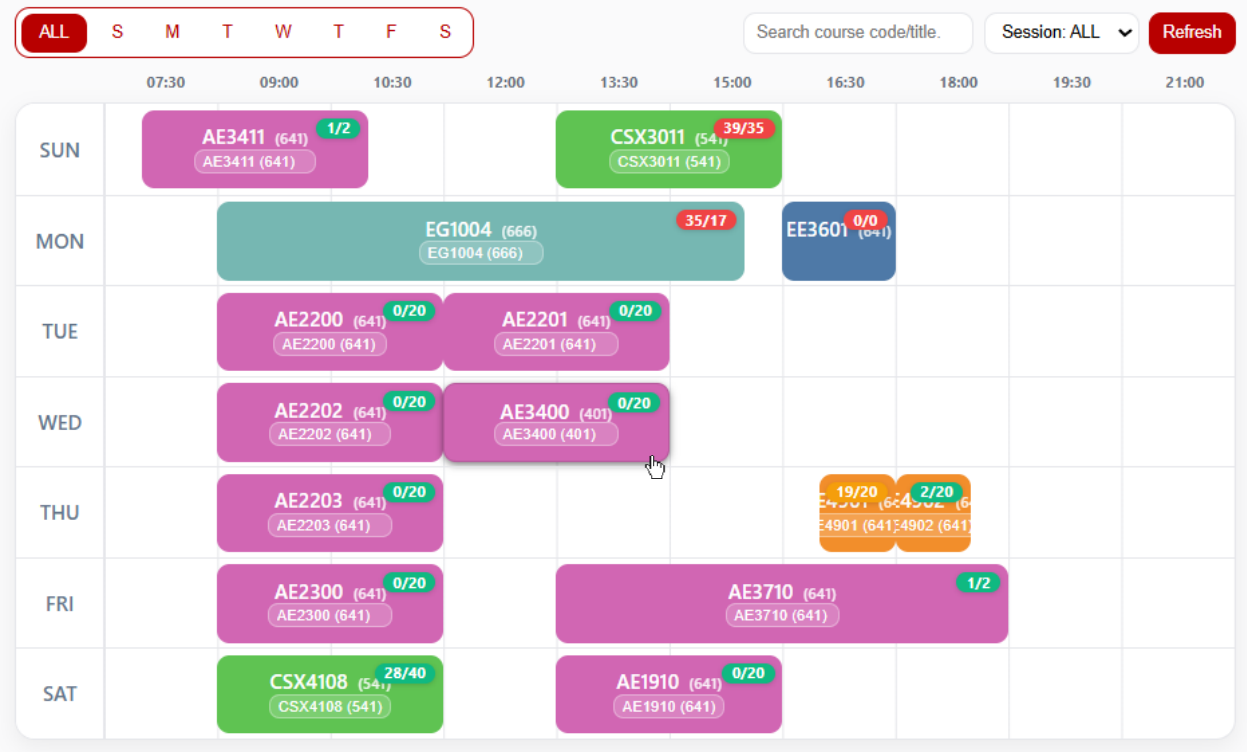
Clicking on a course block opens a Course Details.

