# NUBTK-CSE Website: An Educational Institute Management System

by

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**CSE 11200120483**

A project submitted in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering

Department of Computer Science and Engineering

Northern University of Business and Technology Khulna

Khulna 9100, Bangladesh

**June, 2024**

# DECLARATION

This is to certify that the Project Work entitled **"NUBTK-CSE Website: An Educational Institute Management System"** has been carried out by **Md Zamil Raihan** in the department of **Computer Science and Engineering**, Northern University of Business & Technology Khulna, Bangladesh. The above Project Work or any part of this report has not been submitted anywhere for the award of any degree or diploma.

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# Approval

This is to certify that the project work submitted by **Md Zamil Raihan** entitled "NUBTK-CSE Website: An Educational Institute Management System" has been approved by the board of examiners for the partial fulfillment of the requirements for the degree of Bachelor of Science in the Department of Computer Science and Engineering, Northern University of Business and Technology Khulna, Khulna 9100, Bangladesh in June, 2024.

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# ACKNOWLEDGEMENT

I want to begin by thanking Allah for guiding me through all difficulties, for granting me strength in moments of weakness, and for blessing me with the perseverance to achieve my goals.

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Md Zamil Raihan

June, 2024

# Abstract

The "NUBTK-CSE Website: An Educational Institute Management System" is a web-based application specially made for the students and teachers of CSE department of Northern University of Business and Technology, Khulna. CSE is the largest department of this university. So, sometime it gets difficult to maintain connection between students and teachers outside of the classroom. In this website students can find all teachers information. So if a student wants, he or she can contact with the teachers. Also, teachers can manage all the courses assigned under him or her. They can also upload necessary resources, pdf, books for the course. Teachers can also post news under a specific course for some specific student. Students can all available departmental courses here. They can download there necessary study equipment from here too. Also they can give feedback for a specific teacher on a specific course. There is a notice board part for overall all students. Where all important notices are being shown.

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# CHAPTER I

# Introduction

## 1.1 Introduction

“NUBTK-CSE Website” is An Educational Institute Management System designed for CSE Department of Northern University of Business and Technology, Khulna. It aims to increase communication between students and teachers outside the classroom. The platform provides comprehensive faculty information, allowing students to easily interact with faculty members. Teachers can manage their assigned courses, upload resources, and post course-specific news. Students can access departmental courses, download study materials, and provide feedback on courses and instructors. By centralizing information and facilitating interaction, NUBTK-CSE Website streamlines educational management and improves the overall learning experience.

I developed this project using Laravel for the CSE department. It allows students to browse courses, access materials, and manage their educational resources through a cart system. The platform supports user authentication, online payments, and order tracking. By centralizing course management and facilitating communication, NUBTK-CSE Website aims to enhance the learning experience for CSE students and faculty..

## 1.2 Motivation

The "NUBTK-CSE Website" was created to help the CSE department at Northern University of Business and Technology, Khulna. Since it's the largest department, it's sometimes hard for students and teachers to stay connected outside of class. This website makes it easier for everyone to communicate and share resources. Students benefit from downloading required study resources and providing course and instructor feedback. A notice board keeps everyone informed about important departmental announcements.

Our goal is to make education smoother and more effective for both students and teachers. By bringing everything into one place, "NUBTK-CSE Website" helps everyone stay connected and organized, making the educational journey better for all.

### 1.3 Objectives

The objectives of the "NUBTK-CSE Website" is to simplify the relationship between students and teachers. The application intends to achieve the following objectives:

- The website "NUBTK-CSE Website" aims to improve communication between students and teachers outside the classroom. It provides a central place where students can easily find information about their courses, teachers and department news.
- For students, it is designed for easy access to study materials like books and PDFs They can also provide feedback on their courses and teachers, which helps make things better over time.
- Teachers benefit from being able to manage their courses efficiently. They can upload materials and quickly update students on any changes or news related to their course.
- The website encourages student participation through features such as a notice board where important announcements are shared. This helps everyone stay informed about what is happening in the department.
- Overall, "NUBTK-CSE Website" aims to support academic success by making communication clearer, resources more accessible, and the overall learning experience smoother for everyone involved..
- Admin will supervise and regulate every action on the system.

### 1.4 Chapter Overview

**Chapter I:** We will discuss about the background and motivation of this project.

**Chapter II:** We will discuss about the related works like this project.

**Chapter III:** Here, we'll explain the steps taken, including the choice of language and how the project was carried out.

**Chapter IV:** This chapter we focus on the project’s outcome, limitations and future work.

**Chapter V:** Here, We’ll explain a clear conclusion and recommendations about the project.

# CHAPTER II

# Related Works

In order to make this type of website, First I had to visit some same kind of website to get ideas. I used Stack Overflow to solve technical problems and websites like GitHub to access open-source code repositories. These platforms provide invaluable resources and support, significantly improving the deployment of various features and ultimately improving the user experience.

## 2.1 Brac University Website (CSE Part)

"BRAC University Website" [1] is a similar website. In the part of Computer Science and Engineering department website offers detailed information about their Bachelor of Science in Computer Science program. It includes curriculum details, admission criteria, faculty profiles, and research opportunities. The site serves both prospective students and current enrollees with essential resources like academic calendars and course schedules, showcasing the department's commitment to quality education and research in computing.

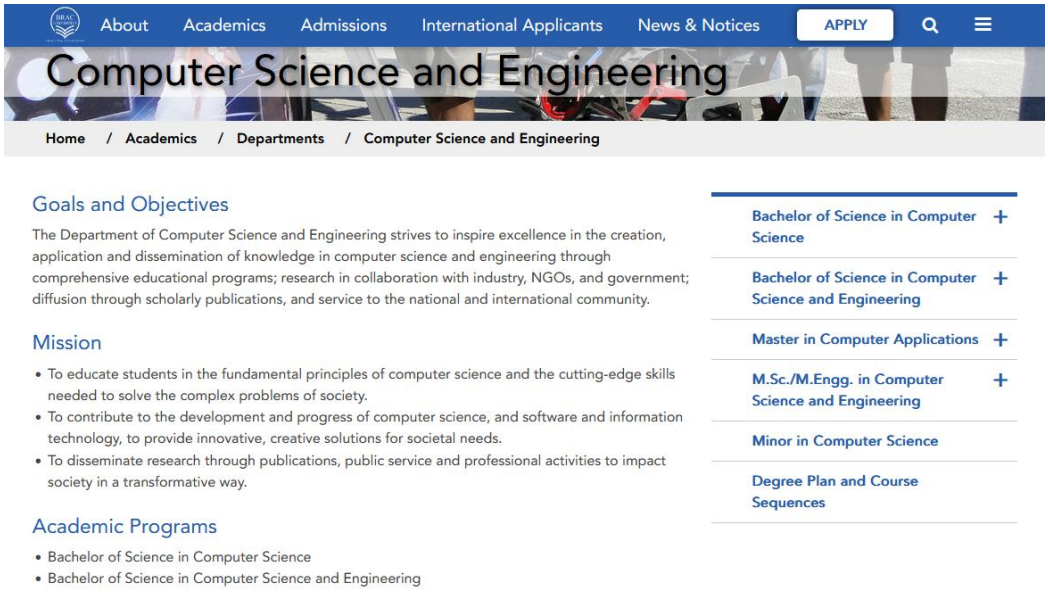


**Fig. 2.1:** Brac University Website

## 2.2 Google Classroom

"Google Classroom" [2] provides educators and students with a streamlined digital learning environment. It facilitates seamless communication, assignment distribution and collaboration within a centralized hub. Teachers can easily create, distribute, and grade assignments while maintaining organized class materials. Students benefit from simplified access to functionality, resources and announcements, promoting efficient learning and engagement. With its intuitive interface and integration with Google Workspace tools, Google Classroom supports modern educational practices, improving both teaching effectiveness and student learning outcomes.

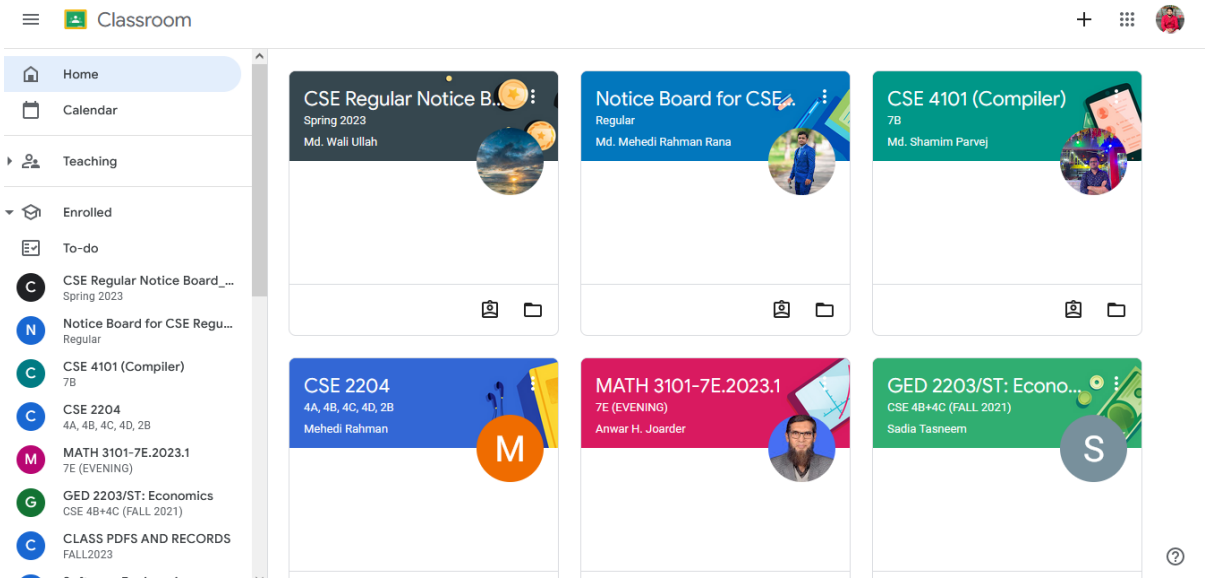


**Fig. 2.2** Google Classroom Website

# CHAPTER III

# Methodology

## 3.1 Language Selection

In developing "NUBTK-CSE Website: An Educational Institute Management System", the choice of PHP Laravel as the core technology is important to ensure efficiency and scalability. Laravel's reputation as a powerful framework with extensive features provides a solid foundation for building a reliable learning management system. [3]

PHP's inherent flexibility seamlessly integrates with Laravel, enabling the development of synergistic and expressive code needed to effectively handle a variety of educational functions. This combination ensures that the platform can handle complex tasks such as course management, resource sharing and student-teacher interaction with ease. [4]

Laravel's ecosystem significantly increases development efficiency by streamlining the integration of essential features critical to educational operations. For example, its built-in support for localization facilitates multiple language deployments, making educational resources accessible to different user bases in different regions.

