

**E-CCC: A Web-Based Enrollment and Academic Records Management
System for Calabanga Community College**

**A Capstone Project
Presented to the Faculty of the
Information and Communications Technology Program
STI College Naga**

**In Partial Fulfilment
of the Requirements for the Degree
Bachelor of Science in Information Technology**

**Allan A. Aboga-a Jr.
Ernie Joseph B. Cledera
Chrystian Ray C. Festin
Joshua Gabriel S. Gamora**

OCTOBER 2025

ENDORSEMENT FORM FOR ORAL DEFENSE

TITLE OF RESEARCH: **E-CCC: A Web-Based Enrollment and Academic Records Management System for Calabanga Community College**

NAME OF PROPONENTS: **Allan A. Aboga-a Jr.**
Ernie Joseph B. Cledera
Chrystian Ray C. Festin
Joshua Gabriel S. Gamora

In Partial Fulfilment of the Requirements
for the degree Bachelor of Science in Information Technology
has been examined and is recommended for Oral Defense.

ENDORSED BY:

Harvey P. Plaza
Capstone Project Adviser

APPROVED FOR ORAL DEFENSE:

Lance Stephen L. Bronzal
Capstone Project Coordinator

NOTED BY:

Raymond A. Iglesia, LPT
Program Head

OCTOBER 24, 2025

APPROVAL SHEET

This capstone project titled **E-CCC: A Web-Based Enrollment and Academic Records Management System for Calabanga Community College**, prepared and submitted by **Allan A. Aboga-a Jr., Ernie Joseph B. Cledera, Chrystian Ray C. Festin, Joshua Gabriel S. Gamora** in partial fulfillment of the requirements for the degree of Bachelor of Science in Information technology, has been examined and is recommended for acceptance and approval.

Harvey Plaza
Capstone Project Adviser

Accepted and approved by the Capstone Project Review Panel
in partial fulfillment of the requirements for the degree of
Bachelor of Science in Information Technology

Ace F. Pasag
Panel Member

Mark Joeven S. Entico
Panel Member

Everild Gerd R. Pablo, MBA
Lead Panelist

Noted:

Lance Stephen L. Bronzal
Capstone Project Coordinator

Raymond A. Iglesia, LPT
Program Head

OCTOBER 24, 2025

ACKNOWLEDGEMENT

The researchers would like to express their heartfelt gratitude to all individuals and institutions who contributed to the successful completion of this capstone project.

Foremost, the researchers sincerely thank Mr. Lance Stephen Bronzal, the Capstone Coordinator, for his invaluable oversight, guidance, and continuous support throughout the duration of the project.

Special thanks are extended to the adviser, Mr. Harvey Plaza, for his expert guidance, insightful advice, and unwavering encouragement. His assistance was instrumental in ensuring the successful completion of this study.

The researchers likewise extend their sincere appreciation to Mr. Raymond Iglesia, IT Program Head, for his leadership, guidance, and continued support toward the academic and project-related endeavors of the researchers. His encouragement and dedication to the program contributed greatly to the successful completion of this capstone.

The researchers are also deeply grateful to the Capstone Project Review Panel Members for their time, thoughtful feedback, and constructive suggestions, which significantly enhanced the quality and depth of this research.

Gratitude is likewise extended to Dr. Angel Belleza for his cooperation, support, as well as to all the study participants whose valuable contributions greatly influenced the success of this project.

The researchers would also like to extend their deepest appreciation to Mr. Jose Marie Dimapilis for his substantial external support. His generosity in sharing his expertise, willingness to assist in critical stages of the project, and consistent encouragement provided the researchers with the confidence and direction needed to move forward. His contributions played a vital role in strengthening the project's development and implementation.

The researchers further wish to acknowledge the unwavering support and encouragement of their families and friends. Their patience and understanding motivated the researchers to persevere throughout the research process.

Finally, the researchers express their profound gratitude to STI College Naga and the Calabanga Community College for providing the necessary resources and a conducive environment that facilitated the realization of this project.

This capstone project would not have been possible without the collective efforts, guidance, and support of all the individuals and institutions mentioned above. The researchers are truly grateful for their contributions.

ABSTRACT

Title of research: **E-CCC: A Web-Based Enrollment and Academic Records Management System for Calabanga Community College**

Researchers: **Allan Aboga-a Jr.**
Ernie Joseph B. Cledera
Chrystian Ray C. Festin
Joshua Gabriel S. Gamora

Degree: **Bachelor of Science in Information Technology**

Date of Completion: **June 2026**

Keywords: **E-CCC; Scrum Agile; web-based system; enrollment management; academic records; workflow automation; Calabanga Community College.**

Managing enrollment and academic records manually has long posed challenges for Calabanga Community College (CCC), including delays, data inaccuracies, and difficulty in tracking requirements for its approximately 1,900 students and numerous faculty and staff. To address these inefficiencies, this study developed E-CCC: A Web-Based Enrollment and Academic Records Management System, designed to streamline administrative processes, centralize student information, and enhance institutional productivity.

E-CCC integrates essential features such as digital enrollment tracking, academic records management, grade submission, transcript generation, and automated workflows. A centralized and secure database ensures accurate, updated records accessible to 82 teachers, 25 non-teaching staff, 5 registrars, and 4 program heads. Security mechanisms—including role-based access control, authentication, and encrypted data storage—protect sensitive information and support compliance with data privacy standards.

The system was developed using the Scrum Agile Methodology, allowing iterative development through multiple sprints. Continuous feedback from registrars, faculty, and

administrators informed each sprint cycle, ensuring that system features aligned with actual needs and institutional workflows. This agile approach enabled rapid refinement, issue resolution, and responsive adaptation to user requirements.

System evaluation involved unit testing, integration testing, and user acceptance testing (UAT). Results showed that E-CCC significantly reduces manual workload, enhances accuracy, and improves the overall speed of enrollment and academic record processing. Users found the platform intuitive, accessible, and effective in minimizing delays caused by traditional paper-based procedures.

E-CCC provides a practical, scalable, and user-centered solution that supports CCC's transition toward digital administration, promoting efficiency, transparency, and improved service delivery.

TABLE OF CONTENTS

	Page
Title Page	i
Endorsement form for Oral Defense	ii
Approval Sheet	iii
Abstract	iv
Acknowledgment	v
Table of Contents	vi
List of Figures	vii
List of Tables	viii
Introduction	1
Project Context	1
Purpose and Description	3
Objectives	4
Scope and Limitations	6
Review of Related Literature/Studies/Systems	9
Methodology	21
Technical Background	21
Requirements Analysis	23
Requirements Documentation	25
Design of Software, System, Product, and/or Processes	46
Development	48
Results and Discussion	51
Testing	51
Description of Prototype	53
Implementation Plan	55
Findings Summary	57
Conclusion and Recommendations	87
References	90
Glossary	94
Appendices	96
Resource Persons	97

Relevant Source Code	99
Evaluation Tool/Test Documents	101
Sample Input/Output/Reports	111
User's Guide	128
Certificate of Proofreading	133
Personal Technical Vitae	135

LIST OF FIGURES

Figure	Description	Page
1	CCC Old Process of enrollment and grade processing	30
2.1	Admin Flowchart	31
2.2	Admin Flowchart continuation	32
2.3	Admin Flowchart continuation	32
2.4	Admin Flowchart continuation	33
2.5	Admin Flowchart continuation	33
3.1	Registrar Flowchart	34
3.2	Registrar Flowchart continuation	35
4	Student Flowchart	35
5	Teacher Flowchart	36
6	Program Head Flowchart	37
7.1	Entity Relationship Diagram	39
7.2	Entity Relationship Diagram continuation	39
7.3	Entity Relationship Diagram continuation	40
8	Data Flow Diagram Level 0	40
9.1	Data Flow Diagram Level 1 (Registrar)	41
9.2	Data Flow Diagram Level 1 (Student)	42
9.3	Data Flow Diagram Level 1 (Teacher)	42
9.4	Data Flow Diagram Level 1 (Program Head)	43
9.5	Data Flow Diagram Level 1 (Admin)	43
10	Use-Case Diagram	44
11	Scrum Development Methodology	45
12.1	Monitoring of submitted grades by Faculty	56
12.2	Issues in tracking faculty grade submission	56
12.3	Real-Time updates on faculty submissions	57
13.1	Receiving of Grade submissions from Faculty	58
13.2	Challenges faced when processing academic request	58

13.3	Processing of Transcript of Records	59
13.4	Centralized system for document request	59
14.1	Submission of Student Grades	60
14.2	Challenges experienced when managing and submitting grades	60
14.3	Having centralized academic system	61
14.4	Features in digital grading system	61
15.1	Methods of Checking Grades	62
15.2	Issues Experienced When Accessing Grades	62
15.3	Incorrect Grade Information	63
15.4	Rating of the Process of Requesting Academic Records	64
15.5	Importance of Online Grade Access	64
15.6	Secure Student Portal for Grade Viewing and Document Requests	65
15.7	Confidence Using Online Systems to Access Academic Information	66
16.1	Login and Account access	67
16.2	Grade Viewing	67
16.3	Class Schedule Clarity	68
16.4	Certificate request process	68
16.5	Overall student satisfaction	69
17.1	Faculty Dashboard Access	70
17.2	Grade encoding efficiency	70
17.3	Grade submission process	71
17.4	Grade change request management	71
17.5	Overall Faculty satisfaction	72
18.1	Registrar enrollment management	72
18.2	Transcript and Certificate Request Processing	73
18.3	Grade Verification	73
18.4	Request status tracking	74
18.5	Overall Registrar satisfaction	74
19.1	Schedule Access	75
19.2	Schedule Creation	75
19.3	Teacher and subject management	76

19.4	Overall Program Head satisfaction	76
20.1	Overall System Performance	77
20.2	Device Accessibility	78
20.3	Interface Design	78
20.4	System navigation	79
20.5	System Recommendation	79

LIST OF TABLES

Table	Description	Page
1	Gantt Chart of Activities	22
2	Questions asked to client and their responses	29
3	Structured Test Cases	84

INTRODUCTION

Project Context

In the digital age, educational institutions worldwide are increasingly adopting technology to streamline administrative processes and enhance operational efficiency. However, many institutions, particularly in developing regions, continue to rely on traditional paper-based systems for critical functions such as enrollment and academic records management. This reliance often leads to significant challenges that impede the effectiveness of administrative operations.

A study by Custodio and Castro (n.d.) highlighted that despite technological advancements, many universities in the Philippines still employ manual processes for enrollment, leading to inefficiencies and delays. The manual entry of student information increases the likelihood of errors and data duplication. Daing and Riño (2022) emphasized the importance of implementing efficient Student Information Management Systems in Philippine schools to reduce inaccuracies and redundancies. Paper-based records are also susceptible to physical damage, unauthorized access, and loss. Digital record management can improve security and ensure compliance with data protection regulations. According to ScanOptics (n.d.), digital systems simplify student onboarding, facilitate transfers, and ensure that records remain accessible and protected. Furthermore, the extensive use of paper contributes to environmental degradation. Transitioning to a digital system aligns with sustainability goals, reducing resource consumption and promoting eco-friendly operations (The Australian, 2023).

At Calabanga Community College (CCC), the manual handling of enrollment and academic records presents several issues. The enrollment process is time-consuming, requiring registrars and staff to engage in repetitive verification tasks that could be simplified through digital means.

These challenges are particularly significant given the population at CCC. The institution serves approximately 1,900 students, 82 teachers, 25 non-teaching staff, 5 registrars, and 4 program heads. Managing records for this population manually requires substantial time and effort, increasing the risk of errors and delays. As student enrollment grows annually, the administrative workload also expands, highlighting the need for a more efficient system. A study by Sibua Polinio, Pugoy, and Paglinawan (2023) found that digital tools in public schools significantly improve administrative processes, reducing workload and enhancing staff efficiency. These findings underscore the necessity of integrating technology to address CCC's current challenges and improve institutional performance.

Addressing these issues requires a comprehensive digital solution that centralizes enrollment and academic records management while improving accessibility, security, and administrative efficiency. The proposed system, E-CCC, aims to achieve these goals, providing registrars, faculty, and staff with the tools to manage records effectively, reduce delays, and enhance overall productivity.

Purpose and Description

The purpose of the E-CCC project is to develop a web-based enrollment and academic records management system for Calabanga Community College that streamlines administrative operations while providing secure and centralized access to student information. The system will allow registrars to efficiently track submitted requirements for approximately 1,900 students, reducing manual paperwork and minimizing errors in record-keeping. By digitizing these processes, the system enhances operational efficiency without requiring students to upload or check off documents themselves, ensuring a simple and controlled workflow.

The E-CCC platform also provides 82 teachers, 25 non-teaching staff, 5 registrars, and 4 program heads with secure, real-time access to academic records. This centralization simplifies the retrieval of student information, facilitates coordination among faculty and staff, and reduces delays caused by manual data handling. By enabling authorized users to access accurate and up-to-date records quickly, the system supports better decision-making and improves overall institutional efficiency.

Another important feature of E-CCC is its ability to streamline routine administrative tasks such as grade submission, transcript generation, and approval workflows. These improvements reduce time spent on repetitive processes, allowing staff to focus on more strategic responsibilities. The system is designed to be practical and implementable within CCC's current technological resources, making it a realistic solution to the challenges of traditional, paper-based management.

Security and privacy are also central to the design of E-CCC. With role-based access controls, encrypted storage, and secure login authentication, sensitive student and faculty information is safeguarded against unauthorized access. This ensures compliance with data protection regulations while providing users with confidence in the integrity and confidentiality of the system.

Finally, the system emphasizes usability and adoption. Its intuitive web interface allows students, faculty, and staff to navigate tasks easily, minimizing the need for extensive technical training. By combining functionality with a user-friendly design, E-CCC ensures that the benefits of digital processing are accessible to all members of the CCC community, ultimately improving efficiency, accuracy, and the overall educational experience.

Objectives

This study aims to guide the development and implementation of E-CCC to effectively address the document management challenges of Calabanga Community College. The study aims to achieve the following goals:

1. **To develop and implement a web-based enrollment system for Calabanga Community College.** This objective focuses on streamlining the enrollment process for approximately 1,900 students by providing registrars with a digital checklist to track submitted requirements, reducing manual paperwork and minimizing errors. The system is expected to be fully functional within the

upcoming academic year, improving the efficiency and accuracy of enrollment processing.

2. **To create a centralized academic records management system.** This objective provides 82 teachers, 25 non-teaching staff, 5 registrars, and 4 program heads with secure, real-time access to student records. By centralizing data, the system simplifies retrieval, enhances coordination among staff, and reduces errors caused by manual handling. Full deployment within the first semester ensures immediate operational improvements.
3. **To streamline administrative processes within the institution.** This objective target key tasks such as grade submission, transcript generation, and approval workflows. The system reduces repetitive manual processes, minimizes delays, and improves overall efficiency, with measurable improvements expected within six months of deployment.
4. **To enhance data security and compliance.** This objective ensures sensitive student information is protected through role-based access controls, encrypted storage, and secure authentication. The system safeguards academic records, maintains confidentiality, and supports regulatory compliance while being practical for CCC's current IT infrastructure.
5. **To improve user experience and adoption of the system.** This objective emphasizes a user-friendly web interface that allows students, faculty, and administrative staff to perform tasks efficiently with minimal training. Easy navigation and intuitive design promote widespread adoption and ensure that digital processing benefits are fully realized across CCC.

Scope and Limitation

The E-CCC system is designed to address the specific needs of Calabanga Community College in managing enrollment and academic records more efficiently. Its scope focuses on improving administrative processes, enhancing data security, and providing a user-friendly platform for registrars, faculty, and staff. At the same time, the system has inherent limitations that should be considered to set realistic expectations regarding its performance and operational requirements. The following outlines the key aspects of its scope and the limitations encountered in implementing the system.

Scope:

- **Enrollment Management:** Registrars can track submitted requirements for approximately 1,900 students using a digital checklist, reducing manual verification and errors.
- **Academic Records Management:** Secure storage and retrieval of academic records for 82 teachers, 25 non-teaching staff, 5 registrars, and 4 program heads, enabling quick and reliable access.
- **Streamlined Administrative Processes:** Grade submission, transcript generation, and approval workflows are simplified, saving time and improving efficiency.
- **User Accessibility:** The web-based platform allows authorized users to access the system from any device with internet connectivity, supporting remote access.
- **Data Security and Privacy Compliance:** Role-based access controls, encrypted storage, and secure authentication protect sensitive information.

The system is fully compliant with the Philippine Data Privacy Act of 2012 (RA 10173), ensuring lawful collection, processing, and retention of personal information in line with the guidelines of the National Privacy Commission (NPC).

Privacy Policy within Scope

To comply with RA 10173, the E-CCC incorporates a Privacy Policy with the following practices:

1. **Data Collection and Retention:** Only necessary personal information is collected, including student records, faculty and staff data, and system logs. Data are retained strictly according to institutional and legal requirements and are deleted or anonymized once no longer needed.
2. **Encryption and Access Control:** All sensitive data are encrypted both at rest and in transit. Role-Based Access Control (RBAC) and multi-factor authentication ensure that only authorized users can access specific data and modules.
3. **User Consent and Breach Response:** Users provide informed consent for data processing upon account creation and login. In the event of a data breach, the system follows strict protocols including immediate containment, notification to the Data Protection Officer (DPO), reporting to the NPC, and communication to affected individuals, along with corrective security measures.

