IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.311 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 13, Issue 3, March 2026

DOI: 10.17148/IARJSET.2026.13369

WEB BASED STUDENT COURSE ALLOTMENT SYSTEM

Ruthra Priyan. S[1], Dr. P. Menaka[2]

Student, Department of Information Technology, Dr. N.G.P Arts and Science College, Coimbatore[1]

Associate Professor, Department of Information Technology, Dr. N.G.P Arts and Science College, Coimbatore[2]

Abstract: The increasing number of students in educational institutions has made the process of course registration and allotment more complex and time-consuming when performed manually. Traditional manual systems often lead to several issues such as data redundancy, human errors, delays in processing, and difficulty in maintaining accurate records. To overcome these challenges, this project titled **"Web-based Student Course Allotment System"** proposes an automated solution to manage the course registration process efficiently. The system is developed as a web- based application that allows administrators to manage course details, seat availability, and prerequisite requirements through a centralized platform. Students can access the system through a secure login and select courses based on their eligibility and preferences. The system updates seat availability in real time, preventing over-enrollment in any course. It also verifies prerequisite conditions to ensure that students register only for courses they are qualified to take. By automating the course allocation process, the system reduces manual effort and improves the accuracy of data management. The web-based design enables easy accessibility and efficient communication between administrators and students. Furthermore, the system maintains a structured database that helps in storing and retrieving course and student information effectively. The implementation of this system significantly reduces processing time and minimizes administrative workload. It also improves transparency and reliability in the course registration process. Overall, the proposed system provides an efficient and reliable solution for managing course allotment in educational institutions.

Keywords: Course Allotment, Web-based System, Automated Registration, Database Management, Educational Software.

I. INTRODUCTION

In the modern academic environment, the increasing number of students and the availability of various elective courses have made the traditional manual course allotment process difficult to manage. Educational institutions often struggle with handling course registrations, managing seat availability, and ensuring fair distribution of courses among students. Manual systems require significant time and effort from administrators and are often prone to human errors and data inconsistencies. These problems can lead to confusion, delays, and dissatisfaction among students during the course registration process.

To overcome these challenges, educational institutions are gradually adopting digital systems to automate administrative activities. This project focuses on developing a **Web-based Student Course Allotment System** that acts as a digital bridge between the academic department and students. The system provides an online platform where students can view available courses and register for them easily. Administrators can manage course details, seat capacity, and prerequisites through a centralized system.

The platform ensures transparency and fairness by following allocation rules such as **first-come- first-served** or **merit-based selection**. It also prevents over-enrollment by automatically updating seat availability in real time. Additionally, the system checks prerequisite conditions before allowing students to enroll in specific courses. By automating the process, the system reduces administrative workload and improves data accuracy. The web-based design allows students and administrators to access the system from anywhere with an internet connection. Overall, this system provides an efficient, reliable, and user-friendly solution for managing course allotment in educational institutions.

II. LITERATURE SURVEY

Several studies have highlighted the importance of automation in educational management systems, particularly in course registration and allocation processes. Traditional manual systems were found to be inefficient, time-consuming, and prone to human errors. Researchers have proposed web- based and database-driven solutions to improve the efficiency

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.311 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 13, Issue 3, March 2026

DOI: 10.17148/IARJSET.2026.13369

and accuracy of course allotment. Many institutions have implemented online registration systems that allow students to select courses through digital platforms. These systems help reduce administrative workload and improve data management. Studies also emphasize the use of centralized databases to maintain student and course records securely. Some research suggests implementing algorithms for fair course allocation based on merit or availability. Other studies focus on preventing scheduling conflicts and over-enrollment through automated validation mechanisms. Web-based platforms have also been found to increase transparency and accessibility for both students and administrators. Overall, previous research supports the development of automated course allotment systems to enhance the efficiency of academic administration.

III. PROBLEM STATEMENT

In many educational institutions, the process of course registration and allotment is still carried out manually or with limited digital support. This traditional approach becomes difficult to manage when the number of students and available elective courses increases. Manual systems require significant time and effort from administrators and often lead to delays in processing student registrations. In addition, students may not have clear information about course availability, prerequisites, or seat limits, which creates confusion during the selection process. The lack of an organized system can also lead to unfair course allocation and dissatisfaction among students.

The existing system faces several challenges that highlight the need for an automated solution. The major problems include:

1. Time-consuming manual registration process.
2. High chances of human errors in data entry and record keeping.
3. Difficulty in managing a large number of students and course data.
4. Lack of real-time information on course seat availability.
5. Possibility of over-enrollment in popular courses.