Security is a top priority in Laravel, offering strong protection against common vulnerabilities like XSS attacks. This ensures that sensitive user data, such as personal information and academic records, is secure and compliant with industry standards. Administrators and users alike benefit from the peace of mind that comes from knowing their data is secure.

Leveraging the security, scalability and productivity features of Laravel, "NUBTK-CSE Website" aims to provide a powerful and user-friendly platform that enhances the educational experience for students and streamlines administrative tasks for faculty.

"NUBTK-CSE Website" uses PHP Laravel to streamline course management, resource sharing and secure communication. With multiple language support and robust security measures, it enhances the educational experience and efficiency for students and teachers.

### 3.2 Project Procedure

#### 3.2.1 Data Flow Diagram of the Project

Data flow diagrams, also known as DFDs, visually depict the flow of data within a business information system. They map the steps involved in moving data from input sources through storage to report generation. DFDs are categorized into logical and physical representations, each illustrating different aspects of how data is moved and processed within the system.

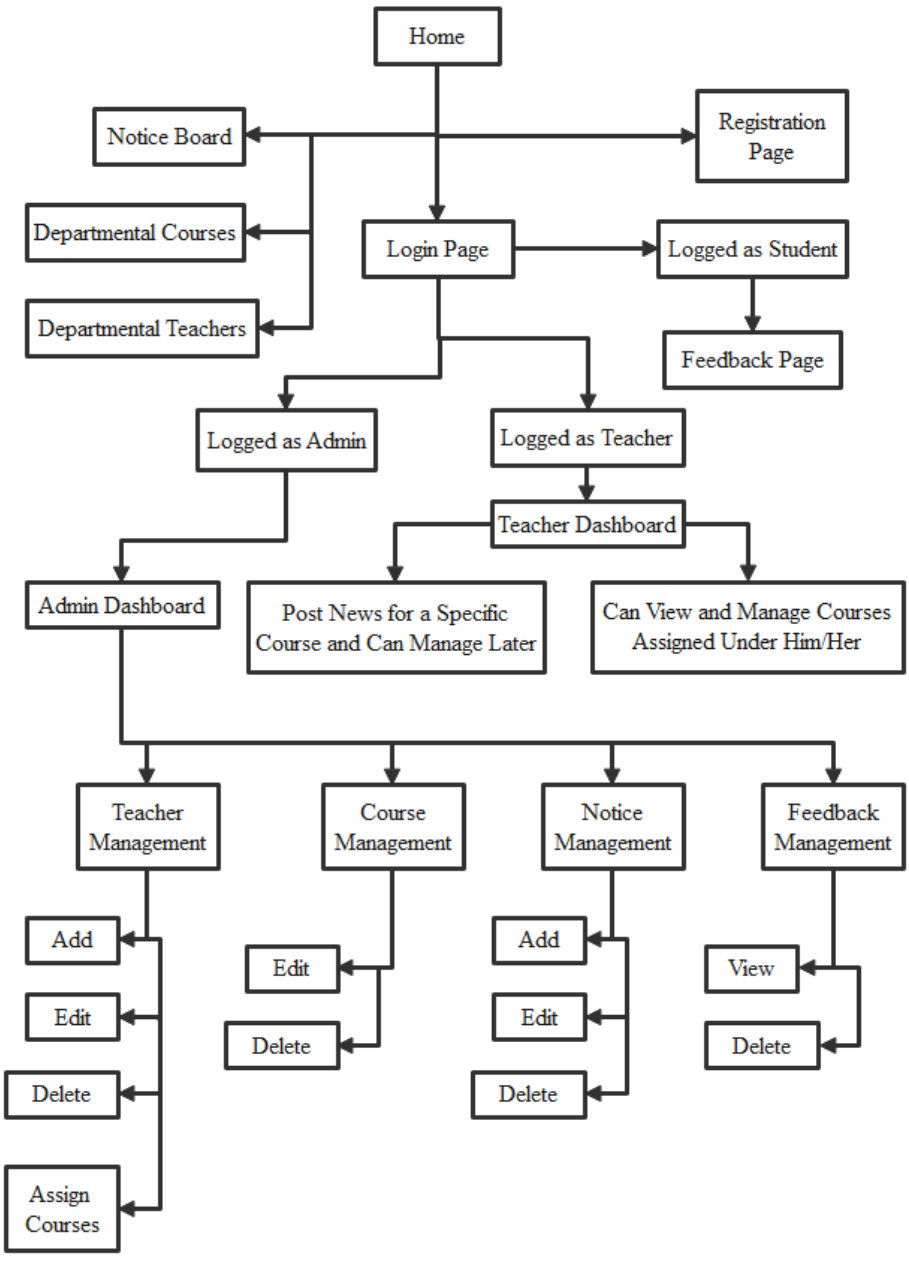


**Fig. 3.1:** Data Flow Diagram of NUBTK-CSE Website

### 3.2.2 ER Diagram of the Project

An entity relationship (ER) diagram serves as a visual representation, similar to a flowchart, depicting the relationships between different entities within a system. This entity can represent a person, object, or concept. ER diagrams are widely used in software engineering, business information systems, education, and research for relational database design and problem solving. They provide a clear overview of how various entities interact and relate to each other, facilitating efficient organization and management of data within complex systems.

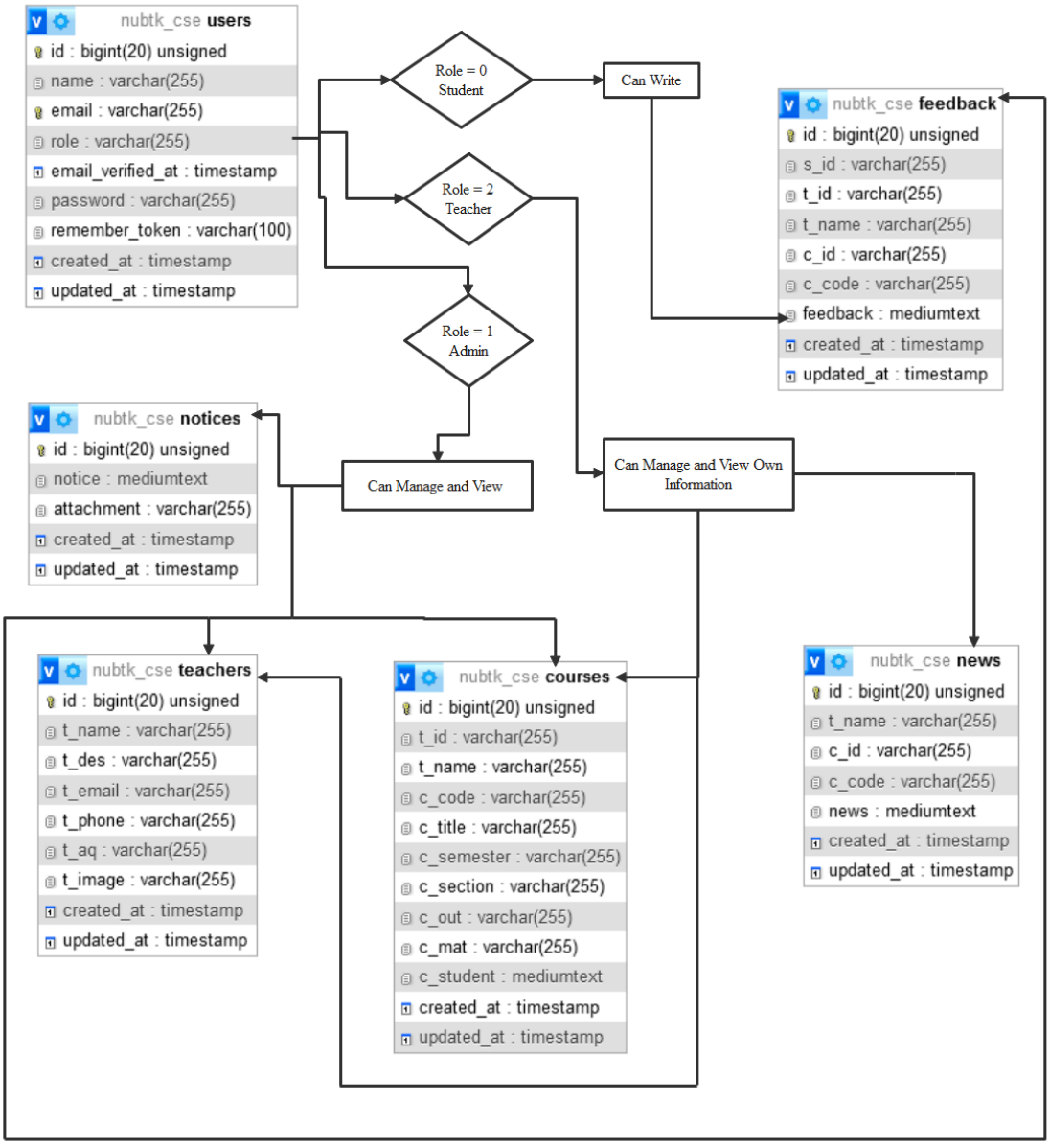


**Fig. 3.2:** ER Diagram NUBTK-CSE Website

# CHAPTER IV

## Results and Discussion

### 4.1 Result:

"NUBTK-CSE Website: An Educational Institute Management System" uses the Laravel framework to enhance functionality, efficiency and ensure a user-friendly interface. It includes secure order placement, seamless payment gateway, efficient offer management, and detailed order tracking, built on a clean codebase and MVC architecture. This approach ensures reliability and efficiency, especially with its real-time features that significantly improve the customer experience.