Limitations:

- **Internet Dependency:** The system requires a stable internet connection; poor connectivity may affect accessibility and real-time updates.
- **User Adoption:** Effectiveness depends on proper training and compliance by staff and faculty.
- **Human Oversight:** While the system reduces manual work, staff must still verify data accuracy and ensure compliance with institutional policies.

Review of Related Literature/Studies/Systems

Related Literature

In support of the ongoing digital transformation in educational institutions, the present study, E-CCC: A Web-Based Enrollment and Academic Records Management System for Calabanga Community College, explores the development of a centralized, web-based solution to streamline enrollment and academic records handling. Aspa, Bonalos, Moredo, and Peralta (2025) conducted a study entitled Enhancing Academic Efficiency: A Comprehensive Online Enrollment System for College Students in Asbury College Incorporated, which aimed to address inefficiencies in traditional enrollment processes. Their research emphasized how manual systems often result in long queues, delayed processing, and a high risk of data loss due to human error. The proposed solution was a centralized and automated enrollment platform featuring secure login protocols, user role-based access, and real-time updating of records. This system sought to streamline administrative workflows and improve the student experience through faster and more accurate enrollment procedures.

Drawing from the study of Aspa et al. (2025), the present project adopts the principles of centralized data management and process automation. The E-CCC system integrates a secure, web-based enrollment module inspired by their model, allowing registrar staff at Calabanga Community College to efficiently manage student records. Features such as real-time data updates, user access controls, and simplified data entry forms were implemented to minimize manual errors and improve processing time. This alignment

demonstrates the relevance of their work in guiding the structural and functional design of E-CCC.

Similarly, Mayo, Reyes, Delos Santos, and Ocampo (2022) designed a web-based enrollment system to resolve the inefficiencies experienced by public junior high schools in Cavite. Their study demonstrated the tangible benefits of digital solutions in improving the enrollment experience for both staff and students. Their findings validate the feasibility of web-based platforms in educational institutions and reinforce the goals of E-CCC to modernize enrollment systems in higher education.

In support of these findings, Purcia and Velarde (2022) analyzed the student registration and records management practices across three private universities in the Philippines. Their study revealed prevalent issues such as missed submission deadlines and inconsistent enrollment scheduling, attributing these problems to outdated manual systems. They concluded that digital transformation of student services would enhance accessibility, operational convenience, and efficiency. E-CCC aligns with these conclusions by prioritizing digitization to support smoother registration and record-keeping at Calabanga Community College.

Duruin and Siddayao (2024) contributed further insights through their development of a student record management system at Magalalag National High School using the Sashimi model of the software development life cycle (SDLC). Their structured approach led to enhanced data organization and minimized manual errors. Their emphasis on methodical

development and iterative feedback loops influenced the current project's approach to system prototyping and deployment in a real-world institutional setting.

In the same vein, Cierva (2023) assessed the online enrollment system used by Bato Institute of Science and Technology. Covering modules such as student details, grade reporting, and billing, the study reported high satisfaction ratings among users regarding system efficiency. These findings underscore the importance of usability and system performance in enrollment platforms—key considerations that were factored into E-CCC's user-centered design.

Berro, Galarrita, and Batiquin (2025) applied the Technology Acceptance Model (TAM) to evaluate student satisfaction and intention to use an online enrollment system at Caraga State University. Their results revealed that perceived usefulness and ease of use significantly influenced adoption. This model informed the user interface and experience strategies for E-CCC, ensuring that system design supports intuitive use and encourages stakeholder engagement.

Lastly, Matos Jr. (2022) developed an online enrollment system tailored for higher education institutions in the Zamboanga Peninsula during the COVID-19 pandemic. The system included conflict detection, billing, automated slot monitoring, and real-time reporting, which dramatically reduced enrollment processing time. These capabilities inspired several functional modules in the E-CCC project, particularly those focused on improving administrative turnaround and reducing reliance on paper-based records.

As educational institutions continue to modernize, digital tools have expanded beyond record-keeping to support various academic functions such as enrollment, grading, and performance monitoring. These tools promote improved coordination among administrative staffs and enable seamless data flow across departments. By integrating essential academic tasks into unified system, institutions not only increase their responsiveness but also create a more structured and transparent academic environment.

To achieve these benefits, academic systems are equipped with features that enhance operational efficiency and ensure data accuracy. Features such as digital workflows, centralized and secure storage of academic records, and automated document generation contribute to faster processing, reduced human error, and more accurate and timely updates of institutional records. Grade submission modules and access-controlled student portals improve coordination between faculty and the registrar while supporting transparency and secure viewing of academic information. These features promote data accuracy, streamline academic processes, and protect the confidentiality of academic records.

Related System/Studies

In designing E-CCC: A Web-Based Enrollment and Academic Records Management System for Calabanga Community College, the research team explored several existing systems and academic projects to benchmark functionality, security, and usability. These related studies provided valuable frameworks and design strategies that

informed both the technical architecture and the academic objectives of the proposed system.

Silwamba and Matela (2025) developed a digital platform titled Design and Development of a Student Record System, which aimed to replace manual recordkeeping in educational institutions with a secure, centralized solution. Their system enabled authorized users to access, modify, and retrieve academic records, such as grades and subject enrollments, and included critical features like grade encoding, subject management, and report generation. With a strong emphasis on usability and controlled access, the system demonstrated how digital tools can improve institutional operations by ensuring accurate and timely access to sensitive academic data (Silwamba & Matela, 2025).

The current study adopted several core elements from Silwamba and Matela's (2025) work, particularly the implementation of a centralized academic records module. Inspired by their focus on secure access and data reliability, E-CCC includes role-based access control for registrar staff and department heads, allowing them to manage student grades, academic histories, and subject enrollments. Their emphasis on data integrity and system usability informed the design of E-CCC's academic records functionality, ensuring information is accurate, organized, and accessible only to authorized users—critical features for institutional efficiency and accountability.

In the Philippines, Grepon, Ycay, & Pacardo (2021) designed and implemented an e-School management system for a community college in Northern Mindanao. Their system

centralized key academic functions such as enrollment, student records, scheduling, and reporting. Using ISO 25010 as an evaluation framework, the system scored highly in functionality, usability, and reliability—highlighting its relevance and effectiveness, particularly in rural educational contexts where access to efficient digital infrastructure is limited.

The high-performance indicators of Grepon et al. (2021) system directly influenced the usability and quality assurance benchmarks for E-CCC. Their implementation of role-based access control (RBAC) for different stakeholders (students, teachers, administrators) validated the design of E-CCC's user interface and permissions. Furthermore, their successful deployment in a local college context provides a proof of concept that a modular, centralized academic system is both feasible and impactful within the Philippine higher education sector.

Similarly, Doctor (2022) introduced the Integrated Educational Management Tool for Adamson University, which automated examination processing and grading through a web-based system. Evaluated using ISO 9126 standards, the system achieved an average score of 4.76 out of 5 across metrics including functionality, usability, efficiency, reliability, and portability. Doctor's system offered role-specific dashboards for students, faculty, and administrators, enhancing user experience and maintaining data confidentiality across operations.

Doctor's (2022) emphasis on modular design and user-specific access strongly influenced the E-CCC architecture. By modeling role interfaces and dashboard segmentation after Doctor's system, E-CCC supports efficient and secure workflows for its various user types. The ISO-aligned evaluation approach also guided the project team's internal system testing and quality assurance protocols, ensuring that E-CCC performs reliably across devices and user roles.

On a global scale, openSIS, a widely used open-source student information system launched in 2022 and updated in late 2024 offers robust modules for enrollment, academic record management, scheduling, staff management, and billing. Its scalable cloud-based design and API integration capabilities have made it a benchmark system in both K-12 and higher education sectors worldwide.

E-CCC draws technical inspiration from openSIS, particularly in how it structures data modules and handles record security across different departments. While openSIS is a more expansive system, its modular architecture and support for third-party integration informs how E-CCC organizes its academic records and enrollment features. These insights were instrumental in prioritizing functionality that promotes scalability and adaptability within the Calabanga Community College setting.

Grepon et al. (2021) introduced an e-School system for a community college in Northern Mindanao, encompassing enrollment, academic records, scheduling, and reporting. The system was assessed using ISO 25010 standards and scored highly in functionality,

usability, and reliability, metrics critical to user satisfaction and system success. Notably, the system operated under a centralized framework with clear user-role definitions, tailored interfaces, and secure access to institutional data.

Adapting from this, E-CCC follows a similar centralized framework, with components designed for high performance in rural educational settings. The strong ISO 25010 evaluation of the Northern Mindanao e-School system affirmed the value of building robust, scalable systems even in community-based institutions, reinforcing the relevance of this model to Calabanga Community College.

Doctor (2022) contributed an Integrated Educational Management Tool for Adamson University, automating grading and examination processes through a web-based platform. The system, evaluated based on ISO 9126 criteria, received excellent average scores (mean = 4.76) across metrics such as functionality, usability, reliability, and efficiency. The design featured clearly separated user roles—admin, faculty, and students—each with dashboard-specific tools to support operational clarity and data security.

Inspired by Doctor's (2022) success, the E-CCC system embeds role-based access control (RBAC) to ensure users interact only with data relevant to their responsibilities. This structure enhances usability, promotes accountability, and supports secure operations, especially in managing sensitive academic records and transactions. Furthermore, the ISO-aligned evaluation framework offers a foundation for assessing E-CCC's effectiveness during pilot testing.

As digitization advanced, academic institutions expanded these improvements beyond documentation to core academic processes. A study by Wagan et al. (2025) focused on digital record management in a private higher education institution (HEI) in the Philippines. It found that the transition from paper-based to digital records improved accessibility and data accuracy. The digital system streamlined workflows and enabled more reliable access to student information, showing how digital transformation enhances institutional efficiency and security.

Sethi and Malhotra (2023) introduced an academic management system that automated administrative and academic processes in schools. Their system centralized student information, course registration, attendance, and record-keeping, significantly reducing manual workload and errors. The study emphasized the benefits of real-time access for students, teachers, and administrators in improving communication and decision-making.

In the study of Grepon et al. (2021), a School Management Information System (SMIS) was created for a community college in Northern Mindanao to address inefficiencies in manual student record handling. The system allowed centralized digital storage of student information and reduced paperwork. Respondents rated it highly in terms of functionality, usability, and reliability, noting improvements in how the school managed academic data and processed transactions.

Focusing on enrollment systems, Hayangan (2022) conducted a study on the Online Enrollment System of Central Philippines State University – San Carlos Campus. The

system was found to be effective in handling student records and enrollment procedures, offering real-time monitoring and reducing dependency on manual workflows. It contributed to greater administrative efficiency and data accuracy.

Similarly, Aspa et al. (2025) developed an Online Enrollment System for Asbury College Incorporated. The system aimed to shift from traditional paper-based enrollment to a more efficient and user-friendly digital platform. It featured modules for student enrollment, course selection, grade viewing, and subject management. Results showed that the system performed well in reducing errors and improving overall enrollment processes.

In line with academic record management, several studies have focused on grading systems to improve how student performance is recorded and communicated. Tanuan et al. (2023) developed the E-Retention Portal for MinSCAT Bongabong Campus to provide students with online access to their academic grades. The system streamlined the grading process by allowing instructors to submit grades efficiently and students to view their records using mobile devices. It improved the overall management and accessibility of academic records, shifting the process from manual to digital.

Orboc (2025) introduced the Streamlined Student Information and Grading System (SIGS) at Surigao del Norte College of Agriculture and Technology (SNCAT) to enhance the management of student information and automate grading. The system minimized errors in grade reporting, improved access to academic records, and supported better communication and coordination among faculty and staff.

In another related study, Lorilla (2023) developed the e-GRADO portal to enhance the grading process at the College of Engineering. The platform centralized grade encoding, reduced computation errors, and allowed instructors to manage grades more systematically. Faculty members noted that it improved academic evaluation and made performance tracking more consistent.

These studies show that digital systems significantly improve how academic and administrative tasks are managed by organizing records in one place, speeding up processes, and making information easier to retrieve. Features such as real-time access, automated processing, and centralized storage help reduce manual errors, improve coordination, and provide secure access to data, ensuring that students, faculty, and staff can carry out their responsibilities more efficiently while maintaining data integrity.

Synthesis

The reviewed literature and studies collectively underscore the effectiveness and necessity of web-based enrollment and academic record management systems in improving institutional efficiency, data accuracy, and user satisfaction. Centralized, secure platforms with role-based access, real-time updates, and modular architecture consistently reduce manual errors, streamline administrative workflows, and enhance transparency (Aspa et al., 2025; Silwamba & Matela, 2025; Grepon et al., 2021). Systems that prioritize usability and intuitive interfaces—supported by TAM-based adoption insights—encourage higher

stakeholder engagement and operational compliance (Berro, Galarrita, & Batiquin, 2025; Doctor, 2022).

Moreover, these systems demonstrate that integrating enrollment management with academic record tracking enables institutions to manage large populations efficiently. For Calabanga Community College, with approximately 1,900 students, 82 teachers, 25 non-teaching staff, 5 registrars, and 4 program heads, a centralized web-based system like E-CCC ensures faster processing, secure storage, and controlled access while reducing dependency on paper-based workflows.

Finally, the synthesis highlights that the adoption of digital systems promotes accuracy, accountability, and operational transparency. By leveraging insights from both local and international studies, E-CCC is designed as a practical, secure, and user-friendly platform that addresses enrollment and academic record management challenges. Its modular, centralized approach ensures scalability, usability, and security, positioning Calabanga Community College to align with global best practices in educational administration.

METHODOLOGY

Technical Background

The proposed system, E-CCC: A Document Processing and Management System for Calabanga Community College, is developed to improve the efficiency of handling academic documents and communication within the institution. It integrates modern web technologies to automate tasks such as grade submission, academic record requests, and student information access. The system aims to reduce manual work, enhance transparency, and provide a more convenient and secure way for students, faculty, and staff to manage academic records and requests.

- **Web Platform Integration:** The system utilizes a web-based platform to ensure accessibility and ease of use. The web platform is primarily for teachers, students, and school program heads, enabling them to manage student data, generate reports, and monitor overall system usage.
- **Database Management System:** The system relies on a robust relational database management system (RDBMS) to store and manage student data and academic records. The database ensures that all information is securely stored, easily retrievable, and efficiently managed. The use of SQL (Structured Query Language) allows for efficient querying and data manipulation.
- **Data Security and Privacy:** Given the sensitivity of student data, the system incorporates multiple layers of security, including role-based access control, and data encryption. The system is designed to comply with relevant data protection regulations, ensuring that student information is kept confidential and secure from unauthorized access.
- **Cloud Computing:** The system is hosted on a cloud-based server to ensure scalability, reliability, and accessibility. Cloud computing allows the system to handle many users and data without significant performance degradation. It also facilitates real-time data synchronization with the web platform, ensuring that all users have access to the most current information.

- **Technology Stack:** The system is built using a combination of programming languages and frameworks suited for web development. Common technologies might include Laravel and FilamentPHP, and Postgre for Database
- **Scalability and Maintenance:** The system is designed to be scalable, allowing for easy addition of new features or expansion to accommodate more users. Regular updates and maintenance are planned to ensure the system remains functional, secure, and up-to-date with the latest technological advancements.

GANTT CHART OF ACTIVITIES

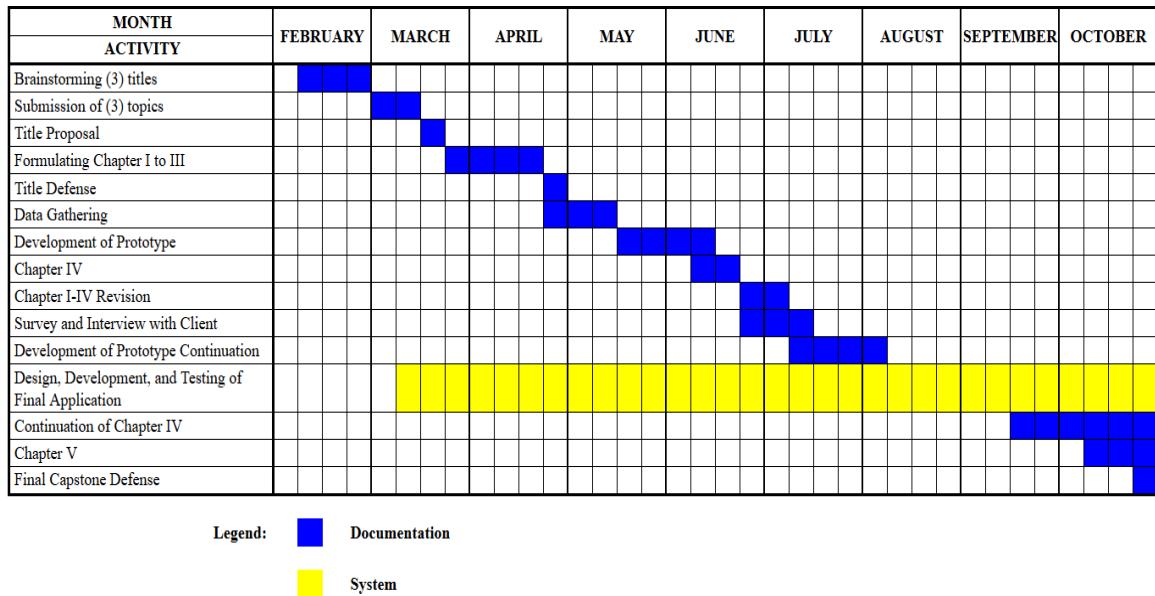


Table 1. Gantt Chart of Activities.