IV. PROPOSED SYSTEM

A. Overview

The proposed system is a **cloud-ready web application** designed to automate and manage the entire process of course registration and allotment in educational institutions. It replaces the traditional manual process with an efficient digital platform that handles every stage of course allocation. The system covers the complete lifecycle of course management, starting from course creation by administrators to the final generation of course allotment slips for students.
Through this system, administrators can easily create, update, and manage course details such as course name, course code, seat capacity, and prerequisite requirements. Students can log into the platform, view available courses, check eligibility conditions, and submit their enrollment requests through a user-friendly interface. The system automatically processes these requests by checking seat availability and prerequisite requirements before confirming the enrollment.
Since the system is designed to be cloud-ready, it allows institutions to store and manage data securely while enabling access from multiple locations. This ensures flexibility, scalability, and reliability in managing large numbers of students and courses. By automating the course allotment process, the system reduces administrative workload, minimizes human errors, and ensures transparency and fairness in course allocation.

B. System Architecture

The proposed system follows a **3-Tier Architecture**, which separates the application into three independent layers. This structure improves system performance, maintainability, and scalability.

1. Presentation Tier (Frontend)

The Presentation Tier represents the user interface of the system. It is responsible for interaction between the user and the application. Students and administrators access the system through a web browser where they can perform tasks such as logging in, viewing course lists, and registering for courses.Technologies such as **HTML5, CSS3, and JavaScript** are used to design the interface, while modern frameworks like **React or Angular** can be used to create responsive and interactive web pages. This layer ensures that the system is easy to use and visually organized.

IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.311 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 13, Issue 3, March 2026

DOI: 10.17148/IARJSET.2026.13369

2. LogicTier(Backend)

The Logic Tier handles the **business logic and processing operations** of the system. It receives requests from the presentation layer and performs necessary operations such as validating student credentials, checking course capacity, verifying prerequisites, and processing course registration. Backend technologies such as **Node.js, Python (Django/Flask), or PHP** can be used to develop this layer. The backend ensures that all system rules are properly applied before confirming a course allotment.

3. Data Tier (Database Layer)

The Data Tier is responsible for storing and managing all the information related to students, courses, registrations, and administrative data. Databases such as **MySQL or PostgreSQL** are used to maintain structured and secure records. This layer allows efficient storage, retrieval, and updating of data, ensuring that course and student information is always accurate and up to date.

C. Module Description

The proposed system consists of several functional modules, each responsible for handling a specific part of the course allotment process.

1. Admin Module

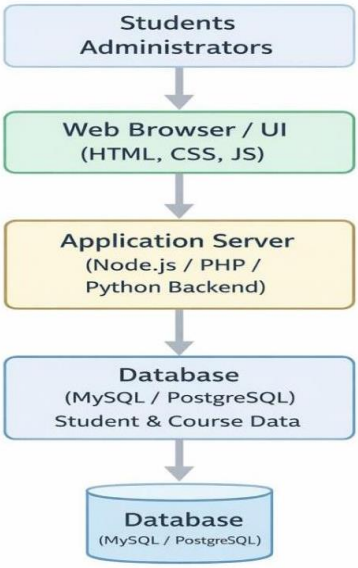
The Admin Module allows administrators to manage the entire course allotment system. Administrators can create new courses, edit course details, delete courses, and set the maximum number of students allowed for each course. They can also monitor student registrations and generate reports related to course allotments and student enrollment.

2. Student Module

The Student Module provides an interface where students can log in and view the list of available courses. Students can check course descriptions, prerequisites, and seat availability before selecting their desired courses. After selecting a course, they can submit an enrollment request through the system.

3. Authentication Module

The Authentication Module ensures secure access to the system. Both students and administrators must log in using their unique credentials. Passwords are stored securely using encryption methods such as **Crypt**, which protects user information and prevents unauthorized access.



IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.311 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 13, Issue 3, March 2026

DOI: 10.17148/IARJSET.2026.13369

4. Validation Engine

The Validation Engine is responsible for verifying the conditions before confirming course allotment. It checks whether the selected course has available seats, whether the student satisfies prerequisite requirements, and whether there are any timetable conflicts. If all conditions are satisfied, the system confirms the course enrollment and updates the database accordingly.

V. SYSTEM FLOW

1. Login

The process starts when the user (student) opens the web application and enters login credentials such as username and password. The system authenticates the user to ensure secure access.

2. Dashboard

After successful login, the student is directed to the dashboard where a list of available and eligible courses is displayed along with course details and seat availability.

3. **Course Selection**

The student reviews the courses and selects the preferred course. The student then submits the course request by clicking the **"Submit"** button.