### 4.2 General Section

#### 4.2.1 Homepage

The home page of "NUBTK-CSE Website" website shows the details explanation of this department. User can find out detail information about department of CSE of Northen University of Business and Technology, Khulna. In right side we can see some latest notice, departmental course title and teachers' name.

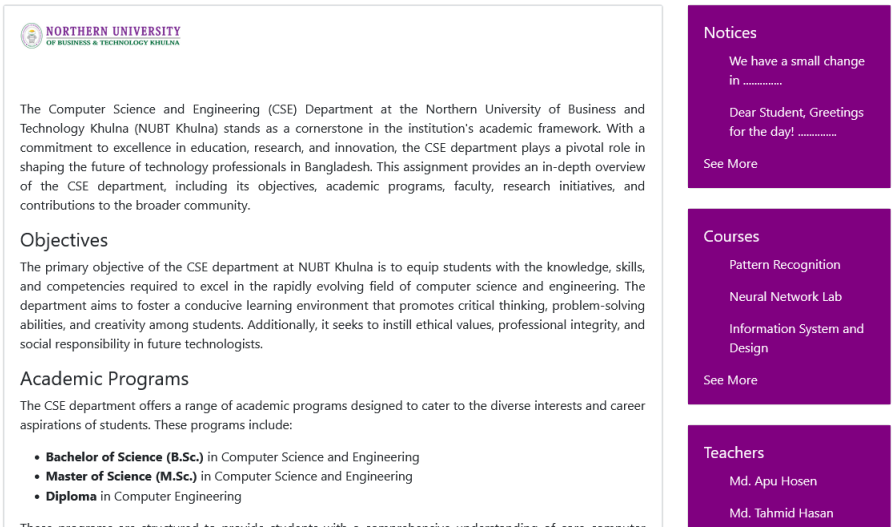


**Fig 4.1:** Homepage

User can click on a notice, It'll open a popup window and shows the full notice.

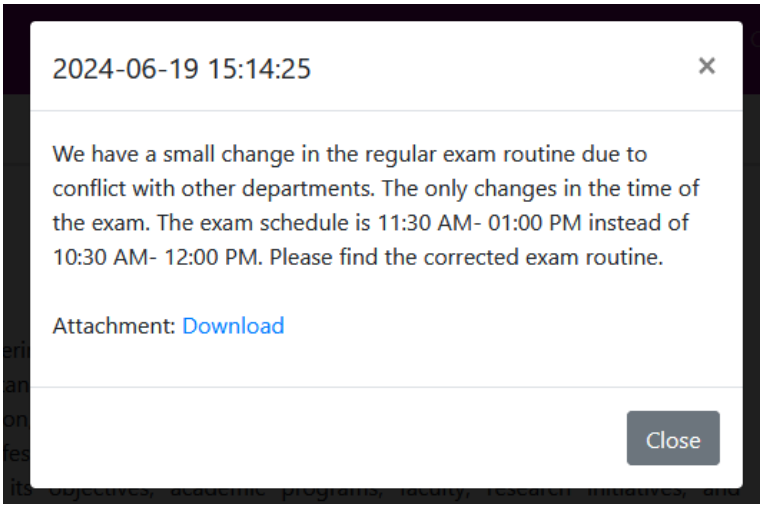


**Fig. 4.2:** Notice Popup Window

If user clicks on a course title, It'll open a popup window and shows detail information about that course.

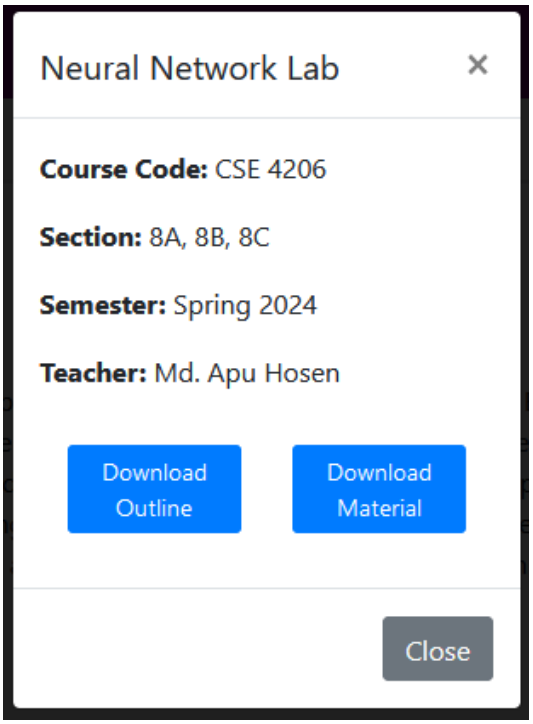


**Fig. 4.3:** Course Popup Window

If user clicks on a teacher name, It'll open a popup window and shows his/her information.

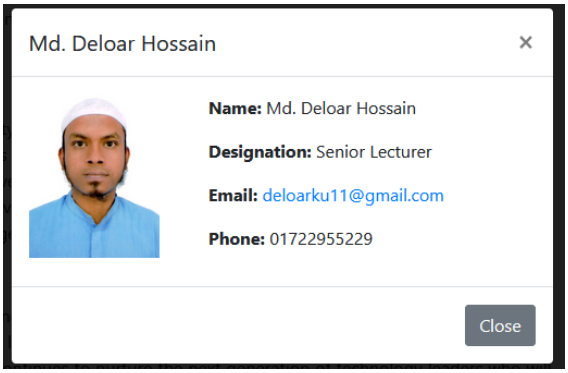


**Fig. 4.4:** Teacher Information Popup Window

By clicking one of the food categories, users can also view the available food product available in the category. They can also see their ratings and reviews by clicking the picture or title of the category product if exist.

### 4.2.2 Header and Footer Section

Here we can see header section at the top of the page which helps users to navigate and access necessary pages. It also contains our page logo at the beginning.

**Fig. 4.5:** Header Section

The footer section contains address of our university. Also It contains the Admin Panel and Teacher Profile.

**Fig. 4.6:** Footer Section

### 4.2.3 Departmental Courses Page

Here users and students can see all information about all departmental courses. They can also download course outline and material also can see which teacher is taking which course. They can use the search engine to search by Course Code, Course Title, Teacher's Name.

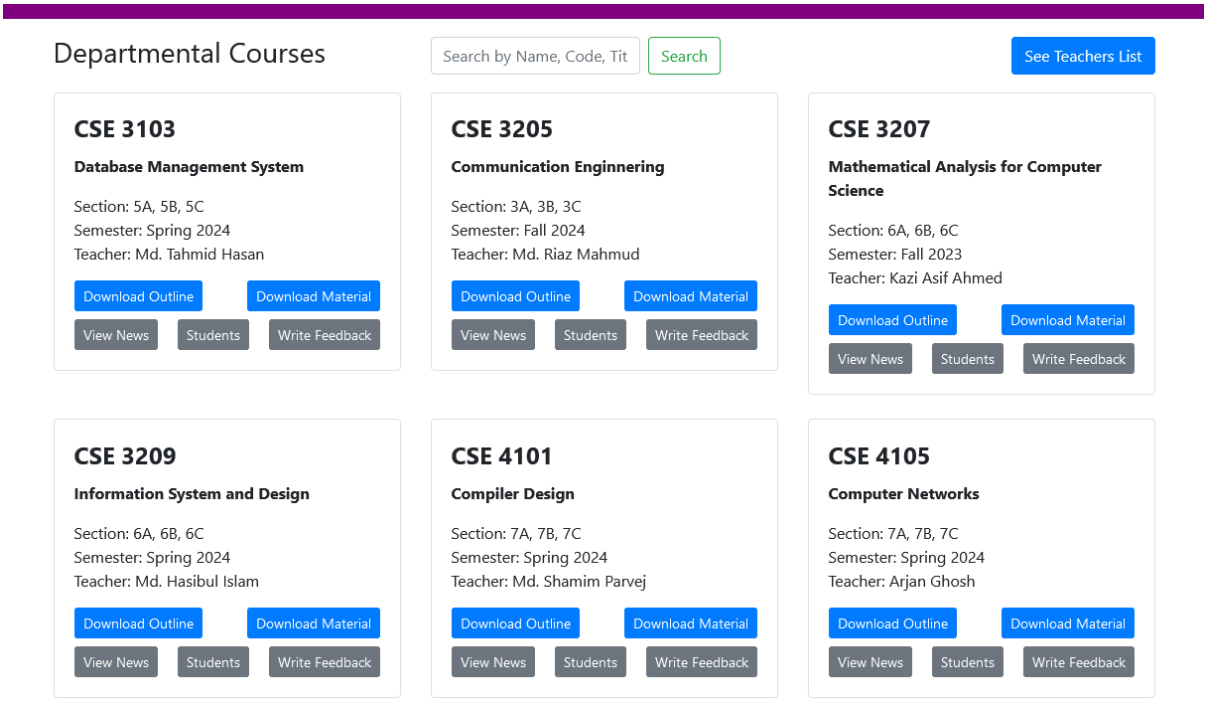


**Fig. 4.7:** Course Page

If a student clicks on 'View News' button, It'll open a popup window contains course teacher's messages.