Table 1 shows the Gantt Chart outlining the timeline of activities for the development of the E-CCC system. It presents the sequence and duration of each project phase, including planning, analysis, design, development, testing, and documentation, ensuring systematic and timely completion of the study.

Resources

Hardware

- Development Computers: High-performance computers for app development, testing, and deployment. Specifications should include a minimum of 16GB RAM, i5 processors, and SSD storage.
- Mobile Devices: A range of smartphones and tablets for Android users only for testing the web application's compatibility and performance across different devices.
- Server: A reliable server for hosting the back-end infrastructure, databases, and Cloud services like AWS, Google Cloud, or Azure can be considered.
- Networking Equipment: Reliable internet connectivity and networking devices to facilitate seamless communication among the development team.

Software

- Visual Studio Code: a free source code editor developed by Microsoft. It is lightweight, extensible, and widely used for software development as it supports various programming languages.
- Version Control System: GitHub or GitLab for source code management and collaboration among developers.
- PostgreSQL: an open-source relational database management system (RDBMS). It is widely used for managing and organizing structured data, making it a popular choice for web applications and software development projects.
- Prototyping Tools: Figma for designing and prototyping the app's user interface.
- XAMPP: free and open-source cross-platform web server solution stack package developed by Apache Friends, for scripts written in PHP.

Requirement Analysis

The E-CCC system addresses Calabanga Community College's (CCC) need for efficient and secure enrolment and academic records management. It will support the digital processing of student records, allowing teachers to upload and submit grades while

enabling the Registrar to organize, process, and generate academic documents such as transcripts and certified copies.

The platform will serve as a centralized, secure, and user-friendly system accessible across desktops, laptops, and mobile devices. Students will be able to view grades, monitor academic performance, and generate and request documents through a self-service portal.

To maintain data security and system integrity, E-CCC will implement role-based access control, strong authentication, and regular backups. It will also ensure high performance and responsiveness, particularly during peak periods such as grade submissions and document request processing.

The system will help simplify workflows for teachers, the Registrar, and Program Heads, and empower students with convenient access to academic records. Through the digitization of manual processes, E-CCC will increase productivity, transparency, and communication across the college, both on and off campus.

Data Gathering Tools

The following tools were used to gather essential data for developing the E-CCC Web-Based Enrolment and Academic Records Management System:

- **Semi-Structured Interview:** This method allowed in-depth exploration of the researchers' thoughts and opinions. A set of questions was prepared for the CCC representatives to help gather information on the processes required for developing the project. (See Table 2)
- **Document Analysis:** The researchers requested essential documents such as Prospectus, Certificate of grades, and Transcript of Record from CCC. These documents served as a key source of information for the project requirements.
- **Consultation:** The researchers consulted with the client (CCC) and received suggestions and feedback on the project. The Capstone Adviser and Coordinator also reviewed the progress.

- **Survey:** After user testing, the researchers used a self-made questionnaire. This survey evaluated the usability, appearance, smoothness of usage, and experience of Staff and students using the web application. (See Appendix C.2)

Requirement Documentation

The “E-CCC: A Web-Based Enrollment and Academic Records Management System for Calabanga Community College” outlines the essential features, processes, and technical specifications required to enhance the management of academic records at CCC. The system is designed to digitalize document handling, streamline grade submissions, improve accessibility of academic information, and ensure secure, role-based operations aligned with institutional workflows. Its functional requirements are organized by user roles to reflect CCC’s academic hierarchy, while the non-functional requirements highlight quality attributes, performance expectations, and operational constraints.

Overall, the documentation provides a structured guide for development, testing, and evaluation to ensure the system’s completeness, usability, and alignment with stakeholder needs.

Functional Requirements

The functional requirements define the specific system operations and features required to support the tasks of each user role within CCC. These requirements ensure that the E-CCC system mirrors the institution’s real academic and administrative procedures.

Administrator Requirements

The system shall allow the Administrator to manage all core configurations and oversee system-wide activity. Specifically, the Administrator shall be able to create, update, and manage user accounts and assign user roles such as Student, Faculty, Registrar, Program Head, and Administrator. An activity log shall record essential actions performed across all modules to ensure accountability. The Administrator shall configure academic parameters including school years, semesters, program offerings, and curriculum

structures. The system shall also support the generation of institutional reports as needed.

Registrar Requirements

The system shall enable the Registrar to maintain accurate and updated academic records. The Registrar shall encode, update, and validate student information and academic data. The system shall facilitate verification and acceptance of faculty grade submissions prior to final recording in the central database. The Registrar shall generate official academic documents such as transcripts of records, certificates of grades, and other certifications. Additionally, the system shall allow the Registrar to approve, reject, or return student document requests, and track each request from submission to completion. Reporting features shall summarize enrollment figures, grade submissions, pending requests, and student records.

Program Head Requirements

The system shall allow Program Heads to monitor grade submissions in real time, track completion per subject, and identify delayed or missing submissions. Program Heads shall also view faculty loading information, assigned subjects, and class schedules to support departmental academic oversight.

Faculty Requirements

Faculty members shall be able to view their assigned subjects, class lists, and schedules. The system shall allow faculty to encode, update, and submit grades electronically, while supporting grade correction requests with required justification. Faculty shall receive confirmation messages and status updates for grade submissions. Previous submissions shall be archived for faculty reference and record-keeping.

Student Requirements

Students shall log in securely and access their academic information, including grades, schedules, and academic progress. The system shall allow students to submit requests for academic documents such as transcripts and certificates of grades. Request statuses shall be visible to students, and notifications shall be generated once documents

are processed. Students shall also be able to view their past requests and receive relevant updates from the Registrar.

Non-Functional Requirements

The non-functional requirements describe the system's quality attributes, operational constraints, and performance expectations based on CCC's institutional needs and technological environment.

Usability Requirements

The system shall be user-friendly and intuitive for users of varying technical proficiency. Interface elements shall be consistently formatted, readable, and well-organized. A responsive layout shall ensure proper display across desktops, laptops, tablets, and mobile devices. Labels, prompts, and error messages shall use clear and straightforward language to guide users through tasks smoothly.

Performance Requirements

The system shall load pages within approximately three seconds under standard network conditions. Real-time operations such as grade submission updates or request status changes shall reflect within one to two seconds. The system shall support at least one hundred simultaneous users without performance degradation. Generation of documents, including transcripts and certificates, shall be completed within approximately five seconds for standard record sizes. System performance shall remain stable during peak periods such as enrolment and grade submission deadlines.

Security Requirements

The system shall implement strict role-based access control to ensure that users can access only features permitted for their designated role. Passwords shall be encrypted and stored following industry-standard hashing algorithms. Data transmitted between clients and the server shall be encrypted for secure communication. Critical actions, including account modifications, grade submissions, and document processing, shall be logged. Regular and secure backup procedures shall be implemented to prevent data loss.

Scalability Requirements

The system shall be designed to support increasing numbers of users, records, and transactions as CCC grows. The architecture shall allow expansion without major restructuring. The database shall support long-term data accumulation while maintaining performance and reliability.

Accessibility Requirements

The system shall maintain clear and readable interface elements to support users on various devices and account for varying levels of digital literacy. Text, buttons, and navigation components shall be visibly distinguishable and easy to interact with. The system shall remain functional under low to moderate internet speeds, consistent with the connectivity available to many CCC stakeholders. Form prompts, validation messages, and notifications shall provide clear guidance to prevent user confusion.

Questions Asked to Clients	Participant's statement
How do you record students academic data, Grades , Info and matriculation ?	Manual Filing, and manual printing of matriculation
Waiting time for Grade Request and TOR request?.	Grade request takes 15 days, TOR request takes 1 month
Why is it taking 15 days and TOR 1 month to process?	Due to Manual filling and workload of requests.
Current technology used?	All manual systems and manual filling
How do you enroll students?	Manual writing and printing for students enrolling
What would be your recommendations on its features and functionalities if we make a system?	Enrollments and Processing of Grade Request and TOR request. Handling of students data and reports.

Table 2. Questions asked to the client and their response during the first interview.

The table above illustrates the set of interview questions administered to the client during the preliminary phase of data gathering, along with their corresponding responses. This initial interview aimed to obtain comprehensive insights into the client's current operational procedures, challenges encountered, and expectations for the proposed system. The information gathered from this interaction provided a foundational understanding of

the project requirements and served as a critical reference in defining the system's objectives, functional specifications, and design framework.

FLOWCHARTS

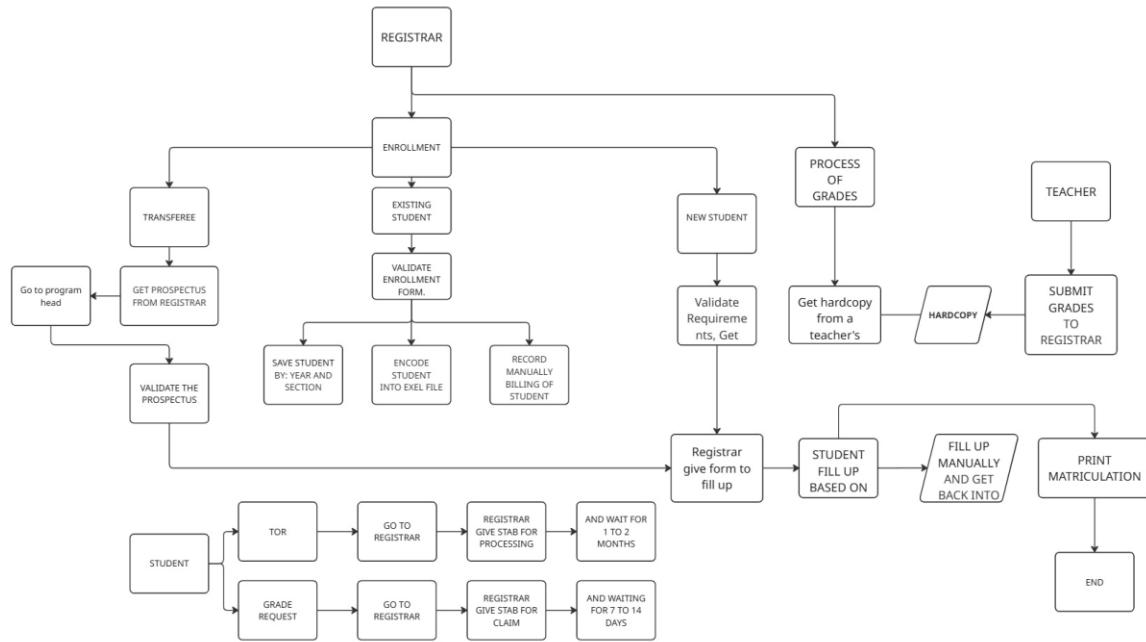


Figure 1. CCC Old Process of enrollment and grade processing

Figure 1 presents the manual workflow of the enrollment and grade processing system at Calabanga Community College (CCC) before the adoption of the proposed web-based system. In this process, students personally submit their requirements and accomplish registration forms, which are then verified and recorded by the Registrar. Faculty members manually compute and submit grades to the Registrar's Office for encoding and filing.

This manual process is time-consuming, prone to human error, and lacks centralized data management. The figure highlights the inefficiencies of the old system, which served as the basis for developing a more efficient and automated web-based solution.

Figure 2.1 to 2.5 illustrates the process flow for the Administrator within the proposed web-based document processing and management system of Calabanga Community College (CCC). The administrator serves as the system's central authority, responsible for managing user accounts, overseeing transactions, and maintaining the integrity of records.

The process begins when the administrator logs into the system, gaining access to key modules such as user management, document verification, and report generation. The admin can add, update, or deactivate user accounts, monitor document requests from students and faculty, and validate or approve records as needed. Once updates or verifications are completed, the system automatically stores and organizes the data in a centralized database for future access and reporting.