4. Verification

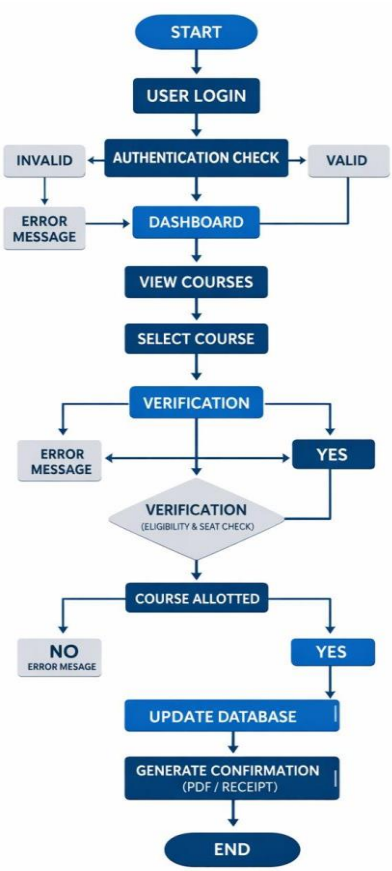
The system verifies the request by checking whether the student satisfies the prerequisite requirements and whether there are vacant seats available in the selected course.

5. Allotment

If the student is eligible and seats are available, the system confirms the allotment and updates the database. If the course is full or the student is not eligible, an error message is displayed.

6. Confirmation

After successful allotment, the system generates a confirmation message and a **PDF or digital receipt** that the student can download for future reference.



IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

Impact Factor 8.311 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 13, Issue 3, March 2026

DOI: 10.17148/IARJSET.2026.13369

VI. RESULT AND DISCUSSION

The developed **Web-based Student Course Allotment System** was tested to evaluate its performance, efficiency, and reliability. During the testing phase, the system successfully handled multiple concurrent user requests without any data collisions or system failures. This shows that the system can support many students accessing the platform at the same time. The system maintained stable performance and ensured accurate course seat allocation. One of the major improvements observed was the increase in efficiency. In the traditional manual method, the course registration process took approximately **15 minutes per student** due to paperwork and administrative verification. With the implementation of the web-based system, the registration time was reduced to **less than 2 minutes per student**. This significantly improved the speed and convenience of course registration. The system also ensured high accuracy in managing enrollments. Through the use of **database constraints and validation mechanisms**, duplicate course registrations were completely prevented. As a result, the system achieved a **0% duplicate enrollment rate** during testing. Additionally, the system prevented over-enrollment by automatically checking seat availability before confirming a course allotment. Students were able to view real-time course availability and eligibility requirements. Administrators could easily manage course data and generate reports. Overall, the results demonstrate that the system improves efficiency, accuracy, and transparency in the course allotment process.

VII. CONCLUSION

The **Web-based Student Course Allotment System** successfully replaces the traditional manual registration process with a fast, reliable, and secure digital platform. The system eliminates the need for tedious paperwork and significantly reduces the time required for course registration. By automating the course allotment process, it improves efficiency and ensures accurate management of student and course data. Students can easily view available courses, check eligibility requirements, and select courses through a user-friendly interface.

The system also provides transparency and fairness in course allocation by automatically checking seat availability and prerequisite conditions. This helps prevent issues such as over-enrollment and duplicate registrations. Administrators can efficiently manage course details, monitor student enrollments, and generate useful reports through the system. The centralized database ensures proper storage and retrieval of data, improving overall data management and reliability.

Additionally, the system enhances communication between students and administrators by providing real-time information about courses and registration status. It empowers students by giving them greater flexibility in selecting their courses. Overall, the **Web-based Student Course Allotment System** makes the academic registration process smoother, more efficient, and more organized for educational institutions.

REFERENCES

[1]. Padia, A., & Santani, V. (2021). *Course Registration System*. International Research Journal of Engineering and Technology (IRJET), 8(4).

[2]. Gupta, I., Diwakar, M., & Jain, A. (2023). *Development of Online Course Registration Management System*. Elementary Education Online Journal.

[3]. Das, K. L., Peeraiah, G., Akash, K., Paswan, U. K., & Nayak, S. (2023). *Student Information System*. International Journal of Engineering Research and Technology (IJERT).

[4]. Makkaraka, A. M. R. B., Iskandar, A., & Yang, W. (2024). *Design of Web-Based Student Academic Information System*. Ceddi Journal of Education.

[5]. Ahmad Puad, A. F., Samingan, M. R., & Khatibsyarbini, M. (2024). *Interactive Course Registration System with Visualized Timetable*. International Journal of Innovative Computing.

[6]. Ali, I., Faizah, N. M., Nurcahyo, W., & Fabrianto, L. (2024). *Web-Based Student Course Registration System using the Extreme Programming Method*. Jurnal Mandiri IT.