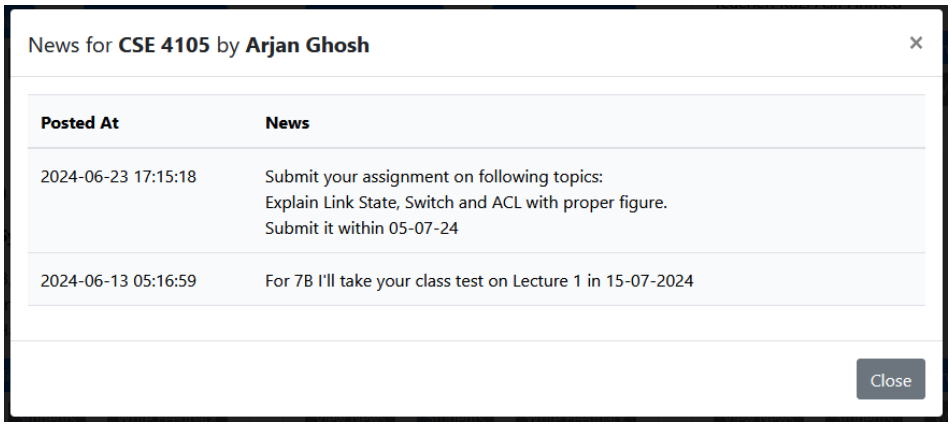


**Fig. 4.8:** News Window

If a student clicks on ‘Student’ button, It’ll open a popup window contains all students id who have taken this course.

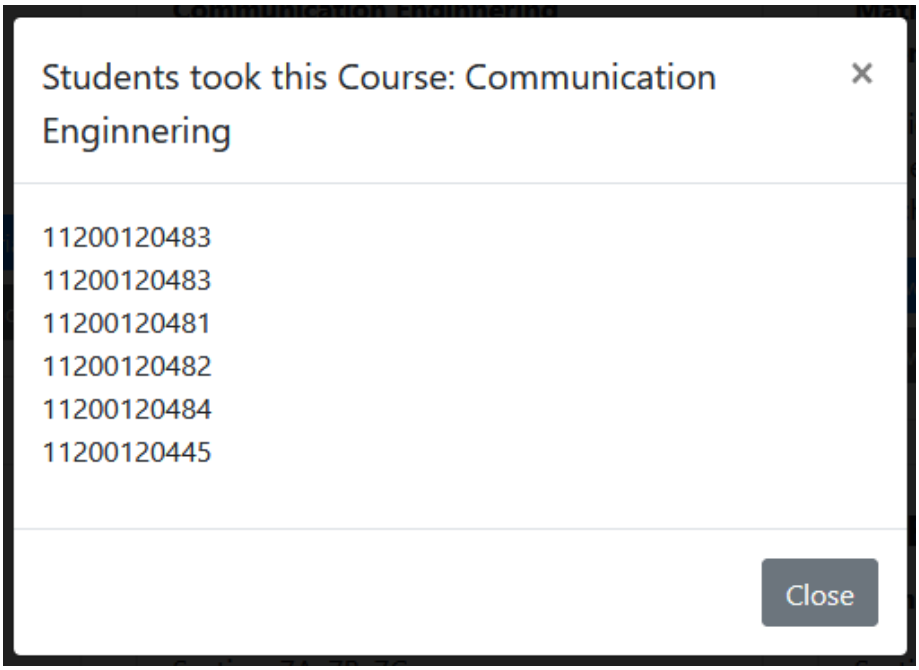


**Fig. 4.9:** Students Window

If a student clicks on ‘Write Feedback’ button, he/she will be taken to feedback page where he/she can write feedback about a teacher on a specific course anonymously.

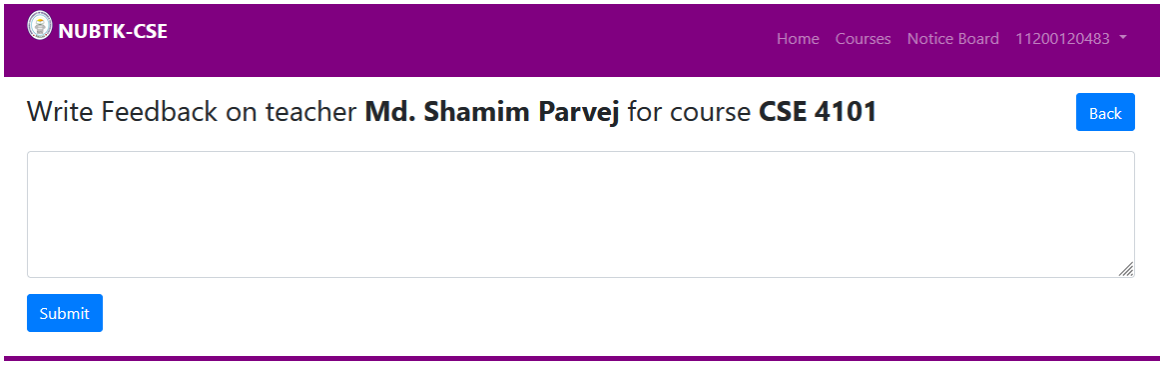


**Fig. 4.10:** Write Feedback page (Login Required)

Only authority can see that feedback. But to write feedback students have to login first. We’ll discuss about login part later.

### 4.2.4 Teachers Page

Here users and students can see all information about all departmental teachers. They can see teachers' name, designation, email, phone number and other information. They can use the search engine to search by Teacher's Name.

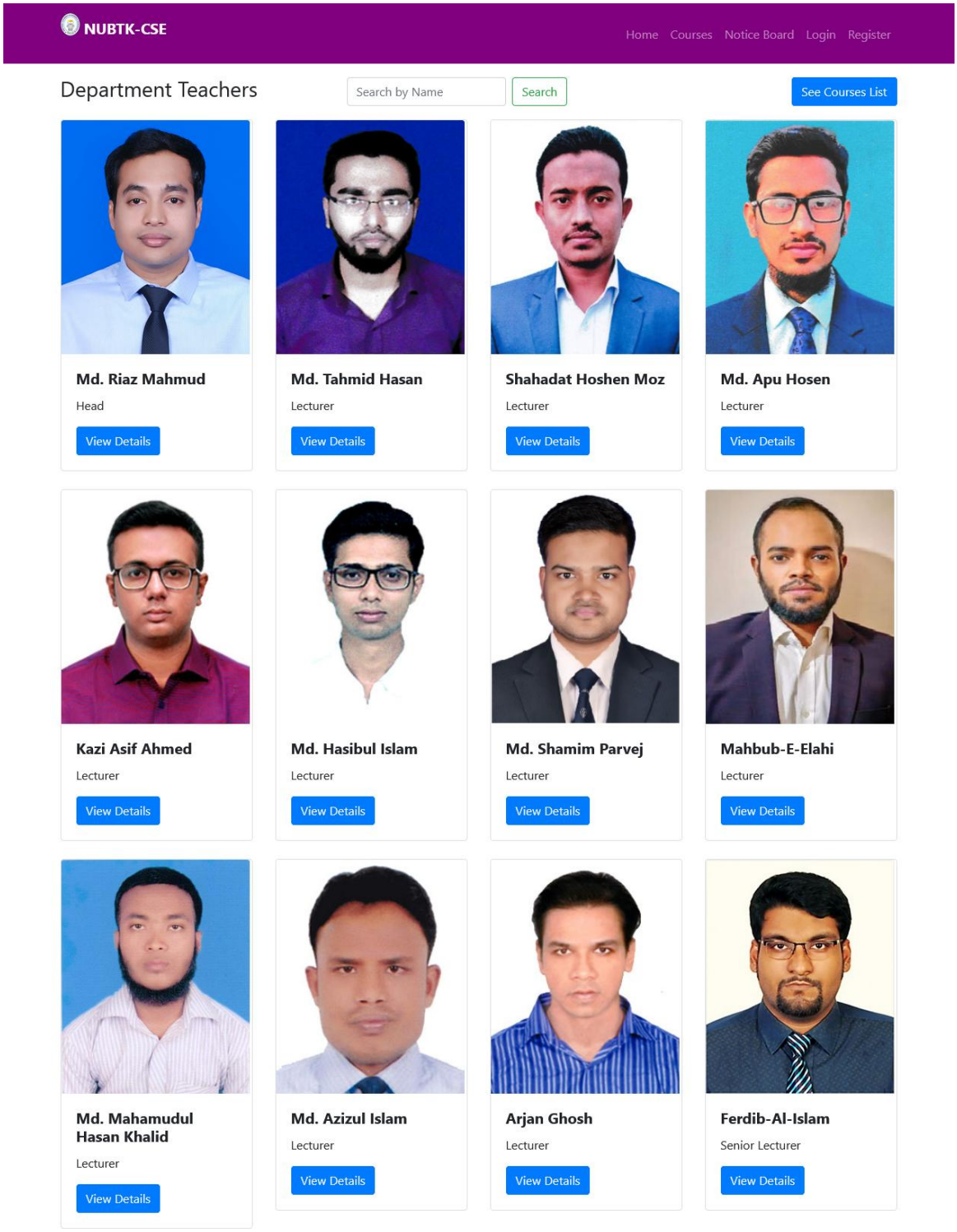


**Fig. 4.11:** Teachers page

If a student clicks on ‘View Details’ button, It’ll open a popup window contains all about the selected teacher.

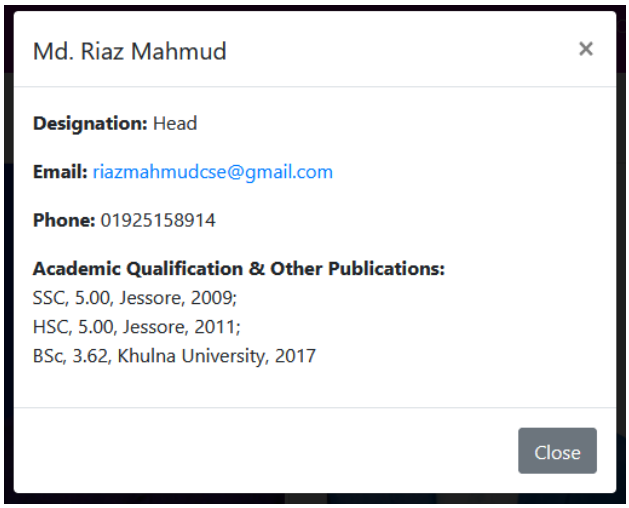


**Fig. 4.12:** Teacher’s Details Window

### 4.2.5 Notice Board Page

Here users and students can find out the latest Notices posted by department authority.