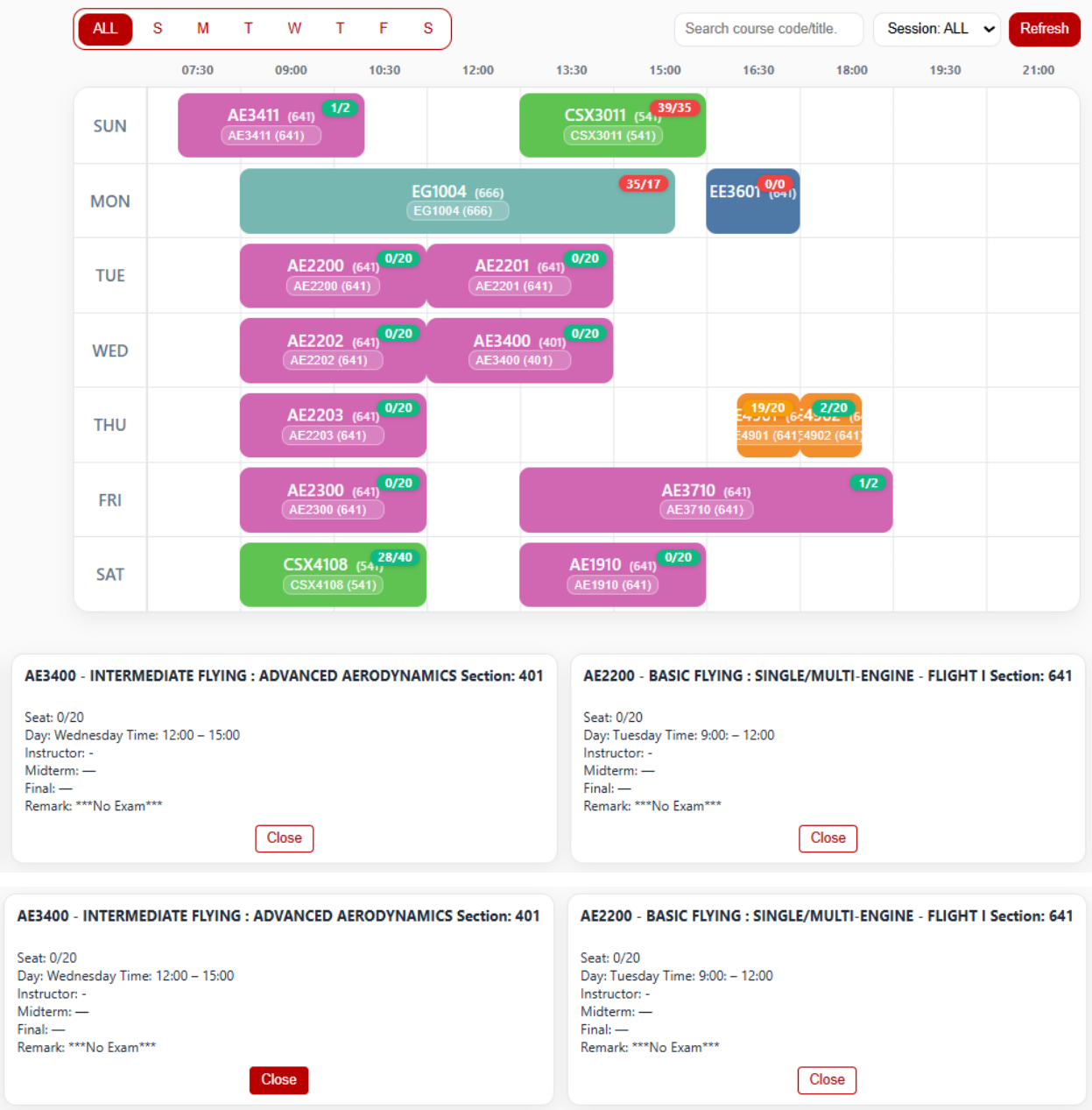
Displayed Information:

- Course code and title
- Instructor name
- Section number
- Class time and location
- Exam date and time
- Seat availability

Course Details can be closed by clicking on close button

Figure 3-4. Course Detail Example


ALL
S
M
T
W
T
F
S
Search course code/title.
Session: ALL
Refresh
07:30
09:00
10:30
12:00
13:30
15:00
16:30
18:00
19:30
21:00
SUN
AE3411 (641) 1/2
AE3411 (641)
CSX3011 (541) 39/35
CSX3011 (541)
MON
EG1004 (666) 35/17
EG1004 (666)
EE3601 0/0
TUE
AE2200 (641) 0/20
AE2200 (641)
AE2201 (641) 0/20
AE2201 (641)
WED
AE2202 (641) 0/20
AE2202 (641)
AE3400 (401) 0/20
AE3400 (401)
THU
AE2203 (641) 0/20
AE2203 (641)
19/20
2/20
FRI
AE2300 (641) 0/20
AE2300 (641)
AE3710 (641) 1/2
AE3710 (641)
SAT
CSX4108 (541) 28/40
CSX4108 (541)
AE1910 (641) 0/20
AE1910 (641)



3.5 Viewing Seat Availability

Seat availability is displayed in real-time on course block.