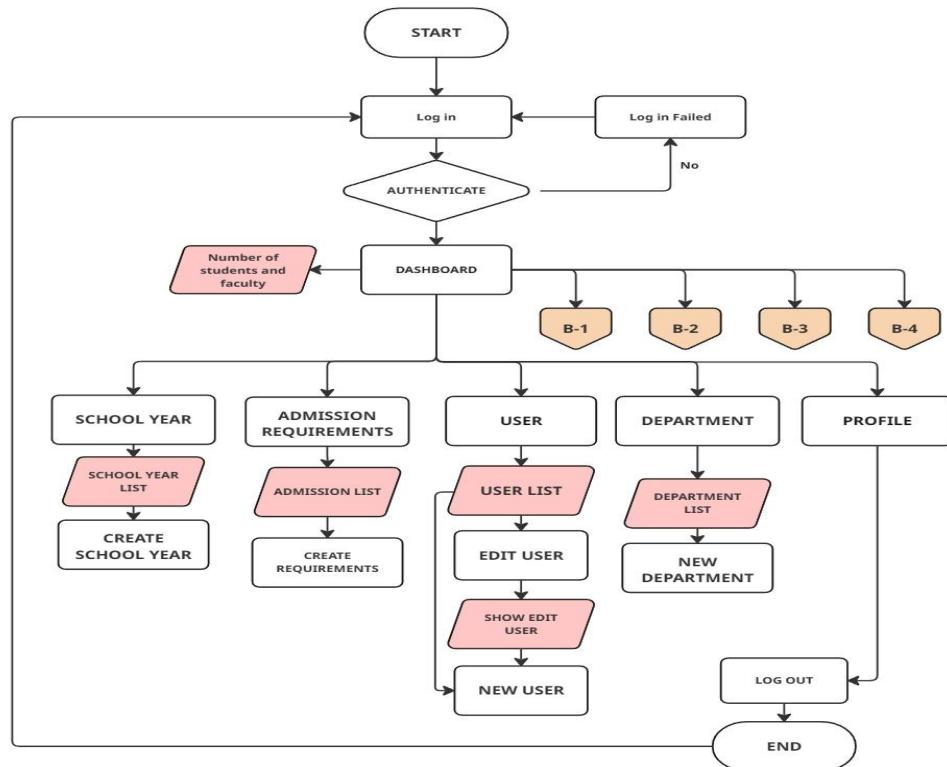


Figure 2.1 Admin Flowchart

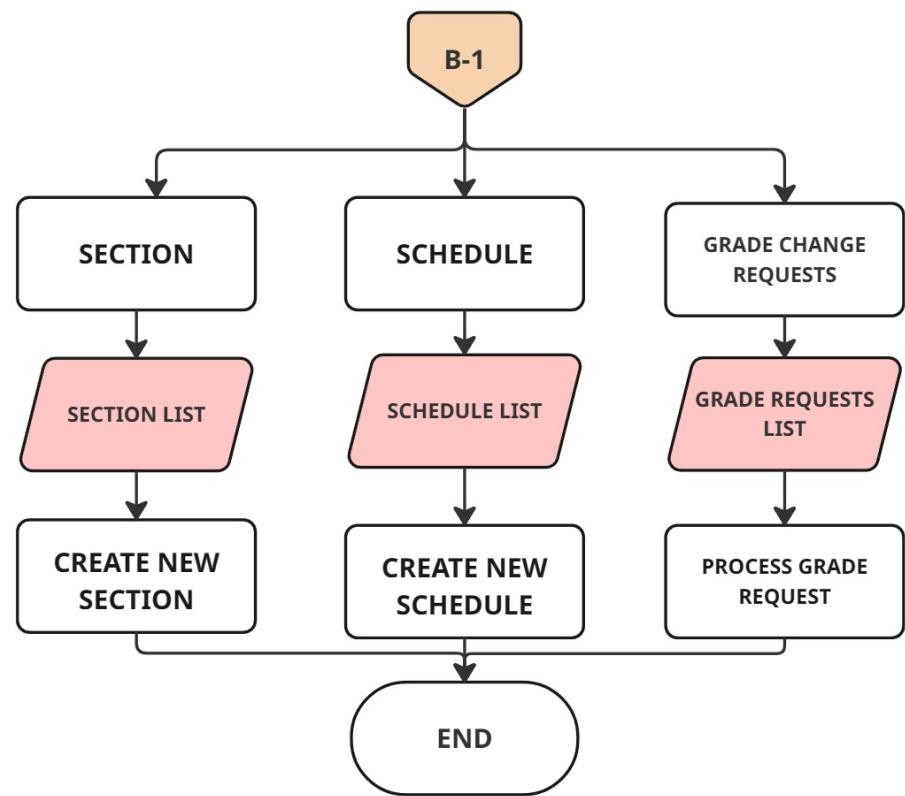


Figure 2.2 Admin Flowchart Continuation

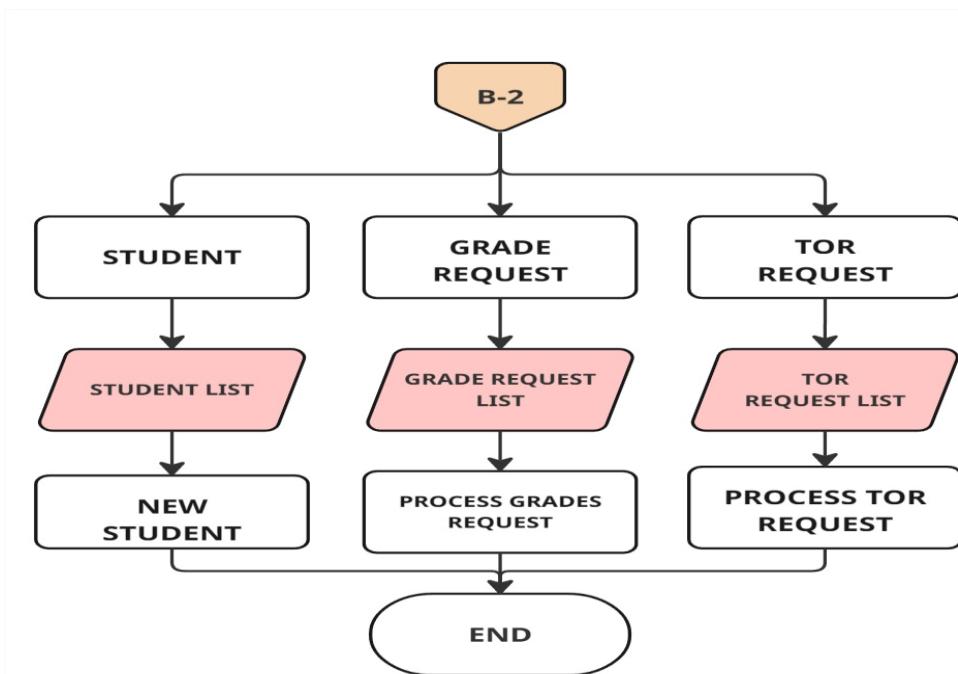


Figure 2.3 Admin Flowchart Continuation

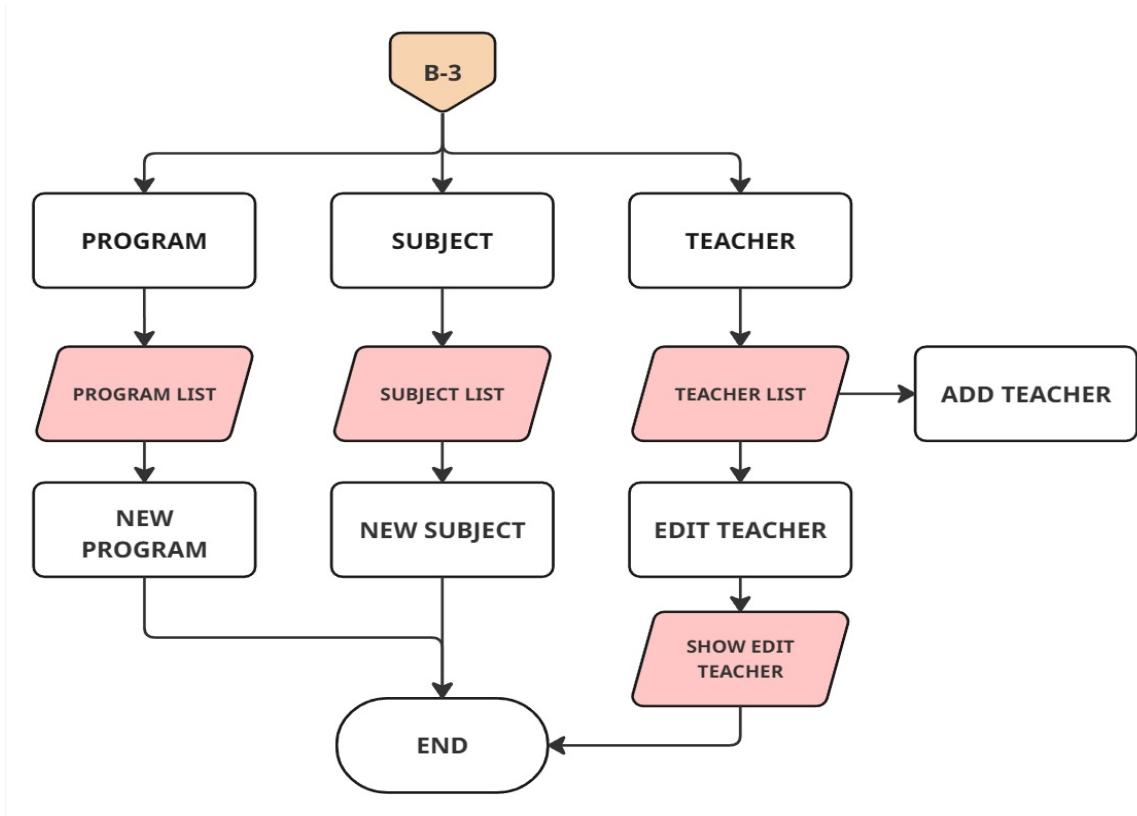


Figure 2.4 Admin Flowchart Continuation

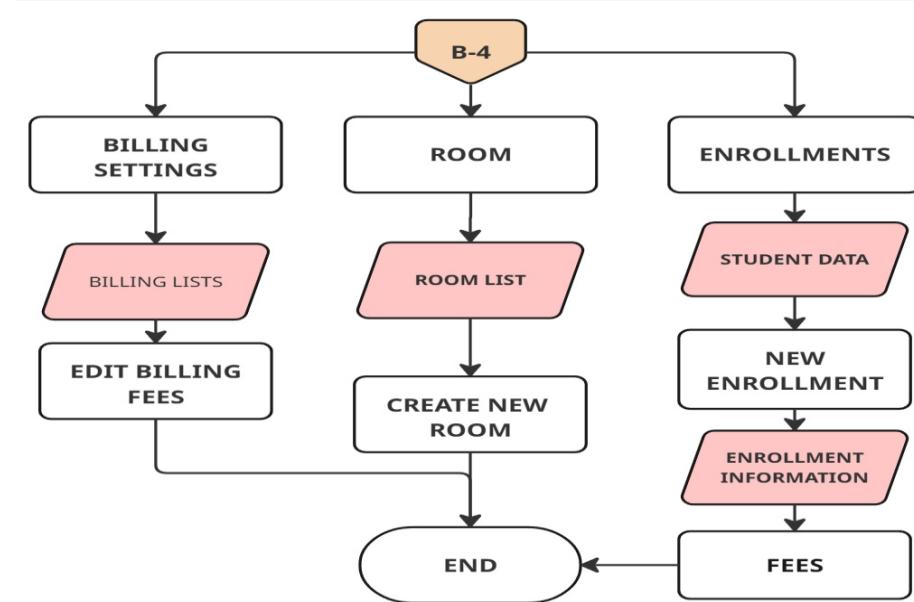


Figure 2.5 Admin Flowchart Continuation

Figure 3.1 to 3.2 illustrates the process flow of the Registrar within the proposed web-based document processing and management system of Calabanga Community College (CCC). The registrar plays a vital role in handling student enrollment, managing academic records, and processing document requests such as certificates of grades and transcripts of records.

The process begins when the registrar logs into the system to view and verify student information and enrollment requests. Once verified, the registrar can approve requests, update student records, and generate or release requested documents. The system automatically records all actions in the database to ensure accuracy and traceability.

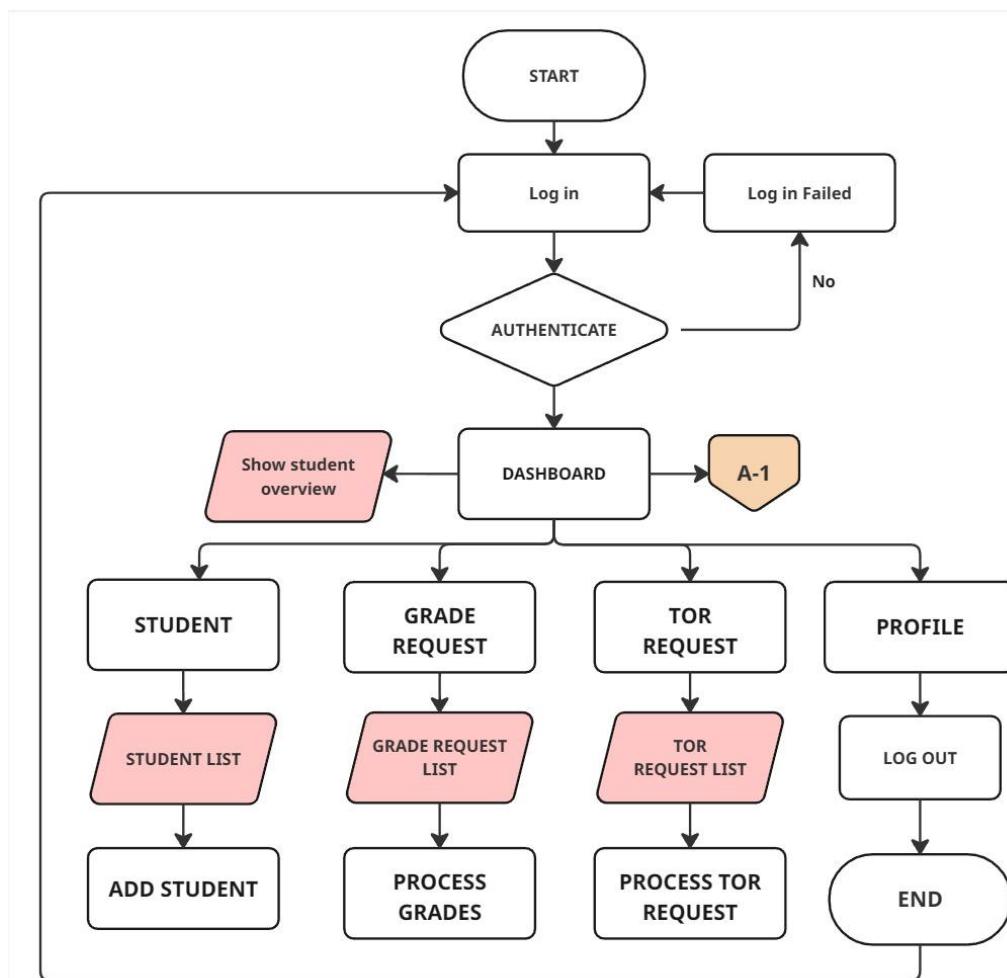


Figure 3.1 Registrar Flowchart

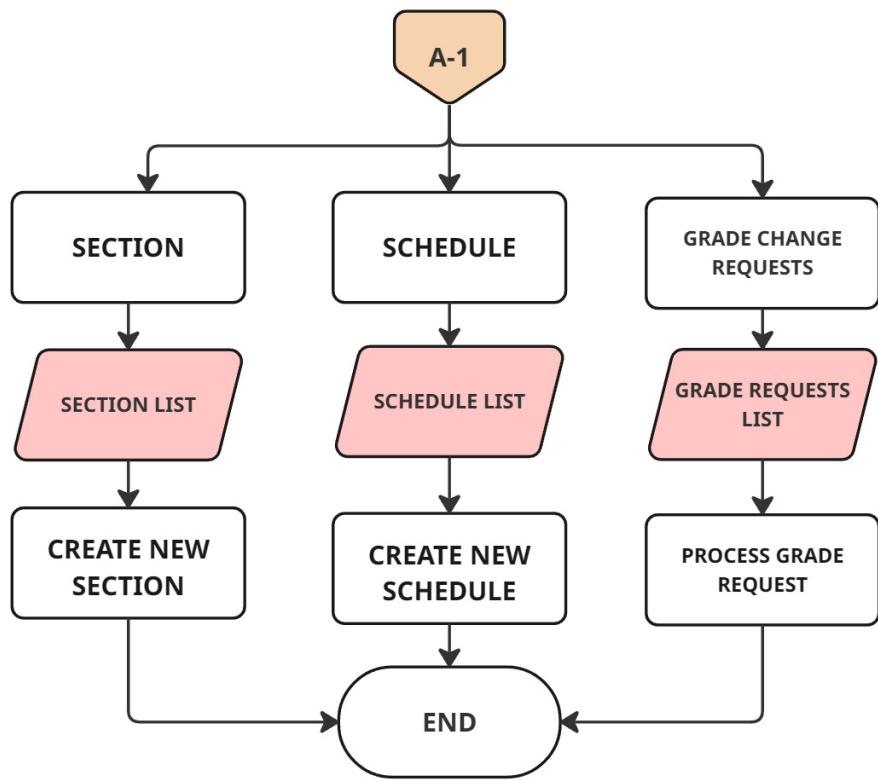


Figure 3.2 Registrar Flowchart Continuation

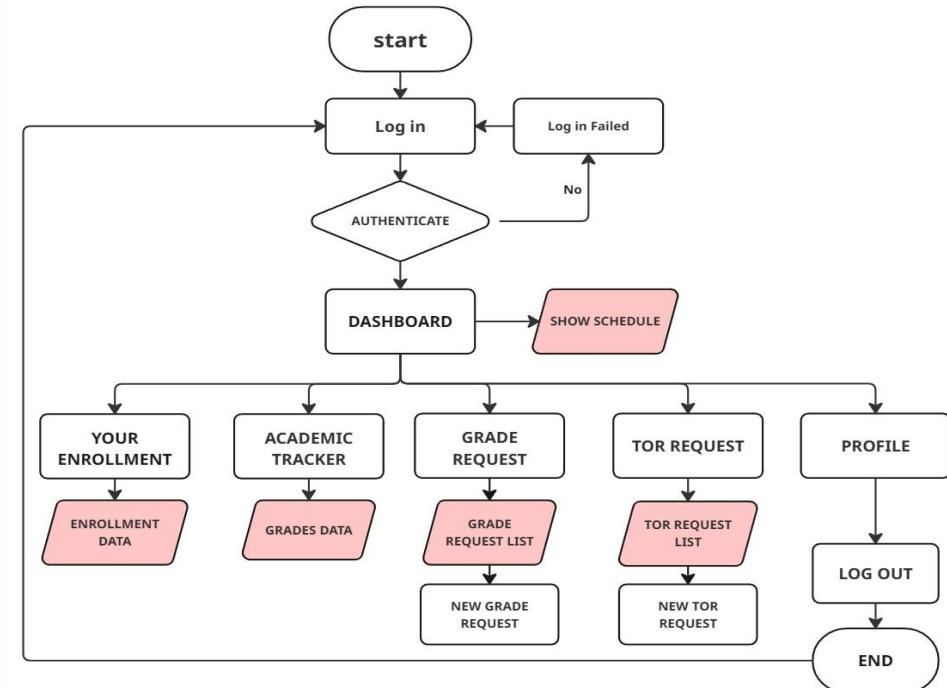


Figure 4. Student Flowchart

Figure 4 presents the process flow of the student within the proposed web-based document processing and management system of Calabanga Community College (CCC). The student serves as an end-user who interacts with the system to perform key academic-related transactions such as viewing grades and schedules, and submitting document requests.

The process begins when the student logs into the system using their account credentials. Once logged in, the student can access available services such as grade viewing, schedule viewing and request submission for documents like certificates of grades or transcripts of records. After submitting a request or completing enrollment, the system notifies the registrar for verification and processing. The student can then monitor the status of their requests and receive approved documents directly through their account.

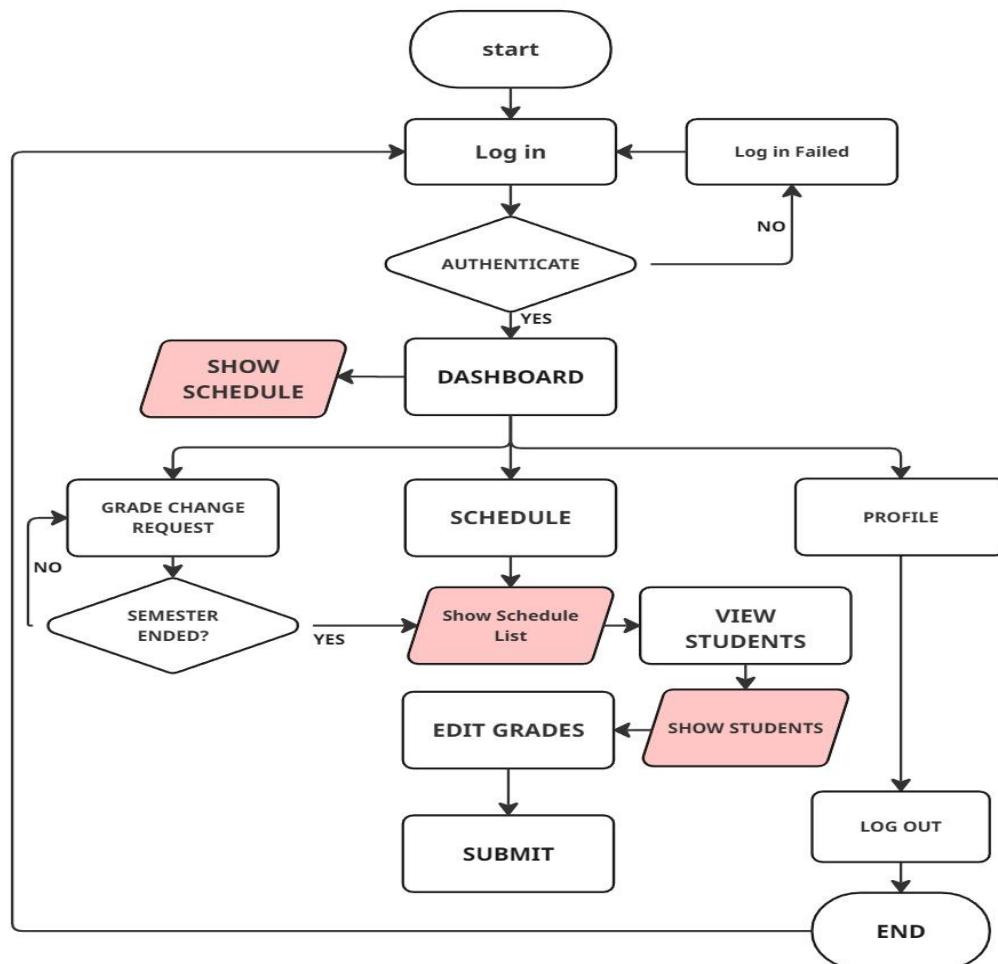


Figure 5. Teacher Flowchart

Figure 5 illustrates the process flow of the teacher within the proposed web-based document processing and management system of Calabanga Community College (CCC). The teacher functions as a key user responsible for managing student grades, viewing class schedules, and communicating grade updates to the Registrar's Office.