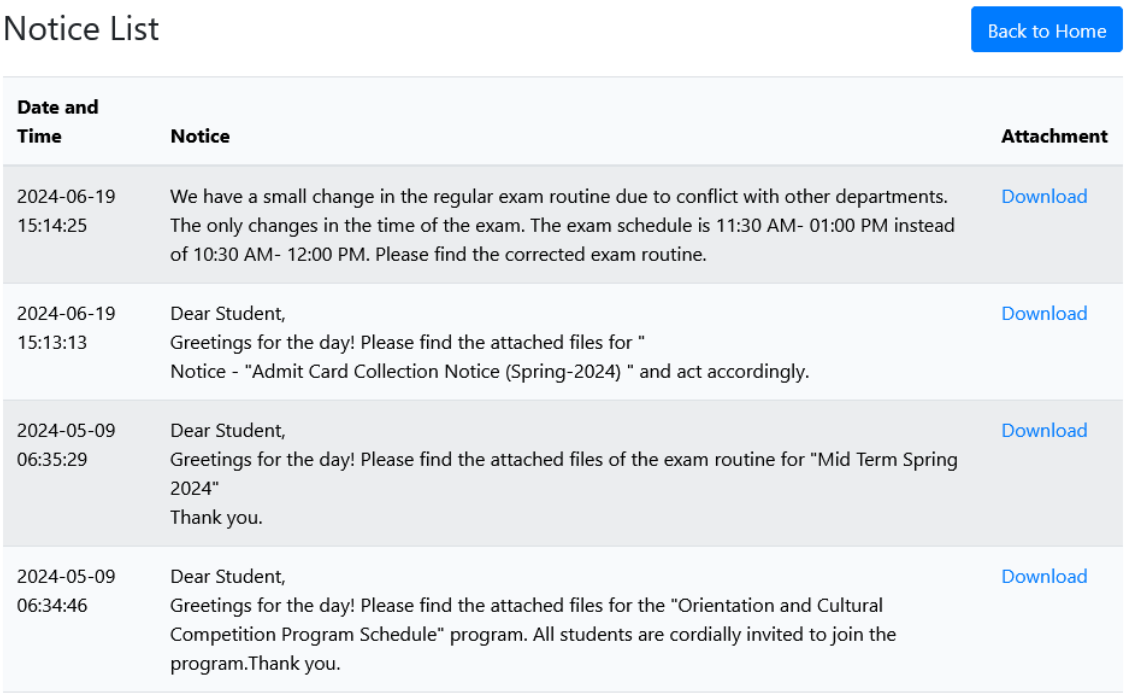


**Fig. 4.13:** Notice Board Page

### 4.3 Login/Register

#### 4.3.1 Register

This page is for the user who does not have an account on this website. The user must provide his/her student ID or for teacher provide name, email, password and confirm password before clicking the register button, which will finish the registration process.

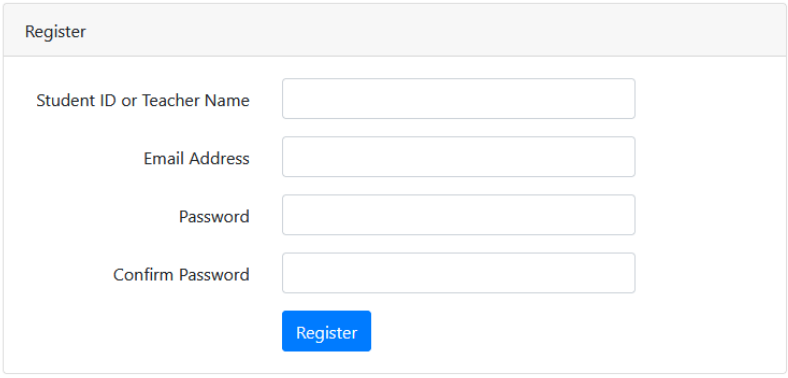


**Fig. 4.14:** Register page

Here after registering, a person will be registered as normal user or student. To get admin or teacher access, the person have to contact with authority then the authority will contact with super admin to give them their required access.

#### 4.3.2 Login

After registering, the user can log in to the website using the information provided during registration.

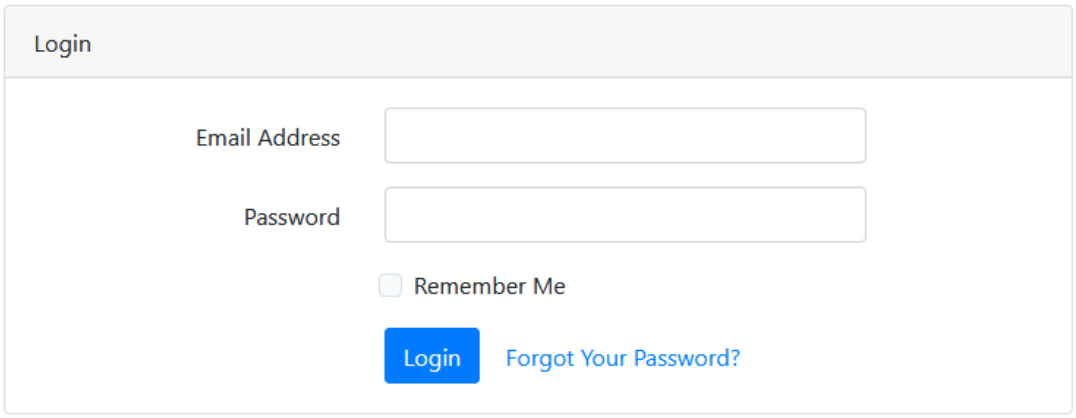


**Fig. 4.15:** Login Page

After login, Information will be send in middleware where it'll check the role of logged in user.

- **Role = 0:** Student, Redirect to Home page.
- **Role = 1:** Admin, Redirect to Admin Dashboard.
- **Role = 2:** Teacher, Redirect to Teacher Dashboard.

For now, students can only give feedback to the teacher on a specific topic. More facilities will be developed for students in future.

### 4.4 Admin Section

#### 4.4.1 Admin Dashboard

After login, permitting access solely to authorized administrators through a fixed email and password combination. This stringent security measure guarantees that only authenticated individuals can oversee and contribute to data management and content creation processes. By implementing this secure gateway, the platform maintains a robust defense against unauthorized access, safeguarding the integrity and control of its content-related functionalities. Users can confidently engage in managing and posting data, confident that the login system provides a reliable and protective barrier to preserve the platform's operations. Only if the role of the logged in person is '1' then he will be redirected to Admin Dashboard page. If the person role isn't '1' he'll be redirected to home page with "Access Denied" massage.

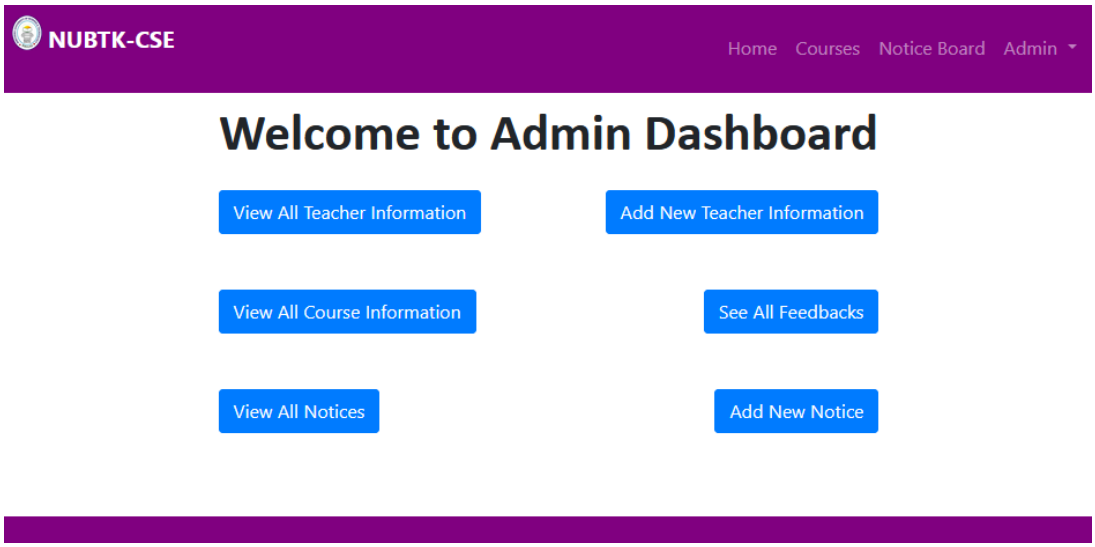


**Fig. 4.16:** Admin Dashboard Page

From here admin can manage everything of the department.

- Manage Teacher Information.
- Can Assign course under a specific teacher.
- Can Post Notice.

### 4.4.2 Teacher Management Page

Within this interface, the admin can access all the information about teacher available in database.