Procedure:

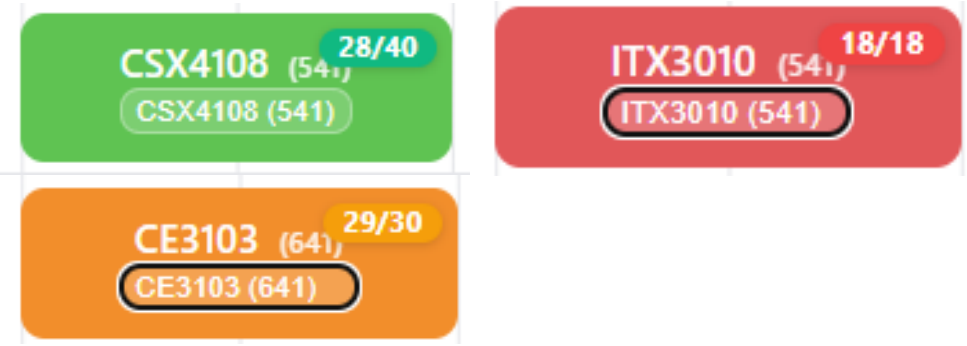
1. Search for a course or select it from the timetable.
2. Each course block shows a **seat badge** (e.g., “25/30 seats”).

Output:

- Available vs. total seats.

- Status:
    - Green: Less than Half.
    - Yellow: Nearly Full
    - Red: Full.

Figure 3-5. Seat Availability Display Example



3.6 Refreshing the Table

The system allows manual refresh to sync with the Supabase database.

Procedure:

- Click the Refresh button on the timetable view.

Output:

- Updated schedule with latest seat counts and course changes.