The process begins when the teacher logs into the system to access assigned subjects and class lists. The teacher can then input, update, and submit student grades directly through the system. In cases of grade corrections or revisions, a formal grade change request can be submitted to the registrar for approval. Once verified, the updated records are stored automatically in the centralized database.

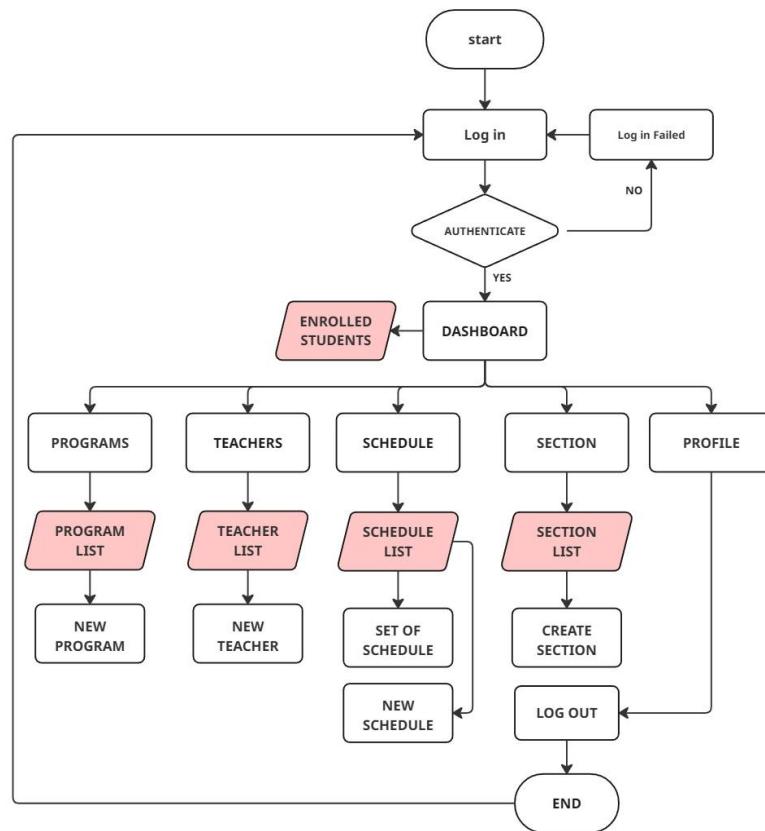


Figure 6. Program Head Flowchart

Figure 6 illustrates the process flow of the Program Head within the proposed web-based document processing and management system of Calabanga Community College (CCC). The Program Head plays a supervisory role in overseeing faculty, creating schedule.

ENTITY RELATIONSHIP DIAGRAM

Figure 7.1 to 7.3 presents The Entity–Relationship Diagram (ERD) of the E-CCC: Web-based Document Processing and Management System illustrates how the system organizes and manages data across its various functional processes. At the core of the design is the User entity, which stores user credentials and is linked to the Role entity to define system permissions for administrators, registrars, faculty, and students. All user activities are systematically recorded in the Audit Log, ensuring transparency, accountability, and traceability of actions within the system. The ERD also represents the Student entity, which holds personal, academic, and enrollment details and is directly associated with a user account for authentication. Student academic progress is captured through the Enrollment entity, which links students to specific Courses and defines their registered subjects per semester, while the Class entity maps faculty teaching assignments to particular course offerings.

Faculty members, represented through the Faculty entity, are likewise connected to user accounts and assigned teaching loads via the Class entity. Student performance is documented using the Grade entity, which associates each student with a class and allows faculty to encode, update, and submit grades digitally. These academic records become essential inputs in generating official documents requested by students. The ERD further includes the Document and Document Type entities, which manage the digital versions of institutional records such as Certificates of Grades, TORs, certifications, and other academic documents. Students initiate requests through the Request entity, which specifies the document type, purpose, and processing status. Each request is processed by authorized registrar staff, represented through the Registrar entity, who verify submitted information and generate corresponding documents. Verification actions and system changes are logged through the Verification Log, providing administrators with real-time insights into document processing activities.

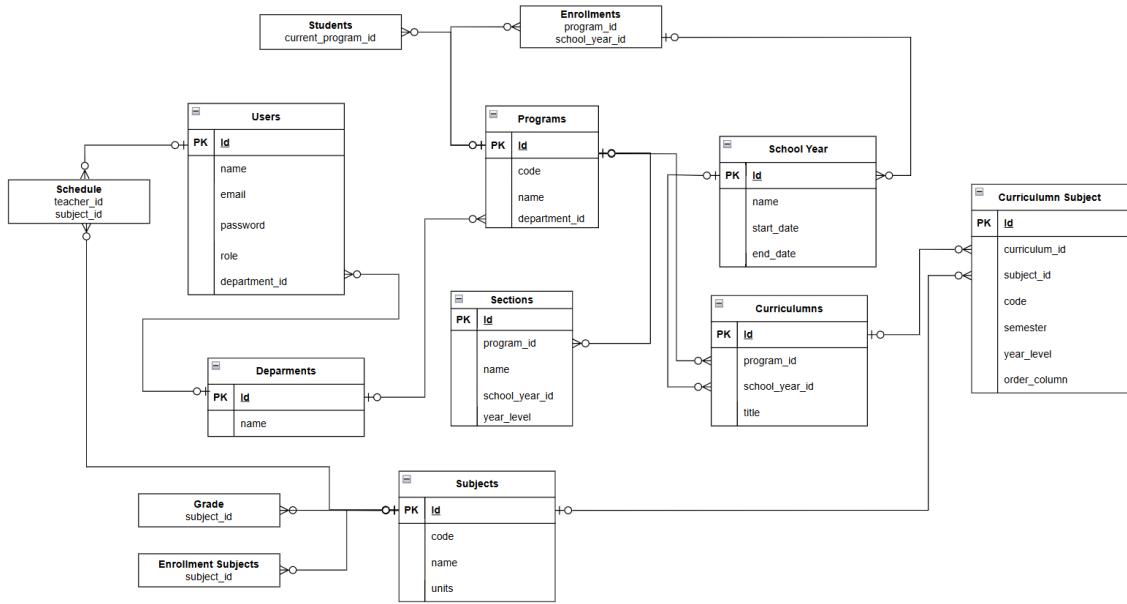


Figure 7.1. Entity Relationship Diagram

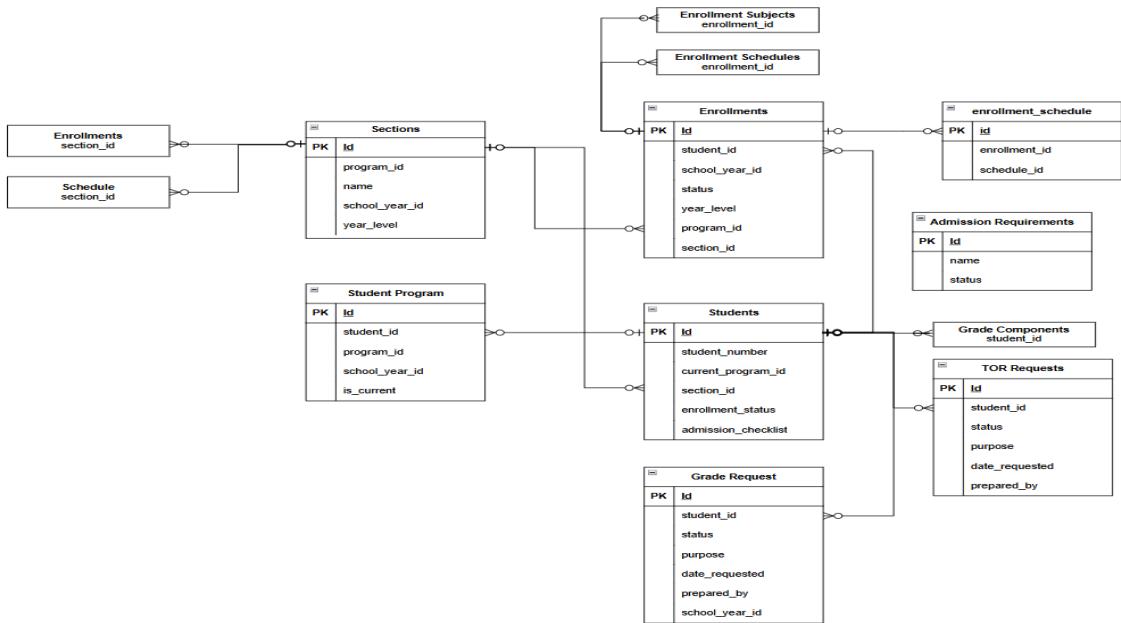


Figure 7.2. Entity Relationship Diagram Continuation

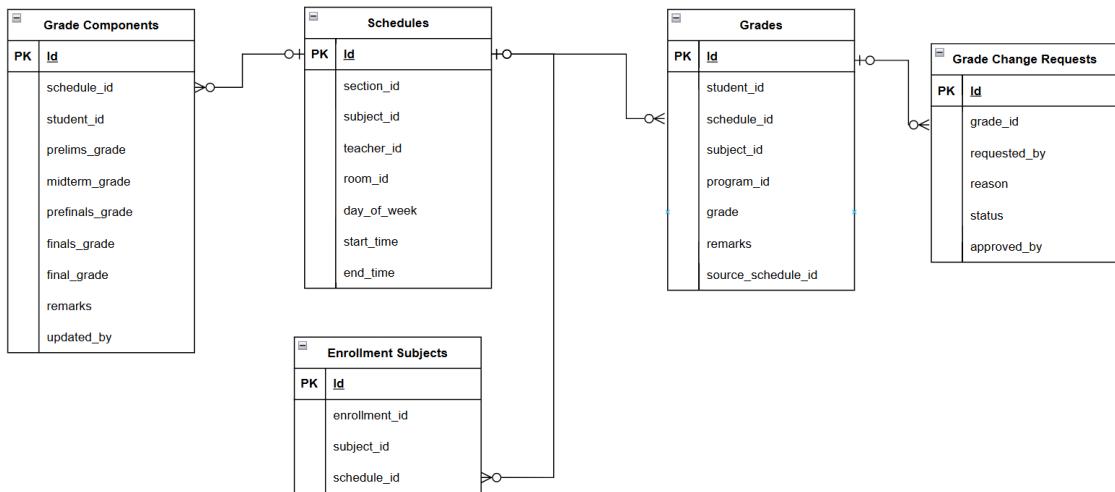


Figure 7.3. Entity Relationship Diagram Continuation

DATA FLOW DIAGRAM

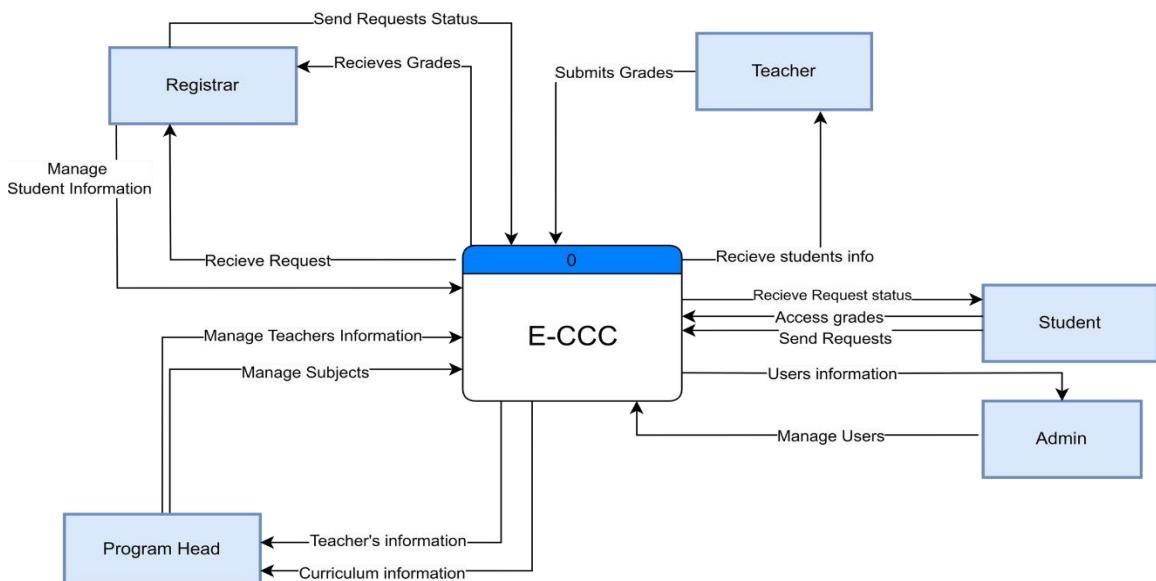


Figure 8. Data Flow Diagram Level 0

Figure 8 presents the Data Flow Diagram (DFD) of the proposed web-based document processing and management system for Calabanga Community College (CCC).

The DFD illustrates how data moves through the system, identifying the key processes, data stores, and external entities that interact within the system environment.

Figures 9.1 to 9.5 presents the Level 1 Data Flow Diagrams (DFDs) of the E-CCC System, detailing the major processes and data interactions across all user roles. Figure 9.1 illustrates the Administrator Module, showing how the Administrator manages system configurations, user accounts, role assignments, and activity logs to maintain institutional settings. Figure 9.2 depicts the Registrar Module, highlighting the flow of academic information involving student record encoding, grade verification, document processing, and the generation of official academic documents. Figure 9.3 presents the Faculty Module, outlining how faculty members encode, update, and submit grades, initiate correction requests, and exchange grade-related data with the Registrar. Figure 9.4 describes the Program Head Module, which focuses on monitoring grade submissions, reviewing faculty loads, and accessing class schedules for academic oversight. Lastly, Figure 9.5 shows the Student Module, detailing student interactions with the system such as viewing grades, accessing schedules, and submitting academic document requests while receiving real-time updates on their status. Together, these diagrams illustrate how the E-CCC system integrates multiple academic processes to ensure efficient, secure, and role-based management of records within Calabanga Community College.

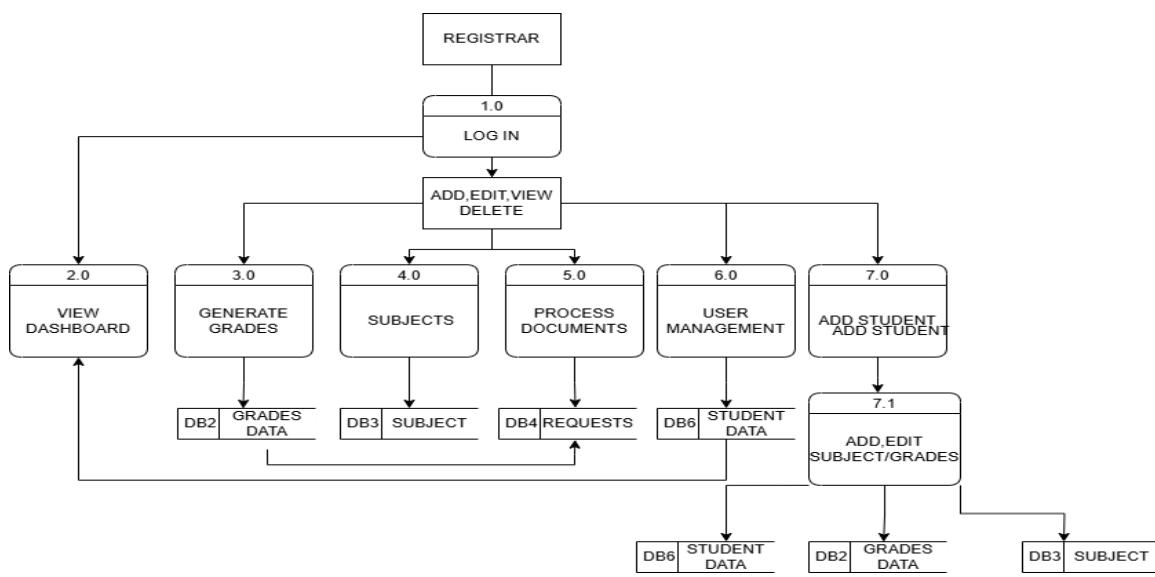


Figure 9.1. Data Flow Diagram Level 1 (Registrar)

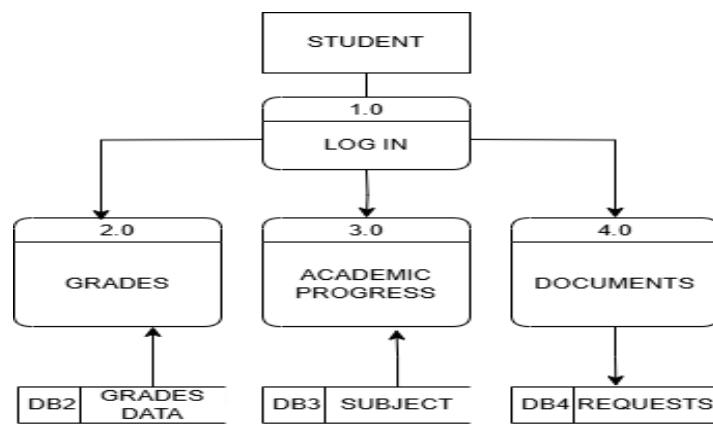


Figure 9.2. Data Flow Diagram Level 1 (Student)