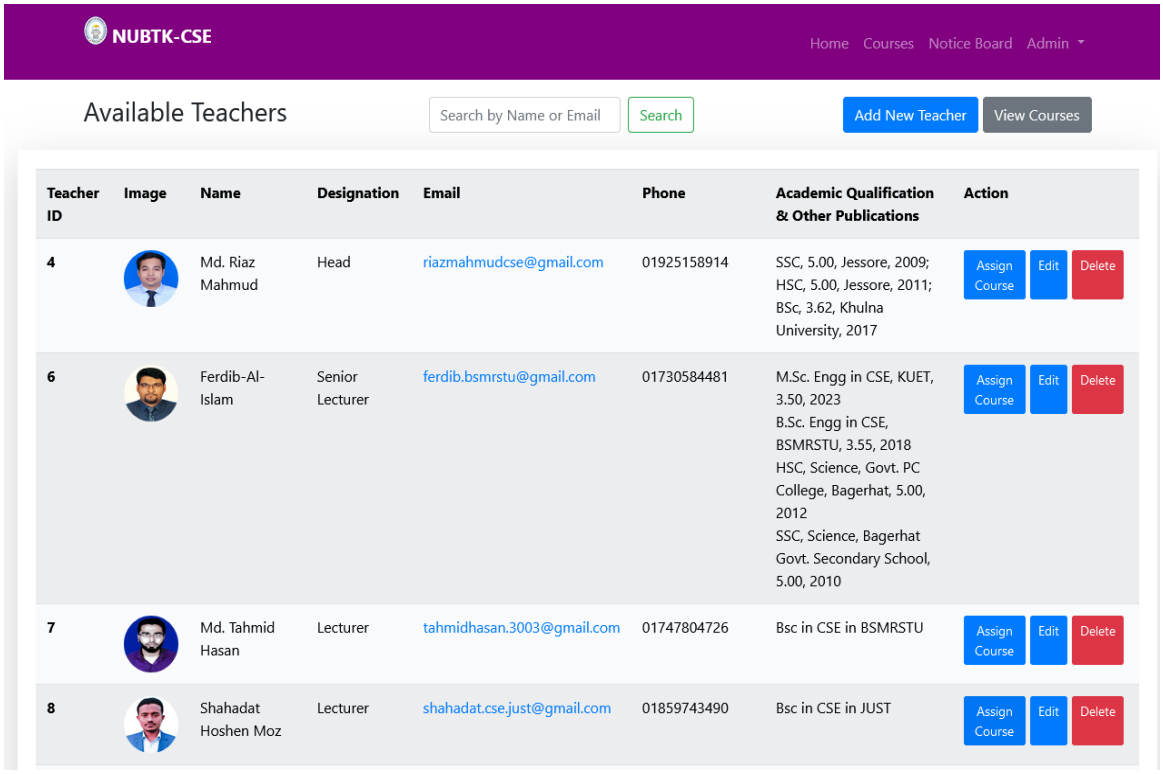


**Fig. 4.17:** Teacher Management Page

At the top there is a search engine to search teachers by their information. In this page:

- Admin can add information of a new teacher.
- Admin can edit information about a teacher.
- Also admin can remove a teacher's information.
- Admin can also assign course under a teacher.

### 4.4.3 Add Teacher Information Page

From here admin can add information about new Teacher and can save them in database. After saving new information. Users can see that teacher's details in Teachers page.

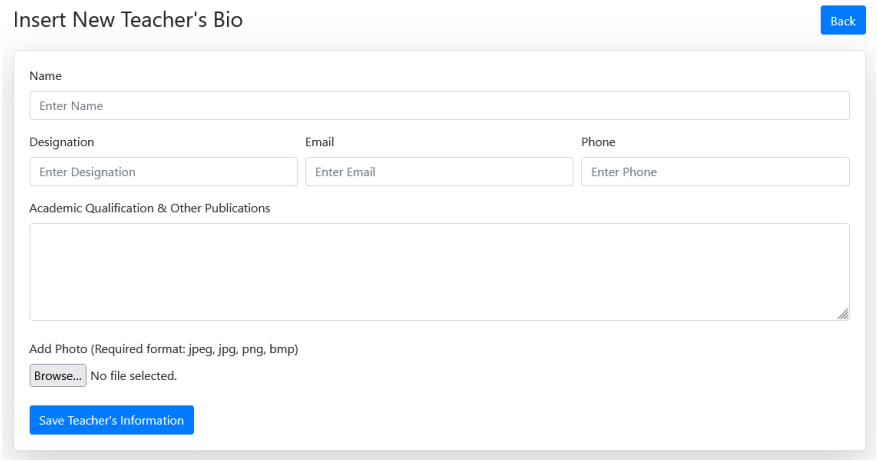


**Fig. 4.18:** Add New Teacher Page

### 4.4.4 Edit Teacher Information Page

Admin possesses the capability to edit previously added teacher information by changing name, designation, phone, email, image etc. When admin clicks on Edit button besides a teacher's data in Teacher Management page. He will redirected to Edit Teacher Information Page.

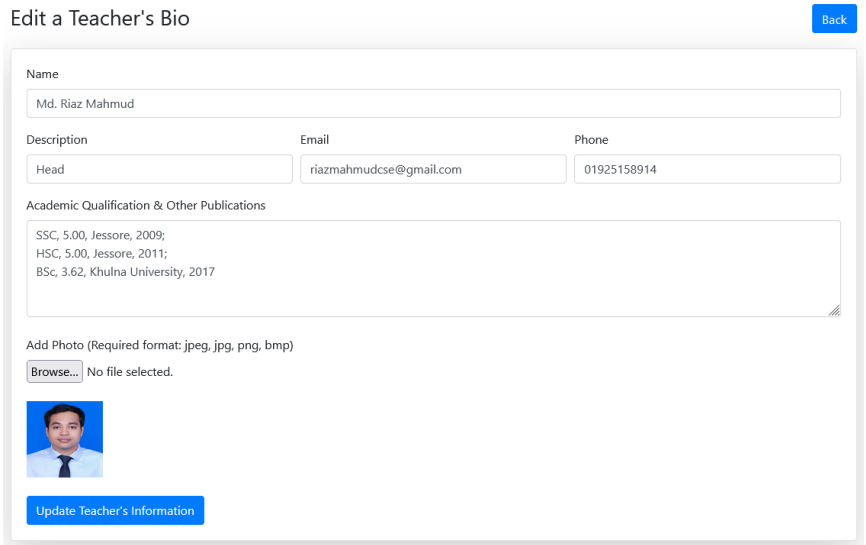


**Fig. 4.19:** Edit Teacher Information Page

After editing details, admin have to click on Update Teacher's Information to save updates.

### 4.4.5 Assign Course Page

Admin can Assign course under a teacher. When admin clicks on Assign Course button besides a teacher's data in Teacher Management page. He will redirected to Assign Course Page.

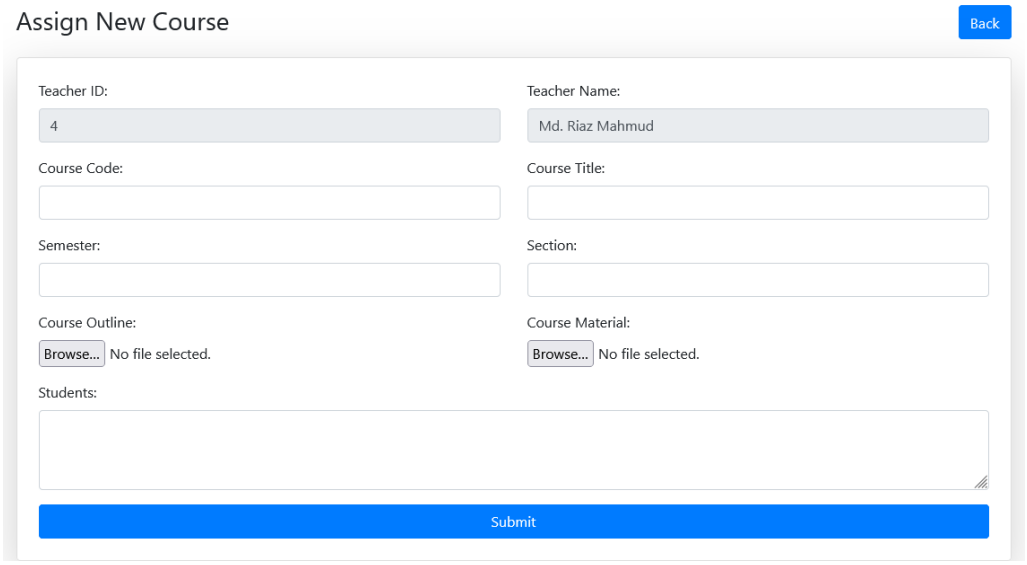


**Fig. 4.20:** Assign New Course Page

After assigning new course. Users or Students can see that course details in Departmental Course page.

### 4.4.6 Course Management Page

Within this interface, the admin can access all the information about courses available in database.

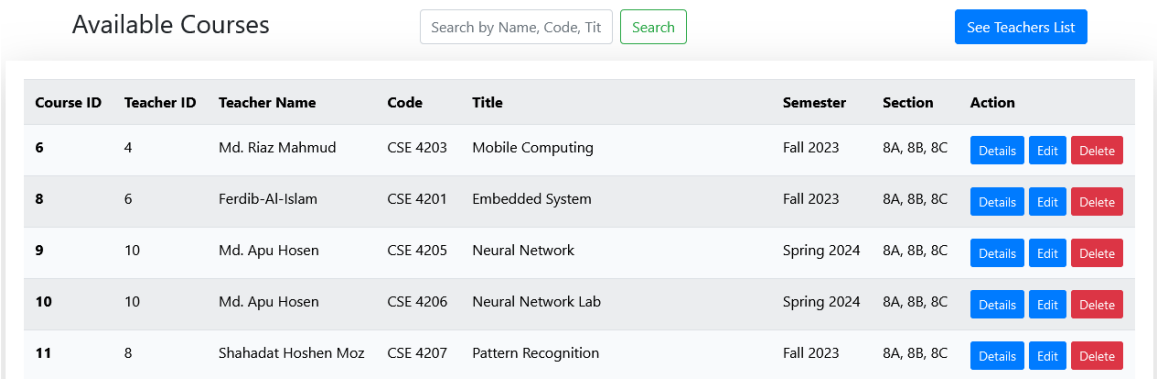


**Fig. 4.21:** Course Management Page

At the top there is a search engine to search courses by their information. In this page:

- Admin can edit information about a Course.
- Also admin can remove a course information.

### 4.4.7 Edit Course Information Page

Admin possesses the capability to edit previously added courses information. When admin clicks on Edit button besides a course's data in Course Management page. He will redirected to Edit Course Information Page.