Figure 3-6.1 Before Click Refresh Button

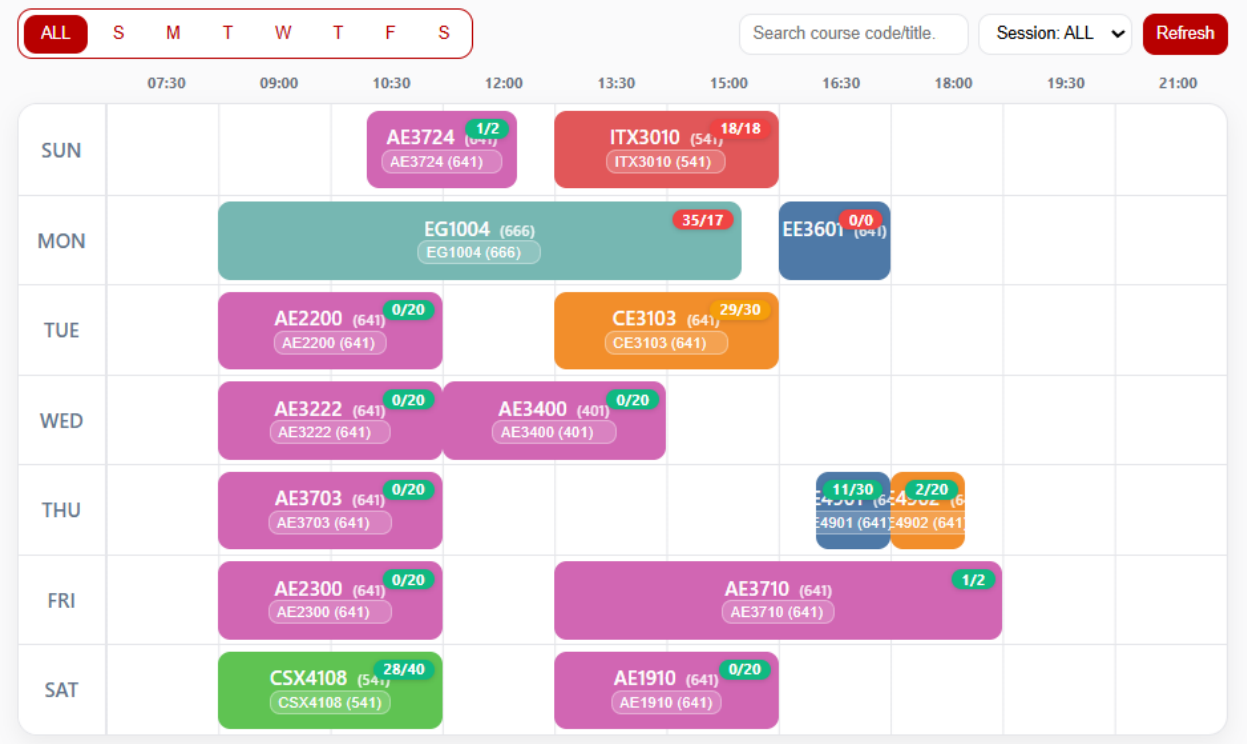
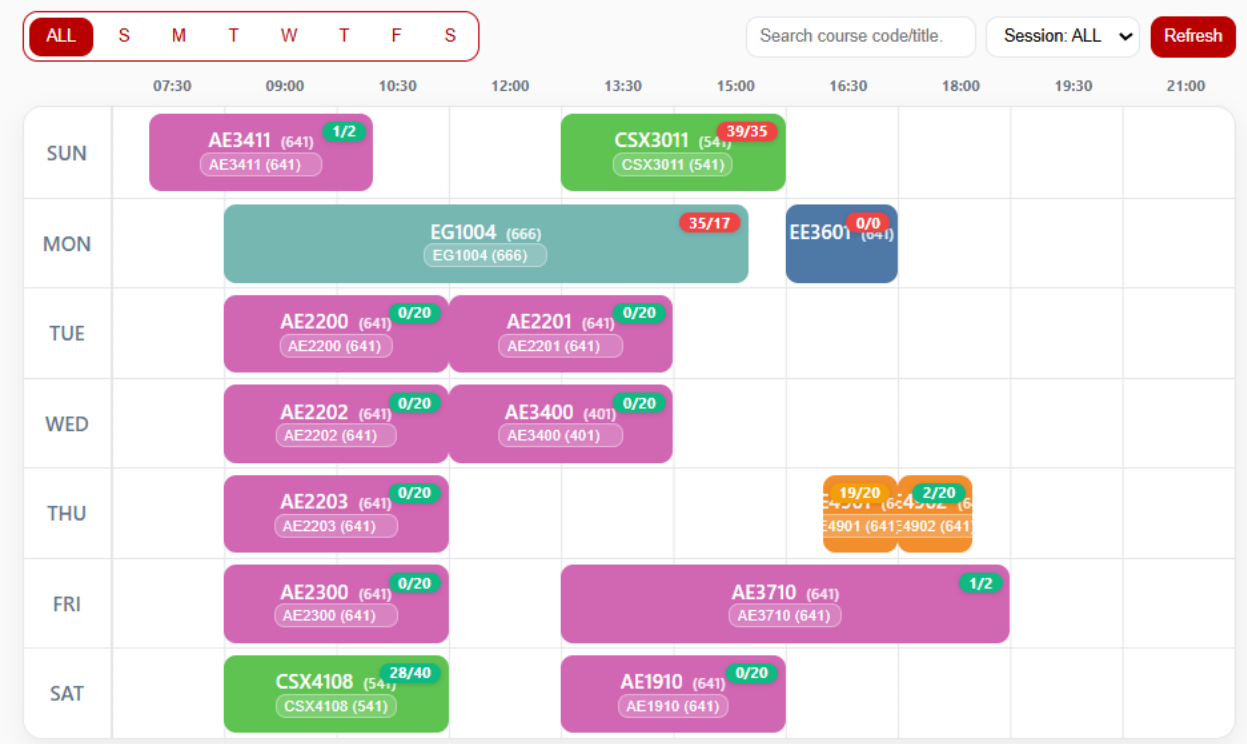