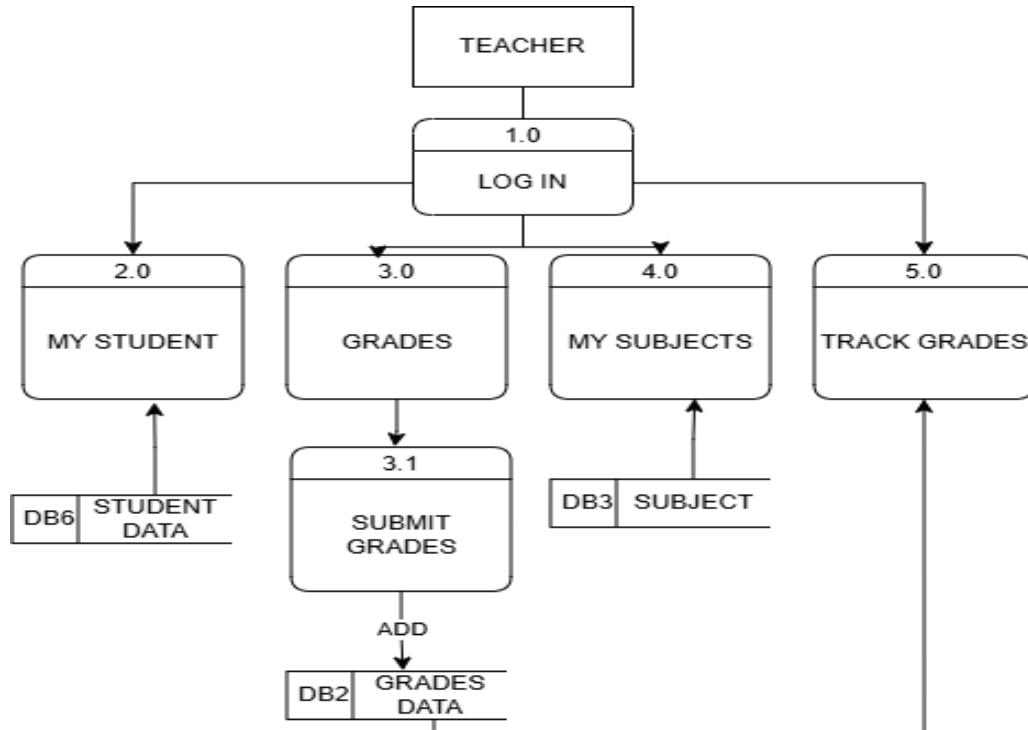


Figure 9.3. Data Flow Diagram Level 1 (Teacher)

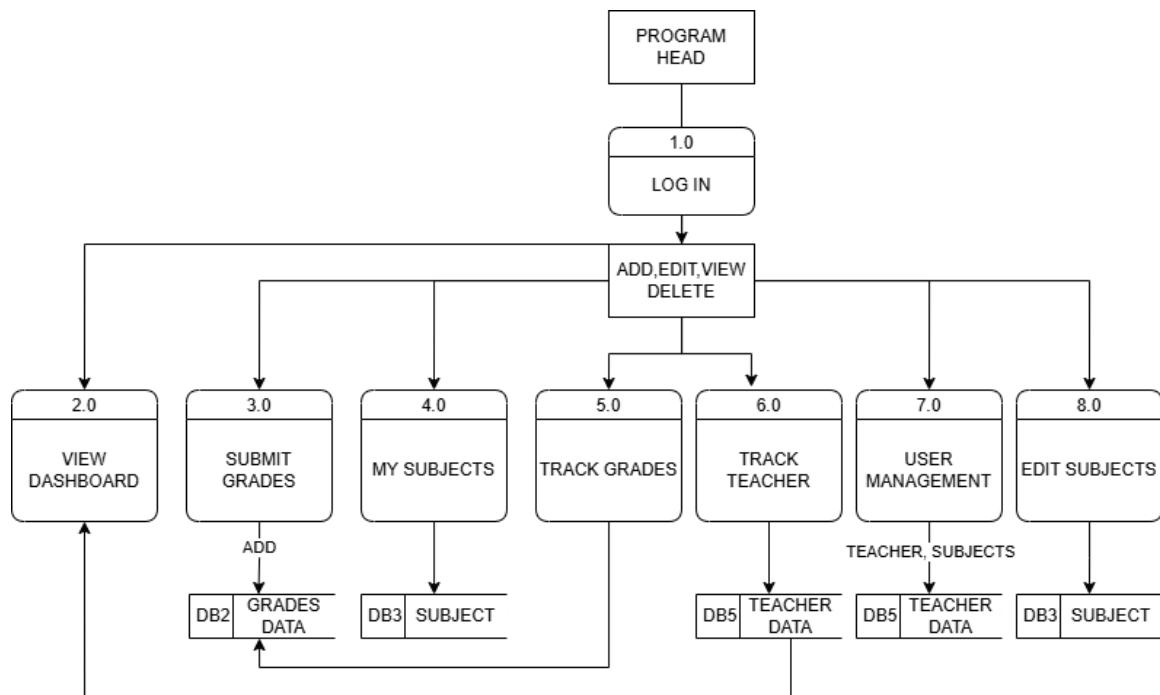


Figure 9.4. Data Flow Diagram Level 1 (Program Head)

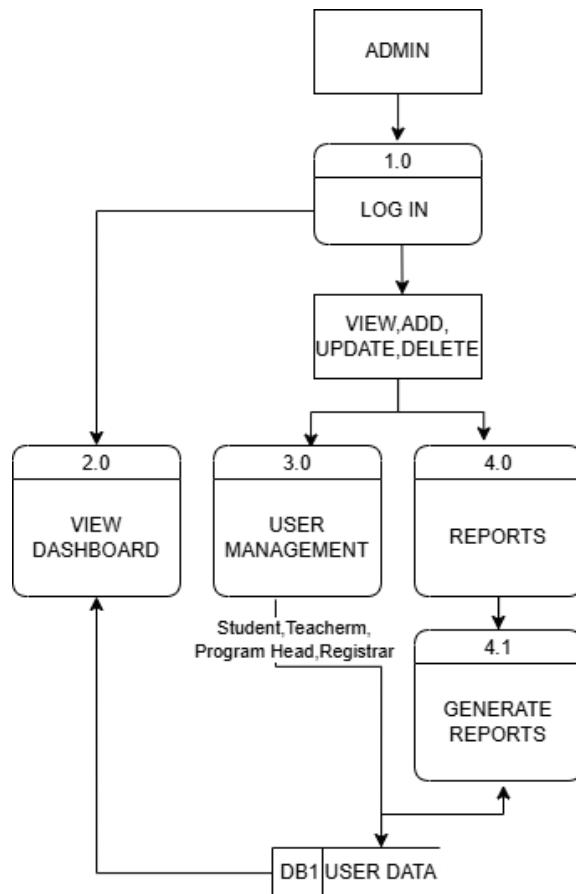


Figure 9.5. Data Flow Diagram Level 1 (Admin)

USE-CASE DIAGRAM

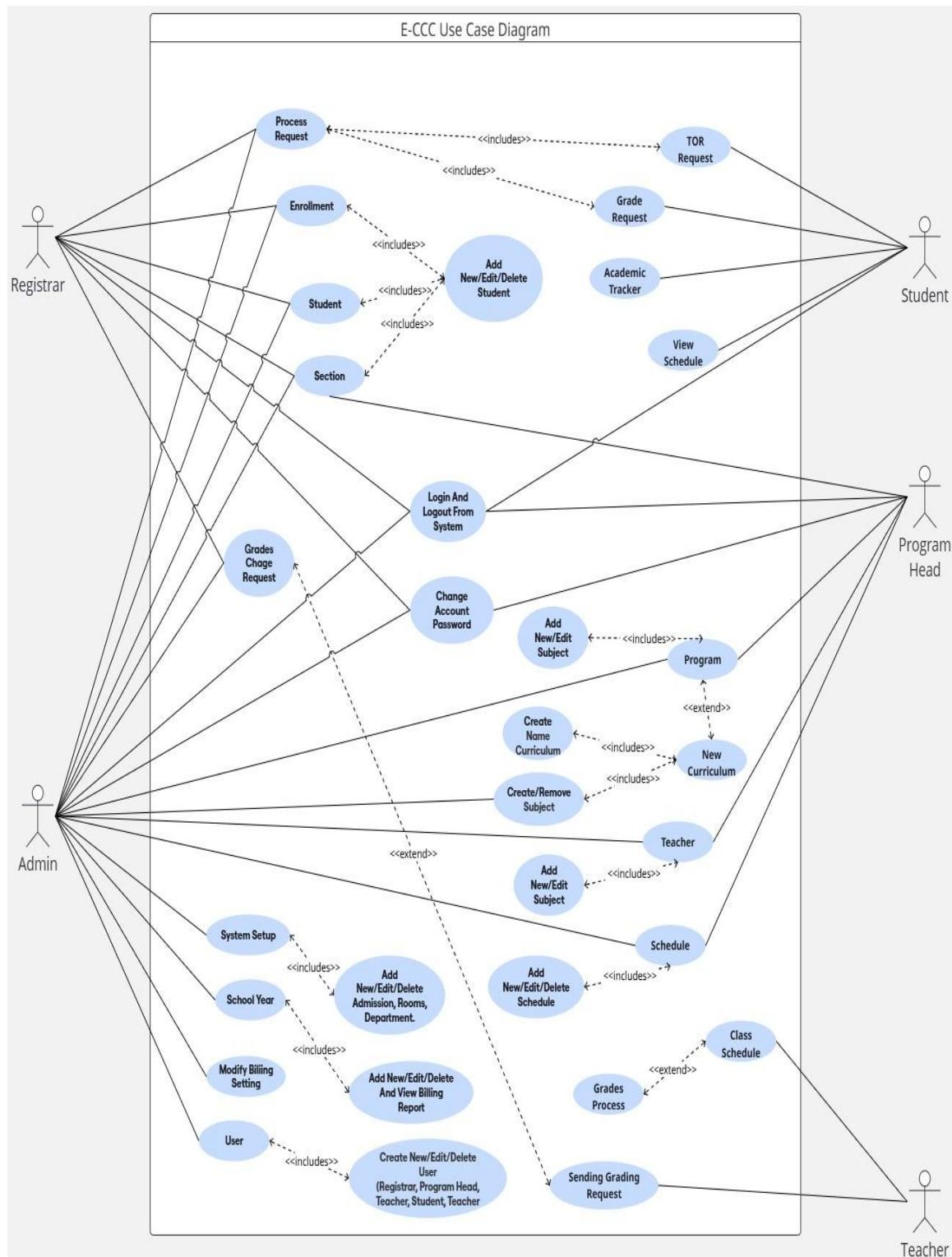


Figure 10. Use-Case Diagram

Figure 10 illustrates the Use Case Diagram of the proposed web-based document processing and management system for Calabanga Community College (CCC). The diagram shows the interaction between different system users and the functions they can perform. The main actors include the Student, Teacher, Program Head, Registrar, and Administrator, each representing a distinct role within the system.

Design of Software, System, Product, and/or Processes

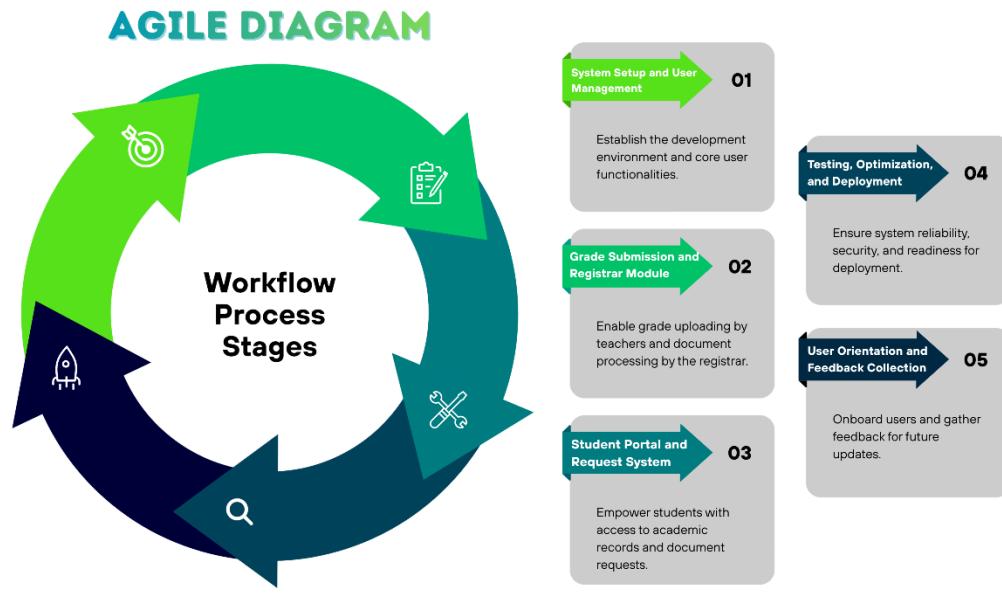


Figure 11. Scrum Development Methodology

The figure above illustrates the use of Scrum, an Agile methodology, for developing the "E-CCC: A Web-Based Enrollment and Academic Records Management System for Calabanga Community College". Scrum divides the project into iterative sprints, allowing the team to deliver features such as grade submission, academic document processing, and student self-service portals in manageable phases. Each sprint begins with planning, followed by daily stand-ups, development and testing, and ends with a review and retrospective to gather feedback and identify improvements.

Scrum is considered the most appropriate development methodology for the E-CCC system as it directly aligns with the operational context, constraints, and modernization goals of Calabanga Community College (CCC). The institution currently functions with limited

administrative manpower, experiences heavy workloads during peak academic periods, and operates through outdated and highly manual processes that often result in fragmented communication among faculty, the Registrar, and Program Heads. These conditions necessitate a development approach that is flexible, incremental, and responsive to stakeholder input—characteristics inherent to the Scrum framework.

Unlike linear models such as Waterfall, Scrum is well-suited to environments where requirements are evolving, processes are inconsistently documented, and user feedback is critical to ensuring system accuracy. CCC's existing workflows contain variations that are not formally recorded, requiring continuous clarification and validation throughout system development. Scrum accommodates these challenges by delivering system components in short, iterative sprints, allowing the development team to engage end-users—including the Registrar, faculty members, Program Heads, and students—in validating features as they are released. This iterative validation is particularly important for an institution transitioning from manual processes, as it enables users to gradually adapt, test, and refine their operational practices alongside the evolving digital system.

Through its sprint-based structure, Scrum ensures that CCC's highest-priority needs—such as efficient grade submission, reliable academic record processing, timely document issuance, and improved student access to information—are addressed early in the development cycle. Moreover, Scrum reduces risks arising from misunderstood or shifting requirements and supports rapid resolution of operational issues identified during user interviews, such as misplaced grade sheets, delayed submissions, slow transcript processing, and the absence of real-time tracking features. These challenges require ongoing corrective action rather than a single, sequential development pass.

Furthermore, CCC's broader institutional goal of digital modernization necessitates a system that can scale and adapt to changing academic policies, administrative demands, and user expectations. Scrum's emphasis on continuous improvement through sprint reviews and retrospectives ensures that system adjustments remain aligned with actual

institutional needs rather than assumptions. This allows CCC administrators and stakeholders to actively guide system enhancements throughout the development process.

Scrum is not only appropriate but strategically necessary for CCC's context. Its flexibility, responsiveness to change, and strong stakeholder involvement provide the foundation for developing a reliable, secure, and scalable academic management system. Consequently, Scrum supports CCC's long-term objective of institutional modernization while ensuring the E-CCC system effectively enhances operational efficiency, transparency, and user experience.

Development

The development process follows the Scrum Development Methodology, ensuring an iterative and user-centric approach.

Sprint 1: System Setup and User Management

Goal: Establish the development environment and core user functionalities.

Tasks:

- Set up development tools (Laravel, FilamentPHP, PostgreSQL).
- Develop a secure login and authentication system with role-based access (Admin, Program Head, Teacher, Registrar, Student).
- Design and implement the dashboard interface for each user role.

Deliverables:

- Working user registration and login system.
- Functional dashboards tailored to user roles.

Sprint 2: Grade Submission and Registrar Module

Goal: Enable grade uploading by teachers and document processing by the registrar.

Tasks:

- Implement a grade upload and submission module for teachers.
- Create registrar tools for verifying, generating, and processing academic records (e.g., transcripts, copies of grades).

Deliverables:

- Grade management module for teachers.
- Document processing tools for the registrar.

Sprint 3: Student Portal and Request System

Goal: Empower students with access to academic records and document requests.

Tasks:

- Develop a student dashboard for viewing grades and academic progress.
- Create an online request form for transcripts and certified records.
- Set up status tracking for document requests.

Deliverables:

- Student self-service portal.
- Academic document request and tracking feature.

Sprint 4: Testing, Optimization, and Deployment

Goal: Ensure system reliability, security, and readiness for deployment.

Tasks:

- Conduct system-wide functionality and usability testing.
- Optimize performance and ensure security compliance.
- Prepare for live deployment of the system.