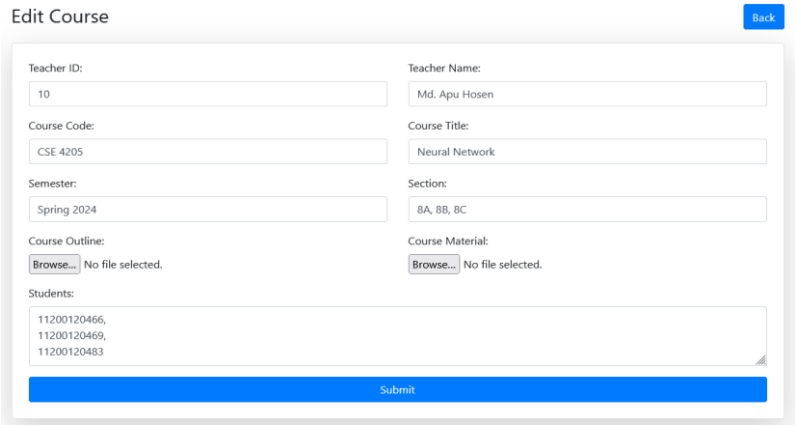


**Fig. 4.22:** Edit Course Information Page

After editing details, admin have to click on Submit to save updates.

### 4.4.8 View Details Page

By clicking View Details button in Course Management page. Admin can see full details of the selected course.

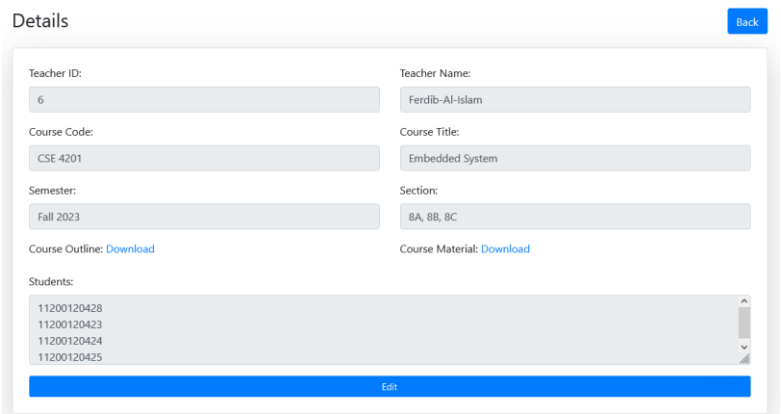


**Fig. 4.23:** View Course Details Page

### 4.4.9 Notice Management Page

Within this interface, the admin can access all the information about Notice available in database.

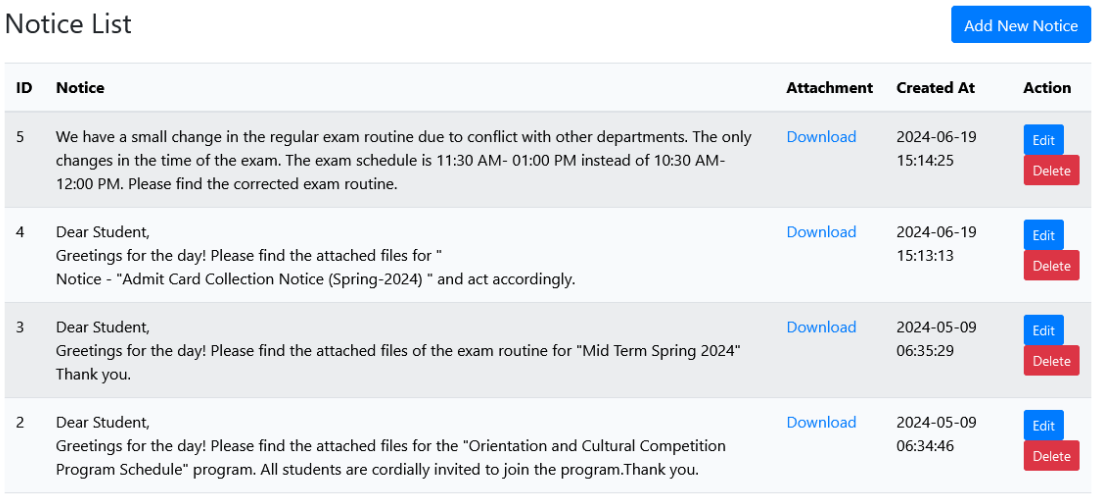


**Fig. 4.24:** Notice Management Page

In this page:

- Admin can add information of a new notice.
- Admin can edit information about a notice.
- Also admin can remove a notice.

### 4.4.10 Add New Notice Page

From here admin can add information about new notice and can save them in database. After saving new information. Users can see that notice details in Notice Board page.

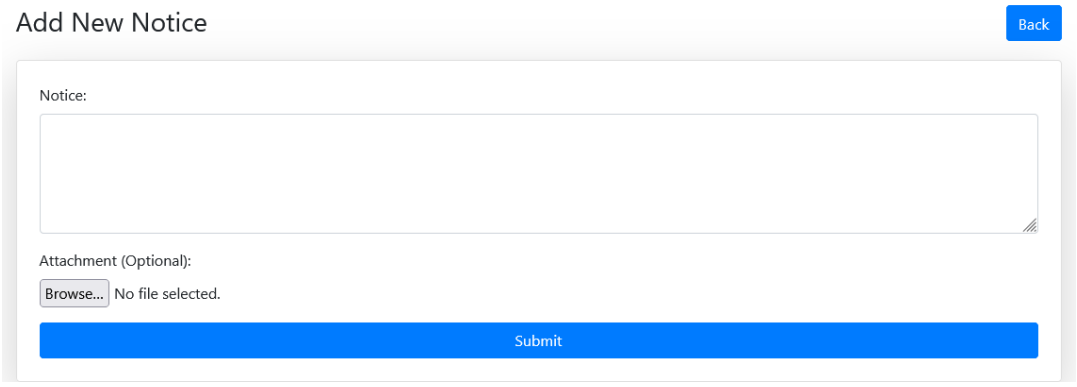


**Fig. 4.25:** Add New Notice Page

### 4.4.11 Edit Notice Page

Admin possesses the capability to edit previously added Notice. When admin clicks on Edit button besides a notice's data in Notice Management page. He will redirected to Edit Notice Information Page.

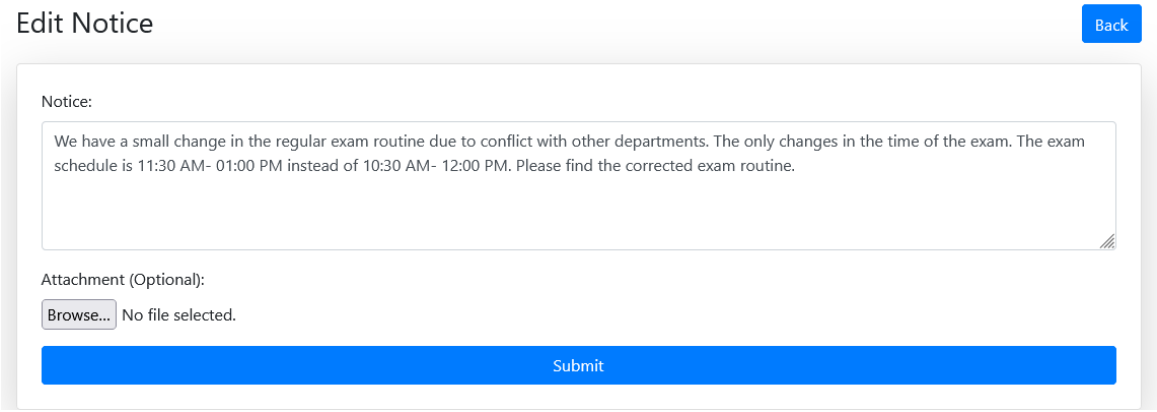


**Fig. 4.26:** Edit Notice Page

After editing details, admin have to click on submit to save new information.

### 4.4.12 Feedback Management Page

Within this interface, the admin can view all feedback given by the students in Write Feedback option. Admin will see them and submit it to authority timely. Admin can also remove a Feedback after getting permission from authority.

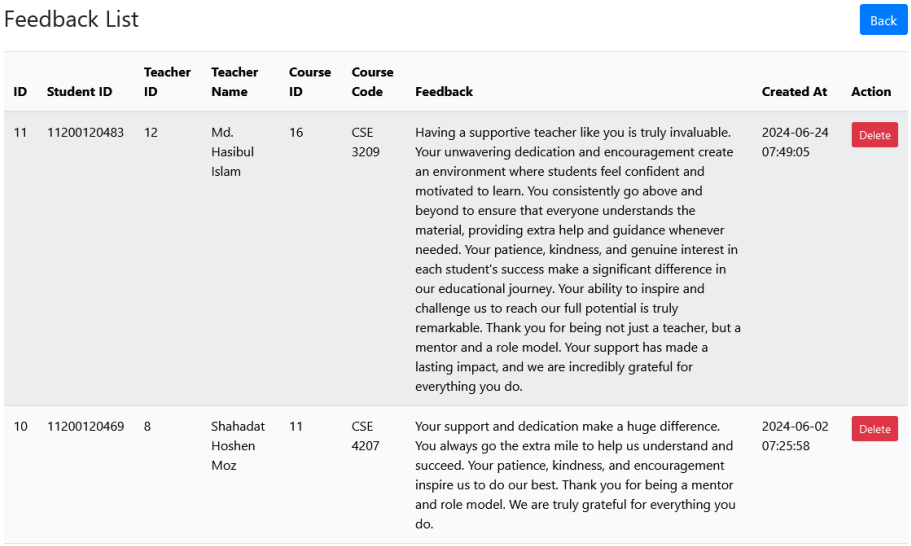


**Fig. 4.27:** Feedback Management Page

## 4.5 Teacher Section

### 4.5.1 Teacher Dashboard

After login, permitting access solely to authorized administrators through a fixed email and password combination. This stringent security measure guarantees that only authenticated individuals can oversee and contribute to data management and content creation processes. Only if the role of the logged in person is '2' then he will be redirected to Teacher Dashboard page. If the person role isn't '2' he'll be redirected to home page with "Access Denied" massage. For this after registering. A teacher has to contact with main admin. The admin will insert teacher's information in Teacher Management Page. Then the new teacher can access Teacher Dashboard Page.