Figure 3-6.2 After Click Refresh Button



3.7 Handling Overlapping Courses (Dropdown Selection)

When there are more than two courses that overlap in time, the schedule will display one course and have a dropdown selection to show other courses.

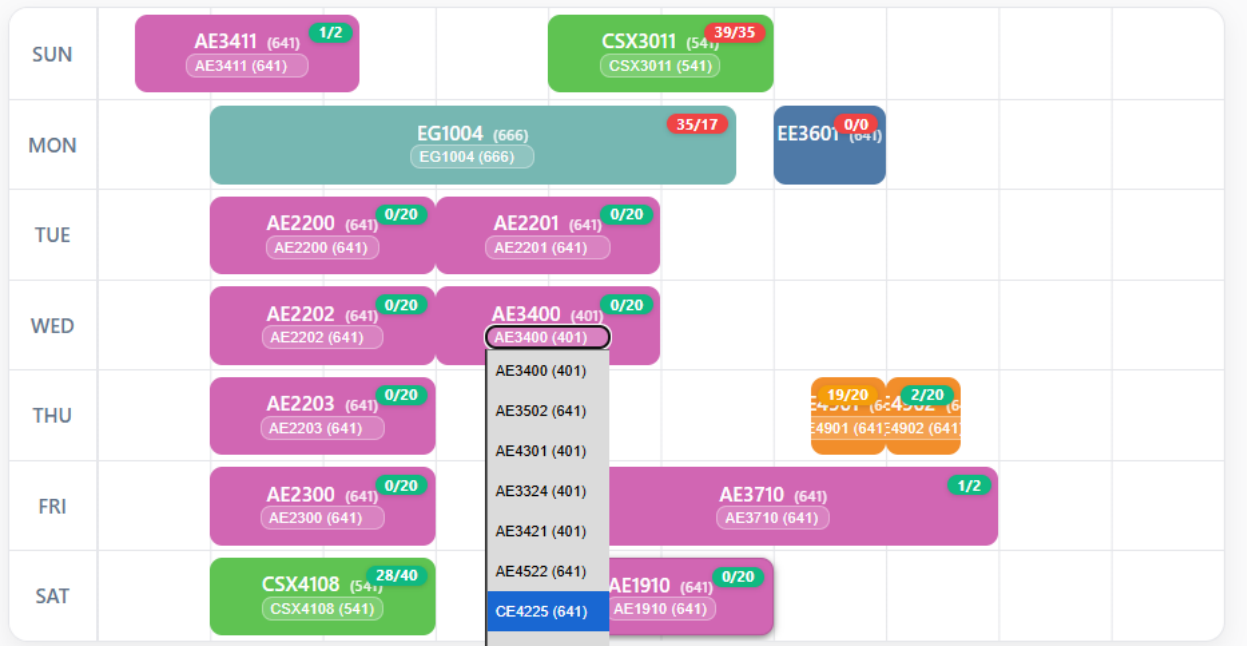
Procedure:

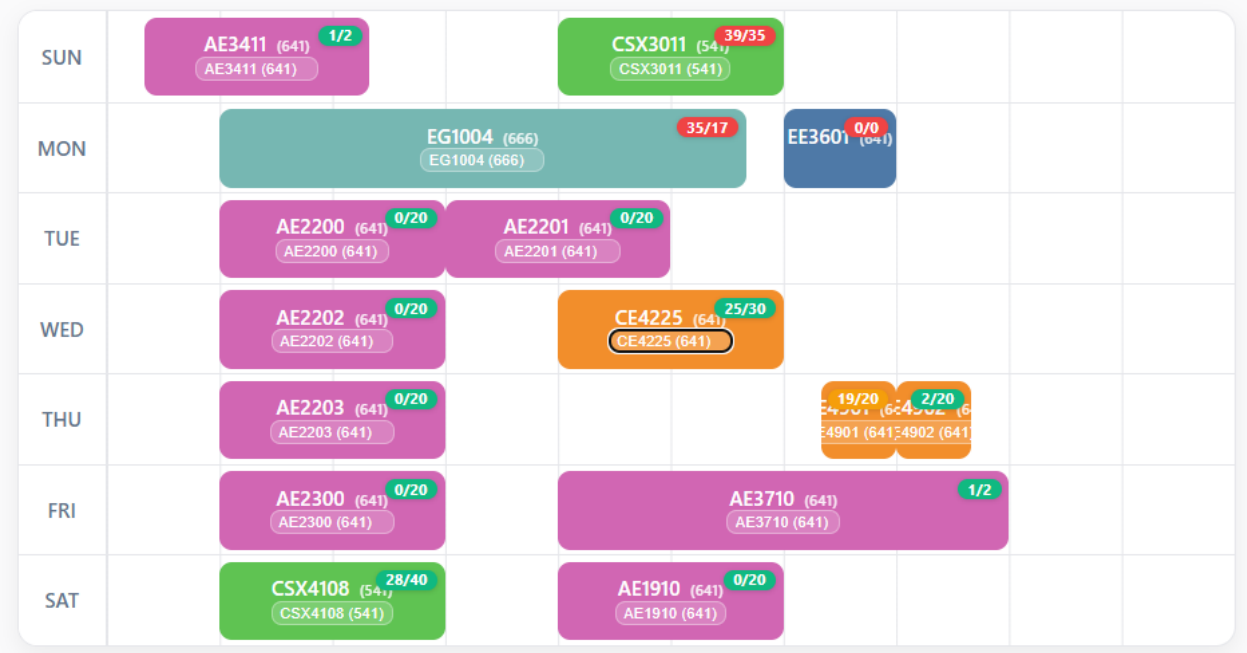
1. The schedule will display a course with dropdown selection.
2. Click on dropdown selection to select which course to display on schedule.

Output:

- Updated schedule with selected course.

Figure 3-7. Overlapping Courses Dropdown





3.8 Displaying Morning and Evening Sessions

The system allows users to toggle between **Morning Session** and **Evening Session** views.

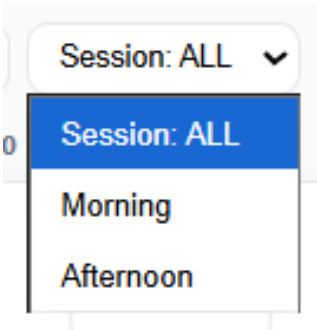
Procedure:

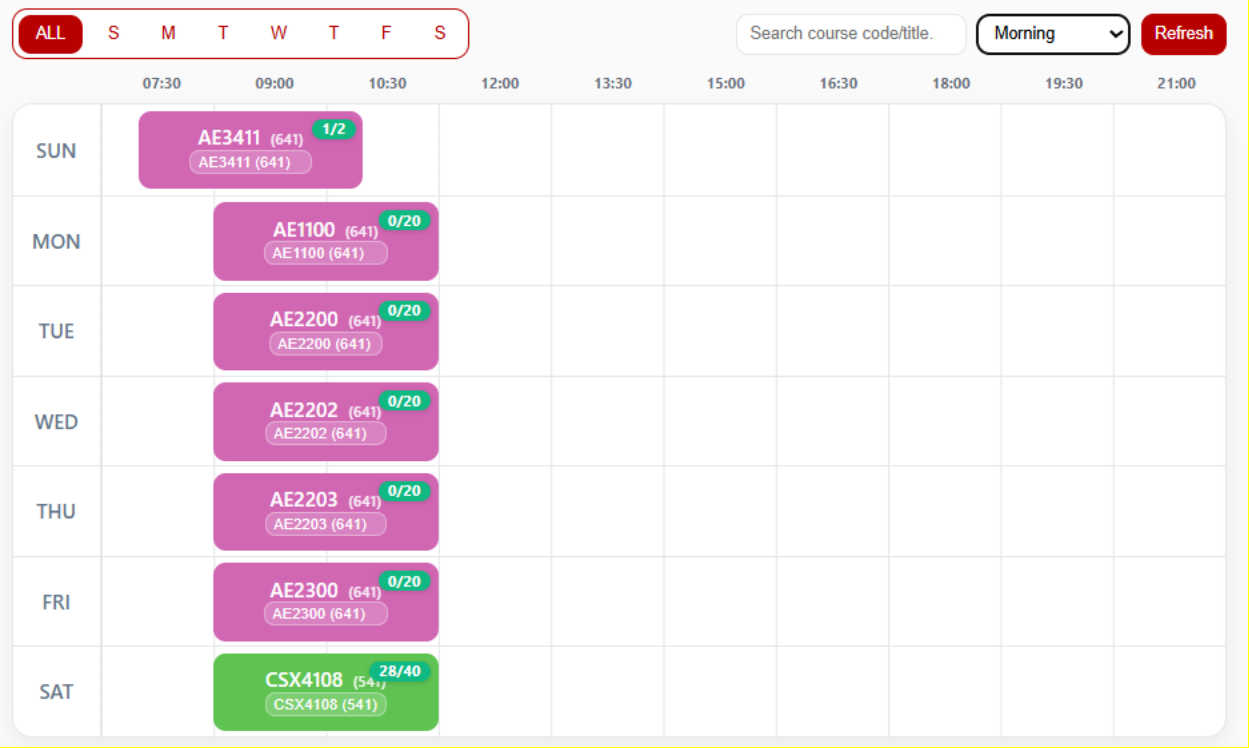
1. Select Session Filter on the top right.
2. Choose All, Morning or Evening.

Output:

- Timetable displays only the courses in the selected session.

Figure 3-8. Session Filter Dropdown




ALL
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M
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W
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F
S
Search course code/title.
Morning
Refresh
07:30
09:00
10:30
12:00
13:30
15:00
16:30
18:00
19:30
21:00
SUN
AE3411 (641) 1/2
AE3411 (641)
MON
AE1100 (641) 0/20
AE1100 (641)
TUE
AE2200 (641) 0/20
AE2200 (641)
WED
AE2202 (641) 0/20
AE2202 (641)
THU
AE2203 (641) 0/20
AE2203 (641)
FRI
AE2300 (641) 0/20
AE2300 (641)
SAT
CSX4108 (54) 28/40
CSX4108 (541)

4. Troubleshooting & Support

This section describes common error conditions that users may encounter when using the Undergraduate Student Registration and Monitoring Platform. For each issue, the possible causes and corrective actions are provided.