Deliverables:

- Fully functional and optimized E-CCC system.
- Production-ready deployment package.

Sprint 5: User Orientation and Feedback Collection

Goal: Onboard users and gather feedback for future updates.

Tasks:

- Conduct training sessions for all user groups.
- Provide user guides and manuals.
- Collect feedback through surveys and direct input.

Deliverables:

- Fully trained user base (admin, teachers, registrar, students, program head).
- Feedback report for potential system improvement

RESULTS AND DISCUSSION

Testing

The E-CCC system underwent a comprehensive series of testing procedures to validate its functionality, reliability, usability, compatibility, and readiness for deployment. Multiple testing phases were implemented to ensure that all modules performed according to institutional requirements and that the system supported real-world academic and administrative processes at Calabanga Community College.

Unit Testing:

Unit testing focused on verifying individual modules and core system functions to ensure proper operation before integrating components.

Key Areas Tested:

- Enrollment requirements tracking
- Grade encoding and submission
- Transcript and certificate generation
- Role-based access control
- Secure login and authentication

Outcomes

Each module performed as expected, and errors detected during early tests—such as misaligned UI elements and incorrect validation prompts—were corrected before integration. Authentication tests confirmed that the system correctly validated credentials and restricted access based on assigned user roles (Registrar, Faculty, Program Head, Student).

Integration Testing:

Integration testing assessed data flow consistency and the interaction between modules and the centralized database.

Validated Interactions

- Synchronization of enrollment data with registrar and faculty dashboards
- Automatic reflection of updated student information in academic records
- Seamless transfer of faculty-submitted grades to the Registrar's verification panel

Results

Data exchanges across all modules were processed without delay, and no transaction conflicts were observed. The system successfully maintained consistency between user dashboards and centralized records.

User Acceptance Testing (UAT):

UAT was conducted with registrars, faculty members, non-teaching staff, and selected students to evaluate system usability, accuracy of workflows, and alignment with CCC's operational needs.

UAT Process

- Participants performed real tasks using the system (e.g., grade submission, document request processing, student login).
- Observations were recorded, and feedback forms were collected.
- Identified issues were refined through iterative updates.

Key Improvements Based on UAT Feedback

- Clearer menu labels for better navigation
- Simplified dashboard layout for users with limited digital literacy
- Larger buttons and icons for mobile users
- More visible notification alerts for document request updates

Performance Testing:

Performance testing ensured that the system could support peak enrollment and academic processing periods without degradation.

Performance Scenarios

- Simulation of peak enrollment traffic
- Load testing with 10–100 concurrent users
- Stress testing to evaluate system behavior beyond operational limits
- Real-time transcript generation validation

Results

- Average page load time remained under **3 seconds**, meeting usability standards.
- The system remained stable even under higher-than-normal simulated loads.
- Transcript generation remained accurate with no data loss or delays.
- Stress testing confirmed the system could recover from unusually high traffic loads once conditions stabilized.

Description of Prototype

System Requirements

- Operating System: Windows 10 or higher
- Web Browsers: Latest versions of Chrome, Firefox, or Edge
- Processor: Intel Core i3 or equivalent
- RAM: Minimum 4 GB
- Storage: At least 500 MB free space for browser cache and application data
- Internet: Stable broadband connection with at least 3 Mbps download speed

Preliminary Design

The E-CCC prototype provides a clean, intuitive web interface designed for registrars, faculty, and staff with varying technical backgrounds. Users can efficiently perform core tasks—such as enrollment verification, academic record retrieval, grade submission, and transcript generation—through clearly organized dashboards and menus. The design minimizes visual clutter while presenting essential functions prominently for quick access.

A centralized database architecture synchronizes enrollment and academic records in real time, ensuring that all authorized users access accurate, up-to-date information. Robust role-based access controls restrict system features according to user roles (registrars, faculty, program heads), reinforcing data privacy and security compliance.

Evaluation and Testing

- **Functionality Testing:** Verified each module—enrollment tracking, academic records management, grade submission, transcript generation, and secure authentication—to confirm correct and reliable operation.
- **Usability Testing:** Collected feedback from registrars, teachers, students and program heads to refine navigation, clarify interface elements, and improve workflow efficiency, leading to several iterative updates.
- **Compatibility Testing:** Checked performance across multiple web browsers and devices to ensure a consistent user experience.

The system was evaluated on the most commonly used web browsers, including Google Chrome, Mozilla Firefox, Microsoft Edge, and Safari, to assess compatibility with different rendering engines. Tests were also conducted across multiple devices such as desktop computers, laptops, tablets, and smartphones, operating on Windows, Android, and iOS platforms.

Each combination of device and browser was used to perform essential system

functions: logging in, viewing class schedules, submitting requests for certificates of grades, generating transcripts, and approving or processing records. These tests ensured that the E-CCC system interface and features were displayed properly and performed reliably under different environments.

Results showed that the system was fully functional and visually consistent across all tested browsers and devices. On desktop and laptop platforms, the layout, interactive forms, and buttons loaded accurately, with no instances of misaligned elements or missing data fields. On mobile devices, the responsive design automatically adjusted the interface to smaller screen sizes, maintaining readability and ease of navigation.

Testing also included evaluating page loading speed and responsiveness. Average page load time remained under 3 seconds across all devices and browsers, meeting usability standards for modern web applications. The system's performance remained stable even when accessed over varying internet speeds, confirming that essential functions such as login validation, data retrieval, and form submissions were executed smoothly on both high-speed and mobile data connections.

Implementation Plan

The E-CCC system aims to digitalize and streamline enrollment and academic records management at Calabanga Community College through a secure, user-friendly web-based platform. The implementation involves deploying centralized data management with robust access controls to support registrars, faculty, and administrative staff.

Hardware Requirements

- User Devices: Computers for registrars, faculty, and administrative staff meeting minimum specifications (Intel Core i3 or equivalent processor, minimum 4 GB RAM, and sufficient storage) to ensure efficient system operations.
- Servers: Centralized database and web server infrastructure with adequate processing power and capacity to support concurrent users and data volume.

- Network: Reliable broadband internet connectivity with stable Wi-Fi coverage across campus enabling real-time access and synchronization.
- Peripheral Devices: Optional printers for generating reports and official documents where needed.

Facilities

- Administrative Workspaces: Properly configured with secure internet access and adequate power supply to support uninterrupted system use.
- Training Areas: Rooms equipped with computers and internet for conducting user training sessions.

Materials

- Documentation: User manuals, system guides, and troubleshooting resources tailored for all user roles.
- Office Supplies: Necessary paper and printing materials for administrative functions.

Personnel

- Project Team: Developers, system administrators, and IT support staff responsible for deployment, configuration, and ongoing maintenance.
- Trainers: Staff dedicated to delivering comprehensive training and cybersecurity awareness programs for all end-users.
- Support Staff: Helpdesk personnel to provide user assistance during and after system rollout.

Findings Summary

4 responses

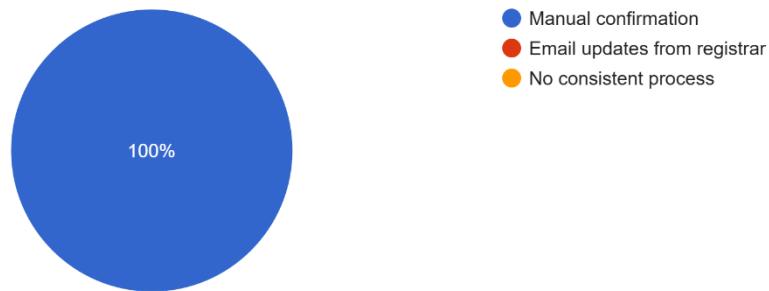


Figure 12.1 Monitoring of submitted grades by Faculty

Figure 12.1 shows the responses collected from the eCCC Questionnaire (Initial Testing for Program Head). All four participants (100%) currently monitor faculty submissions of final grades through manual confirmation. Every respondent (100%, 4 out of 4) encountered recurring problems, with delays in submission being the most prominent.

4 responses

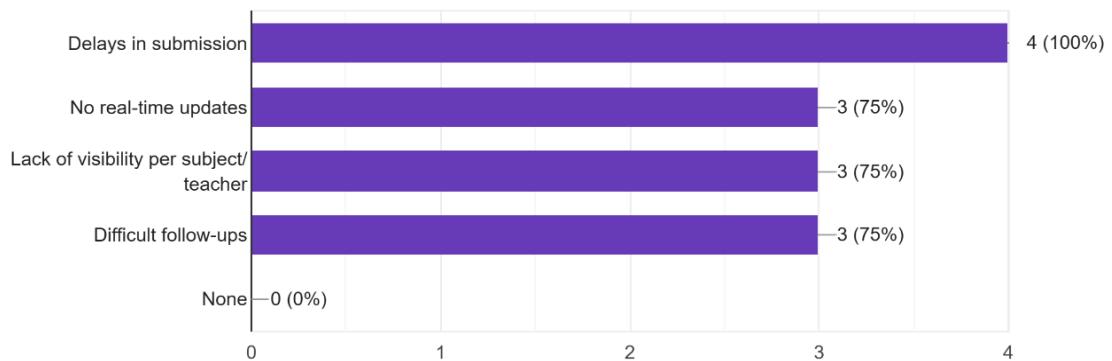


Figure 12.2 Issues in tracking faculty grade submission

Figure 12.2 shows that 75% (3 out of 4) of those surveyed reported additional issues such as lack of real-time updates, lack of visibility per subject or teacher, and difficulty in following up with faculty members.

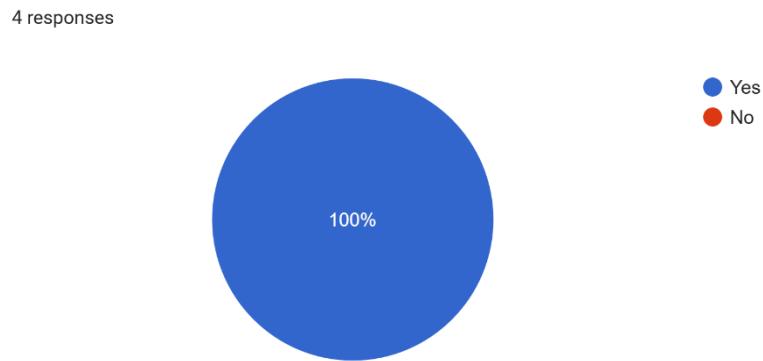


Figure 12.3 Real-Time updates on faculty submissions

Figure 12.3 shows that all respondents (100%, 4 out of 4) agreed that a system offering real-time updates on faculty submissions would improve oversight.

Coordination challenges were also highlighted: 25% (1 out of 4) mentioned that it can take too long to get a response regarding grade discrepancies, another 25% (1 out of 4) said tracking the status of a submitted grade concern is difficult, while another 25% (1 out of 4) identified the absence of an appropriate communication channel—group chats being the only option currently available. Overall, this data demonstrates a pressing need for enhanced monitoring tools and better communication channels to address grade submission and coordination issues.

5 responses

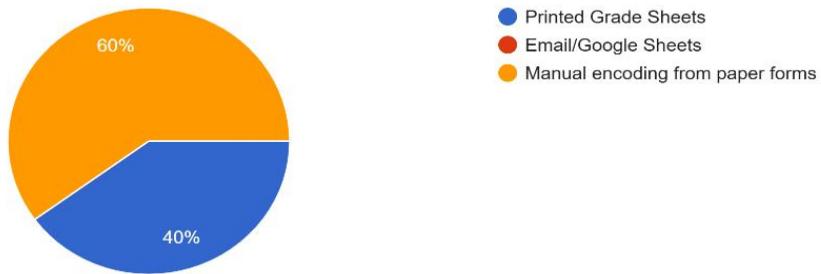


Figure 13.1 Receiving of Grade submissions from Faculty

Figure 13.1 shows the initial Registrar survey, with five respondents, revealed that 100% (5 out of 5) handle faculty grade submissions through manual encoding from printed grade sheets.

5 responses

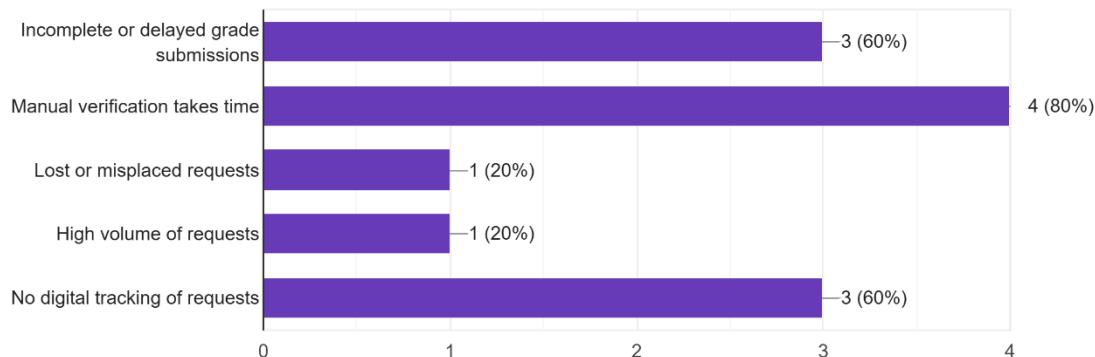


Figure 13.2 Challenges faced when processing academic request

Figure 13.2 shows that Manual verification was described as time-consuming by 80% of the respondents (4 out of 5). Incomplete or delayed grade submissions were reported by 80% (4 out of 5), while the absence of digital tracking and the frequent loss or misplacement of submissions were noted by 60% (3 out of 5).

5 responses

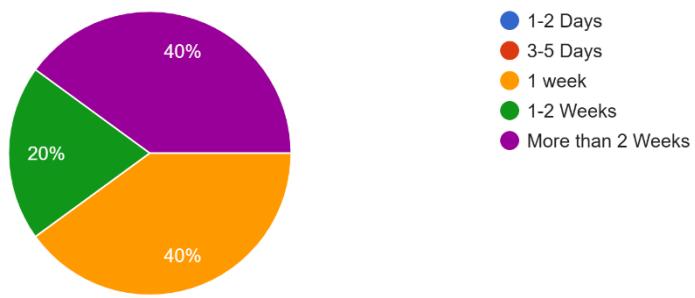


Figure 13.3 Processing of Transcript of Records

Figure 13.3 shows that for Transcript of Records processing, 40% (2 out of 5) confirmed it takes at least one week, and 40% (2 out of 5) said it often exceeds two weeks due to the manual workflow.

5 responses

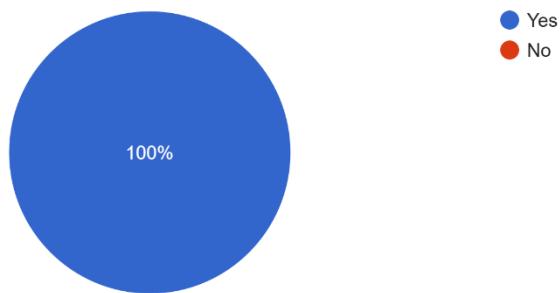


Figure 13.4 Centralized system for document request

Figure 13.4 shows that all registrars (100%, 5 out of 5) agreed that a centralized digital records system would improve efficiency. The most needed features—digital grade submission, request tracking, and student request history—were unanimously cited (100%, 5 out of 5). The main difficulties highlighted were long waiting times and the lack of real-time tracking, emphasizing the urgent need for a digital records management system to reduce errors, delays, and administrative burdens.

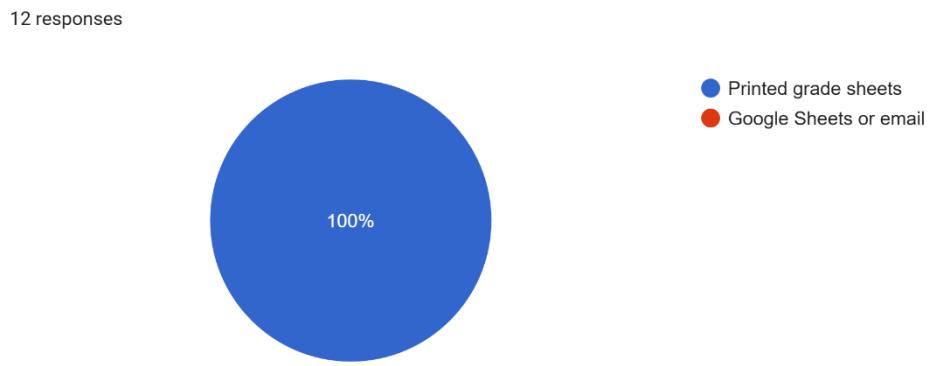


Figure 14.1 Submission of student grades

Figure 14.1 shows that all 13 faculty respondents (100%) currently submit grades using printed grade sheets.