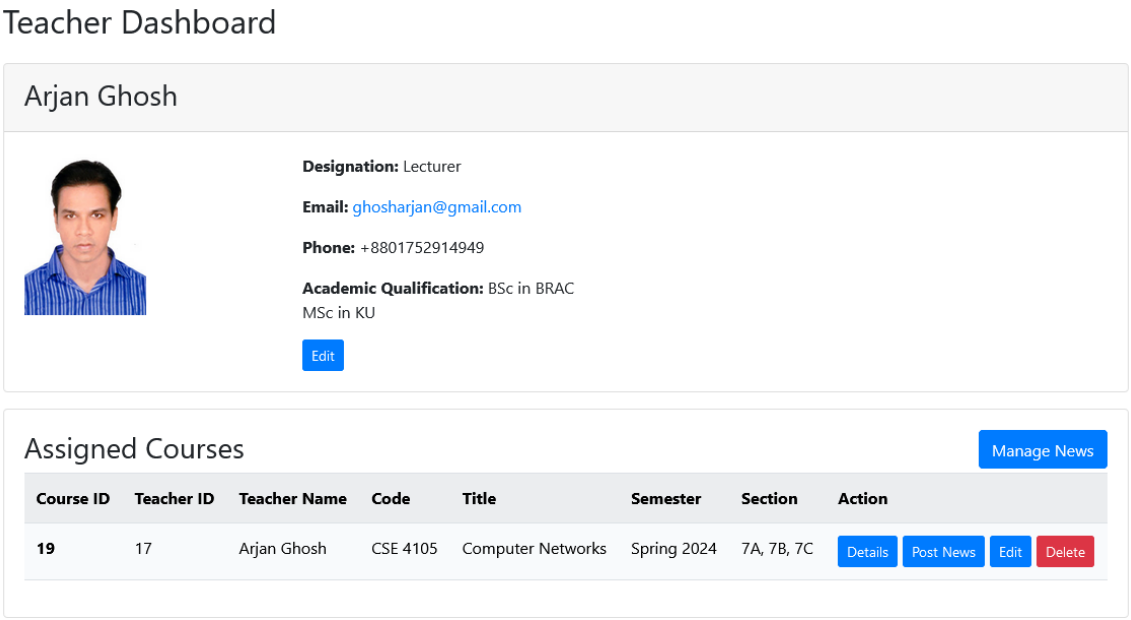


**Fig. 4.28:** Teacher Dashboard Page

In this page:

- Teacher can manage news.
- Teacher can post news under courses he is being assigned.
- Teacher can manage courses assigned under him/her like admin but only for his courses
- Can edit own profile.

### 4.5.2 Post News Page

Admin can post a news under the courses his is being assigned. After clicking Post News button in Teacher Dashboard. He will redirected to Post News Page for selected course.

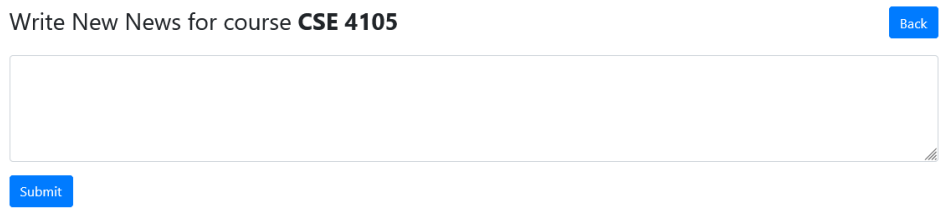


**Fig. 4.29:** Post News Page

After assigning new course. Users or Students can see that course news in Departmental Course page.

### 4.5.3 News Management Page

Within this interface, the teacher can access all the information about news he posted. He can edit and delete news from here.

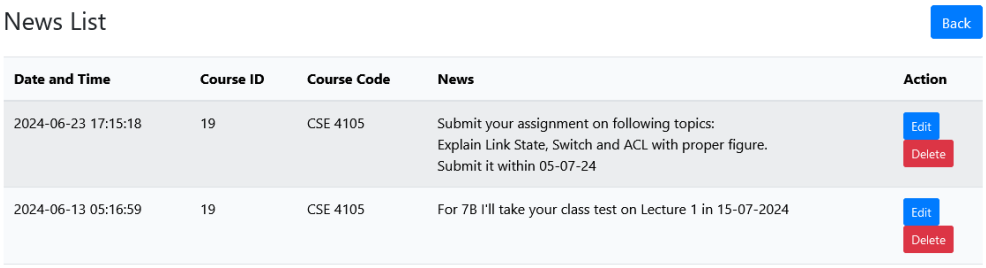


**Fig. 4.30:** News Management Page

### 4.5.4 Edit News Page

Teacher has the capability to edit previously added Notice. When he clicks on Edit button besides news's data in news Management page. He will redirected to Edit News Page.

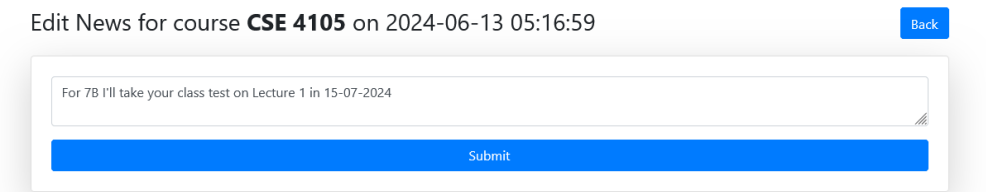


**Fig. 4.31:** Edit News Page

### 4.6 Discussion

The NUBTK-CSE website project was developed to develop an educational institute management system for the CSE department of Northern University of Business and Technology, Khulna. Using the Laravel framework, the system was designed to enhance communication between students and faculty, streamline course management, and improve the overall educational experience. Key features implemented include extensive faculty information and interaction capabilities, course management tools for faculty, access to study materials and resources for students, feedback mechanisms for courses and instructors, a centralized notice board for departmental announcements, and secure user authentication with role-based access. The control project follows a structured development approach, employing data flow diagrams and entity-relationship modeling to design the system architecture. Using Laravel provides significant benefits in terms of security, scalability and development efficiency.

### 4.7 Results

The NUBTK-CSE website has successfully achieved its primary objectives, resulting in a comprehensive and effective learning management system. The platform has significantly improved communication by providing a centralized platform for students and teachers to interact outside the classroom. It has improved resource accessibility, allowing students to easily access and download study materials for their courses. The system enables efficient course management, empowering teachers to manage their assigned courses, upload resources and post course-specific news. Transparency was enhanced through a feedback system, which allowed students to provide input to courses and instructors. Information dissemination was made easy with the notice board feature, ensuring that important departmental announcements reach all users. Implementation of secure and role-based access mechanisms for students, teachers and administrators has further enhanced system reliability. The resulting platform offers a user-friendly interface with features such as course information popups, teacher profiles and a searchable course database, which significantly enhances the overall user experience for both students and teachers.

### 4.9 Limitations

Although the NUBTK-CSE website project has achieved its main objectives, there are some limitations to consider. Currently, student functionality is primarily limited to providing feedback, leaving room for additional features to further enhance their experience. The system lacks real-time collaboration tools, which could improve direct communication between users. Additionally, the platform is primarily web-based and may not provide an optimal user experience on mobile devices, highlighting the absence of a dedicated mobile application.

### 4.10 Future Work

To address the limitations and further improve the NUBTK-CSE website, several areas for future development have been identified. Expanding student features to include functionality such as assignment submission, grade tracking, and peer collaboration tools will greatly enhance the student experience. Integrating real-time communication capabilities such as instant messaging or video conferencing will facilitate direct interaction between students and teachers. Creating a companion mobile app will improve accessibility and user experience on smartphones and tablets Implementing advanced analytics tools can provide valuable insights on student performance, course effectiveness, and overall department metrics. Advanced resource management features, such as plagiarism detection for assignments and an integrated e-library system, will further support the educational process. By addressing these areas, the NUBTK-CSE website can continue to evolve and provide greater value to the CSE department, its faculty and students.

# CHAPTER V

## Conclusions And Recommendations

The NUBTK-CSE website project has successfully developed an Educational Institute Management System that addresses the core needs of the CSE Department of Northern University of Business and Technology, Khulna. By leveraging the Laravel framework, the project team created a powerful platform that enhances communication, streamlines course management, and improves accessibility of resources for both students and faculty.

The implemented system has achieved its initial objectives, providing a centralized hub for departmental information, course materials and faculty-student interaction. Key successes include features such as user-friendly interface, secure role-based access, and centralized notice boards and feedback mechanisms. These elements collectively contribute to a more transparent, efficient and engaging learning environment.

However, the project also revealed areas of potential improvement and expansion. Current limitations, such as limited student functionality and the lack of a mobile application, present clear opportunities for future development. To further enhance the system's effectiveness and user adoption, several recommendations are proposed.

Expanding student-centric features to include assignment submission, grade tracking, and collaboration tools will increase student engagement and platform usability. Developing and launching a mobile application will improve accessibility and cater to the increasingly mobile-centric user base. Implementing real-time communication tools will facilitate more immediate and direct interactions between students and teachers.

Integrating advanced analytics capabilities can provide data-driven insights for both administrative decision-making and personalized learning experiences. Exploring integration opportunities with other university systems will create a more integrated digital ecosystem for institutions. Continuously collecting and incorporating user feedback will ensure that the platform evolves in alignment with the needs and expectations of its users.

Furthermore, exploring the feasibility of implementing emerging technologies such as AI-powered learning aids or virtual reality educational experiences can put the platform at the forefront of educational technology.

In conclusion, the NUBTK-CSE website project has laid a strong foundation for digital learning management within the department. By addressing identified limitations and pursuing suggested improvements, the system can continue to evolve, providing increasingly valuable support to the educational mission of the CSE department. The success of this project not only benefits the immediate users but also sets a precedent for similar initiatives in other departments and potentially other educational institutions.

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