4.1 Error Messages

Table 1 - Error Messages

Error Message	Possible Cause	Correct Action
No Internet Connection	Device lost connection to Wi-Fi or mobile data	Check your network connection and reconnect before retrying
Failed to Load Course Data	Supabase server temporarily unreachable, or AU Spark scraping not updated	Retry after a few minutes. If persistent, contact system administrator
Invalid QR Code	QR code is damaged, expired, or not issued by the system	Request a new QR receipt from the web system and rescan
Session Timeout – Please Log In Again	User inactive for too long; security auto-logout triggered	Re-enter login credentials to continue
Schedule Conflict Detected	Attempted to register for overlapping courses	Use the dropdown selection to resolve the conflict by keeping one course
Seats Full – Registration Denied	The course section has reached maximum enrollment	Select another section or check later for seat updates
Unauthorized Access	User tried to access admin-only features or restricted data	Ensure correct role permissions

4.2 Special Considerations

Some issues may not display error messages but still affect system functionality:

- **Browser Compatibility**
  - The web application is best viewed on Chrome, Edge, or Firefox (latest versions).
  - Using outdated browsers may cause formatting errors or missing features.
- **Hardware Verification Issues**

- Poor lighting or damaged QR codes may cause the scanner to fail.
- Ensure the QR code is flat, well-lit, and undamaged before scanning.

- **Database Sync Delay**
  - In rare cases, Supabase may delay real-time updates.
  - If seats or schedules appear outdated, click Refresh on the timetable to force synchronization.
- **Multiple Device Logins**
  - Logging in from more than one device at the same time may result in session conflicts.
  - Always log out of the system when switching devices.

4.3 Support

Instructions: Provide information on how the user can get emergency assistance and system support (e.g., help desk support, production support, etc.). Include the names of the responsible personnel and organization(s), telephone numbers, and email addresses of the staff who serve as points of contact for system support. The following table is provided as an example and may be modified as needed. Also provide instructions for how identified problems with the system are to be reported. Include instructions for security incident handling, as appropriate.

Table 2 - Support Points of Contact

Contact	Organization	Phone	Email	Role	Responsibility
<Contact Name>	*<Organization>*	*<Phone>*	*<Email>*	*<Role>*	*<Responsibility>*

Appendix A: Record of Changes

Instructions: Provide information on how the development and distribution of the User Manual will be controlled and tracked. Use the table below to provide the version number, the date of the version, the author/owner of the version, and a brief description of the reason for creating the revised version.

Table 3 - Record of Changes

Version Number	Date	Author/Owner	Description of Change
<X.X>	*<MM/DD/YYYY>*	*CMS*	*<Description of Change>*
<X.X>	*<MM/DD/YYYY>*	*CMS*	*<Description of Change>*
<X.X>	*<MM/DD/YYYY>*	*CMS*	*<Description of Change>*

Appendix B: Glossary

Table 4 – Glossary

Term	Acronym	Definition
AU Spark	-	Assumption University's existing registration system platform designed for educational
ESP32	-	A microcontroller with Wi-Fi and Bluetooth capability, widely used for hardware integration and IoT application
Quick Response code	QR Code	A two-dimensional barcode that can store information like URLs, text, or other data, readable by smartphones or scanners
Universal Asynchronous Receiver-Transmitter	UART	A hardware communication protocol used for serial communication between devices, transmitting data one bit at a time asynchronously
Supabase	-	An open-source backend platform that provides database, authentication, and API services
Organic Light-Emitting Diode	OLED	A type of display technology where each pixel emits its own light, providing high contrast and low power consumption
Software Requirements Specification	SRS	A formal document that describes the expected behavior, features, and constraints of a software system, serving as a guide for development and testing

Appendix C: Referenced Documents

Instructions: Summarize the relationship of this document to other relevant documents. Provide identifying information for all documents used to arrive at and/or referenced within this document (e.g., related and/or companion documents, prerequisite documents, relevant technical documentation, etc.).

Table 5 - Referenced Documents

Document Name	Document Location and/or URL	Issuance Date
<Document Name>	*<Document Location and/or URL>*	*<MM/DD/YYYY>*
<Document Name>	*<Document Location and/or URL>*	*<MM/DD/YYYY>*
<Document Name>	*<Document Location and/or URL>*	*<MM/DD/YYYY>*