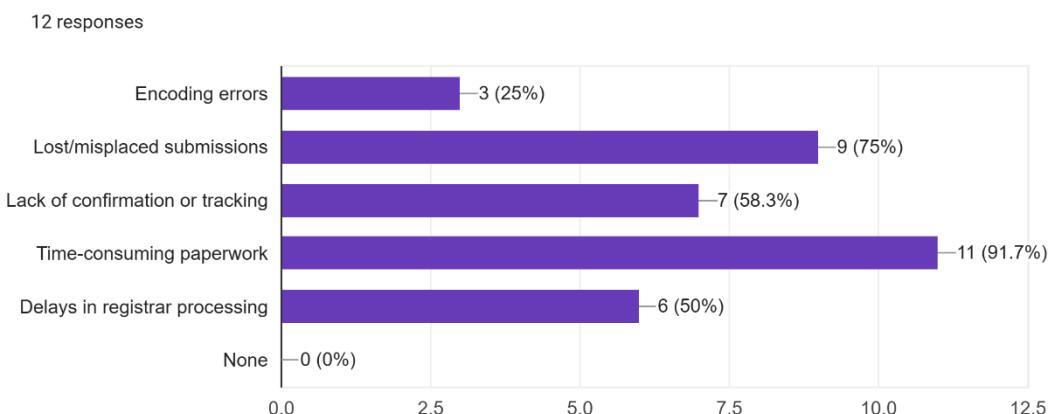


Figure 14.2 Challenges experienced when managing and submitting grades

Figure 14.2 indicates that Time-consuming paperwork was experienced 11 faculty (91.7%), lost or misplaced submissions by 9 (75%), lack of confirmation or tracking by 7 (58.3%), encoding errors by 3 (25%), and registrar delays by 6 (50%).

12 responses

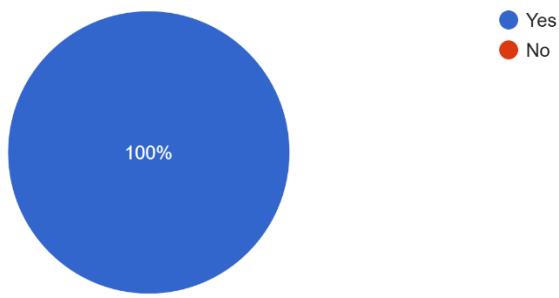


Figure 14.3 Having centralized academic system

Figure 14.3 shows that every faculty member (100%) supported the development of a centralized digital grading system to reduce errors and improve coordination.

12 responses

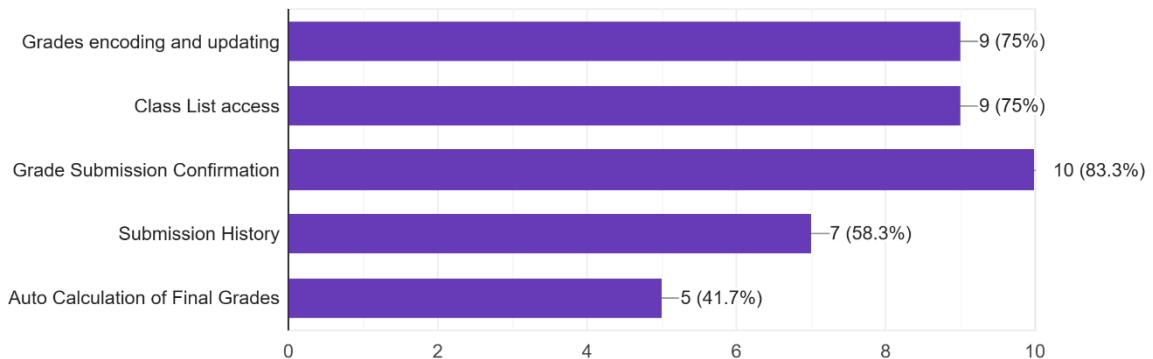


Figure 14.4 Features in digital grading system

Figure 14.4 indicates that the most desired features were grade encoding and updating (75%), access to class lists (75%), grade submission confirmation (83.3%), submission history (58.3%), and auto-calculation of final grades (41.7%). These responses demonstrate strong faculty support for digital transformation in grade management, with emphasis on streamlining academic processes.

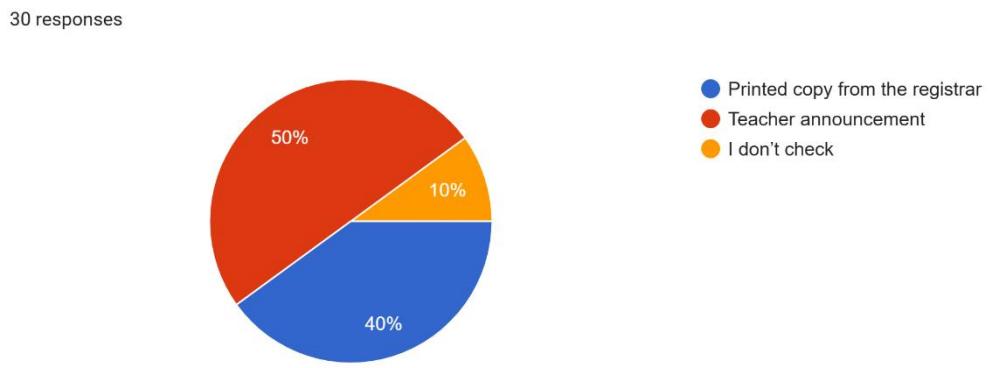


Figure 15.1: Methods of Checking Grades

Figure 15.1 shows that the majority of respondents rely on traditional methods to access their grades. Specifically, 12 students (40%) obtain printed copies from the registrar, while 15 students (50%) check their grades through teacher announcements. However, 3 students (25.8%) reported not checking their grades at all, highlighting a significant gap in student engagement with grade tracking. This pattern indicates the necessity for implementing an accessible digital platform that provides real-time grade notifications and easy access to academic records online.

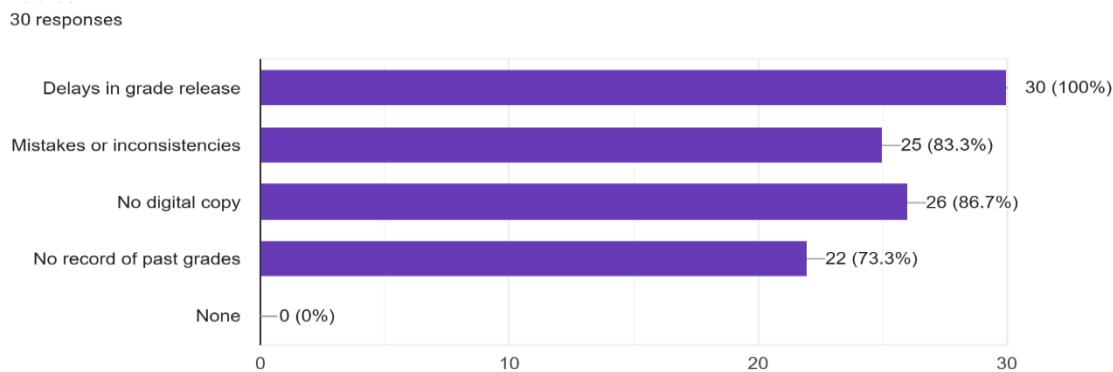


Figure 15.2: Issues Experienced When Accessing Grades

Figure 15.2 shows that the survey revealed significant systemic challenges affecting students' ability to access grades. Delays in grade release represent the most critical issue, with 30 students (100%) reporting this problem. Additionally, 25 students (83.3%)

experienced mistakes or inconsistencies in their grade records, while 26 students (86.7%) lack access to digital copies of their grades. Furthermore, 22 students (73.3%) cannot access historical grade records. These findings demonstrate widespread issues in the current grading infrastructure, emphasizing the urgent need for an improved digital system that ensures timely grade releases, maintains accuracy, and provides comprehensive record-keeping capabilities.

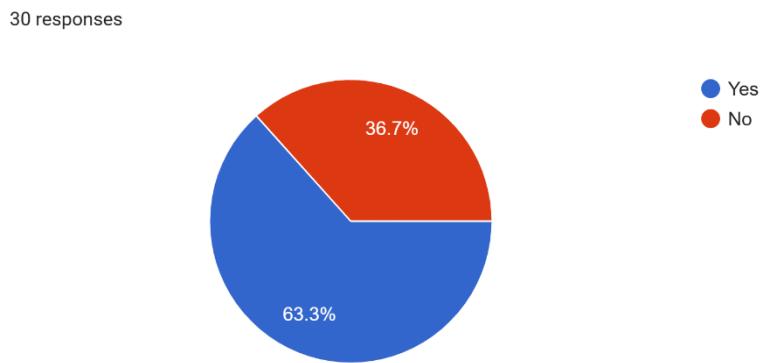


Figure 15.3: Incorrect Grade Information

Figure 15.3 shows that when asked whether they had ever received incorrect grade information, 19 students (63.3%) answered affirmatively, while 11 students (36.7%) reported not experiencing this issue. This roughly equal split indicates that grade accuracy is a substantial concern affecting approximately half of the student population. The prevalence of incorrect grade information underscores the importance of implementing validation mechanisms and quality assurance processes within the enrollment system to prevent data entry errors and ensure grade integrity.

30 responses

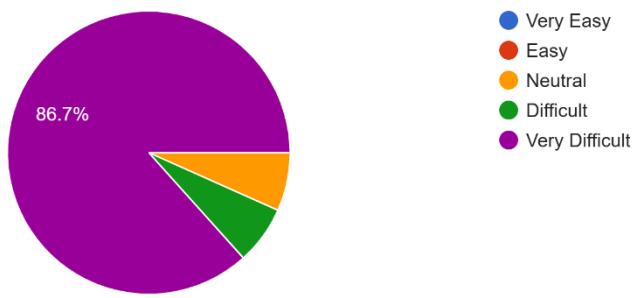


Figure 15.4: Rating of the Process of Requesting Academic Records

Figure 15.4 shows that respondents rated the process of requesting academic records on a scale from Very Difficult to Neutral. The overwhelming majority, 26 students (86.7%), rated the process as Very Difficult, while only 2 students (6.7%) found it Difficult, and 2 students (6.7%) remained Neutral. No respondents selected easier difficulty levels, indicating that the current process for requesting academic records is perceived as significantly burdensome. This finding highlights a critical deficiency in the current system that must be addressed by developing a streamlined, user-friendly interface for academic record requests.

30 responses

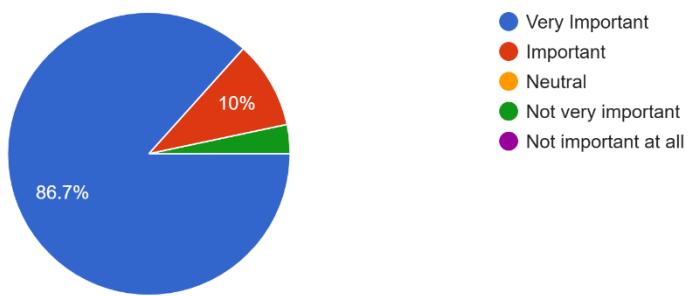


Figure 15.5: Importance of Online Grade Access

In figure 15.5, students were asked to rate the importance of accessing grades online. The results demonstrate strong consensus regarding the importance of online grade access.

Specifically, 26 students (86.7%) rated it as Very Important, while 3 students (10%) considered it Important, and only 1 student (3.3%) remained Neutral. This overwhelming agreement indicates that students recognize the critical value of digital grade access systems. The strong preference for online access validates the enrollment system's focus on providing comprehensive digital capabilities for grade tracking and academic record management.

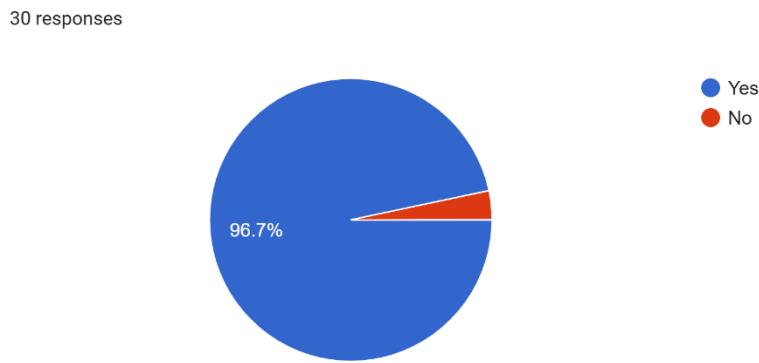


Figure 15.6: Secure Student Portal for Grade Viewing and Document Requests

Figure 15.6 shows that 29 students (96.7%) responded affirmatively when asked whether they believe a secure student portal for viewing grades and requesting documents would improve their experience. While only 1 (3.3%) responded no to having secure student portal. This almost unanimous agreement represents the strongest consensus among all survey questions and provides unequivocal validation for implementing a comprehensive digital portal. The 96.7% support rate demonstrates that students unanimously recognize the value of a centralized, secure platform that consolidates grade access and document request capabilities, making this a critical feature for the enrollment system development.

30 responses

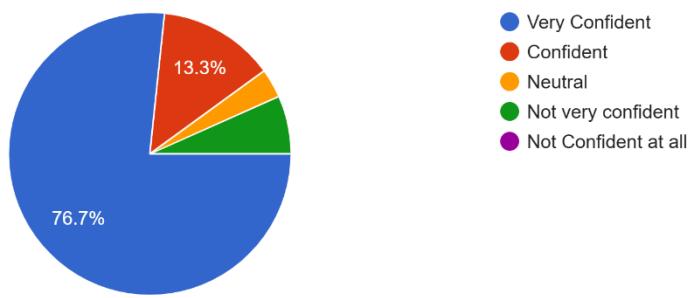


Figure 15.7: Confidence Using Online Systems to Access Academic Information

Figure 15.7 shows that when assessing students' confidence in using online systems to access academic information, responses varied but remained predominantly positive. Specifically, 23 students (76.7%) expressed high confidence reporting themselves as Very Confident, while 4 students (13.3%) indicated Confident levels of proficiency. However, 1 student (3.3%) selected Neutral, and 2 students (6.7%) reported Not very confident. The strong majority of students demonstrating confidence in using online systems suggests that the technical barrier to adoption is relatively low, though targeted support should be provided for the minority expressing uncertainty.

The findings from the initial data collection confirm that the existing manual workflows for grade submission, academic record management, and enrollment are inefficient, error-prone, and time-consuming. They also underscore a shared institutional need for digital transformation to improve coordination, transparency, and accessibility among all stakeholders.

User Testing Results

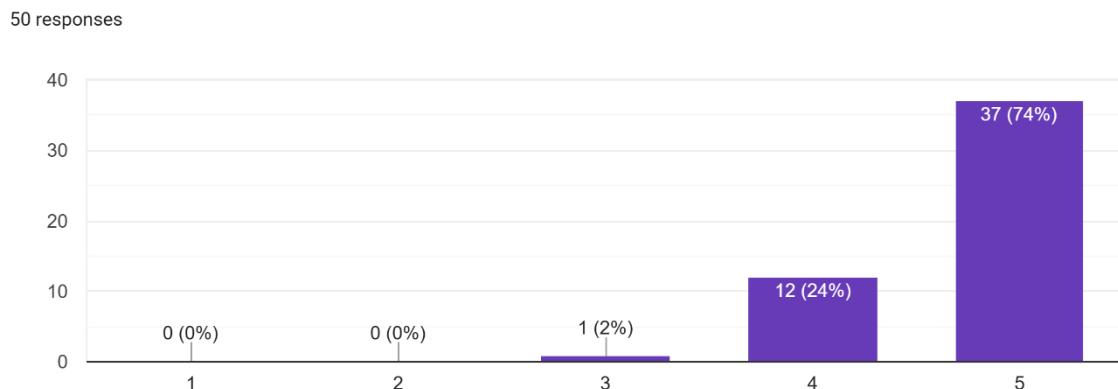


Figure 16.1 - Login and Account Access

Figure 16.1 shows that out of 50 student respondents, 49 students (97.9%) rated their ability to log in and access their account without issues as either very satisfied (5) or satisfied (4), indicating strong system performance. A total of 37 students (74%) gave a rating of 5, while 12 students (24%) gave a rating of 4. Only 1 student (2.0%) provided lower ratings, suggesting minimal login-related issues.

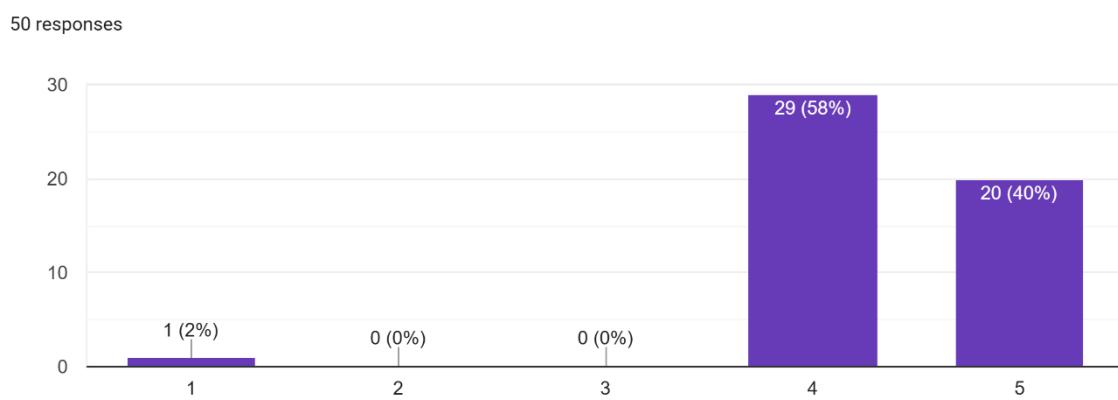


Figure 16.2 - Grade Viewing

Figure 16.2 shows that regarding the ease of viewing grades, 49 out of 50 students (98%) rated the system as very satisfied (5) or satisfied (4). Specifically, 20 students (61.2%) gave a rating of 5, and 29 students (34.7%) gave a rating of 4. The remaining 1 student (2%) provided ratings of 3 or lower, indicating room for improvement in grade display clarity.

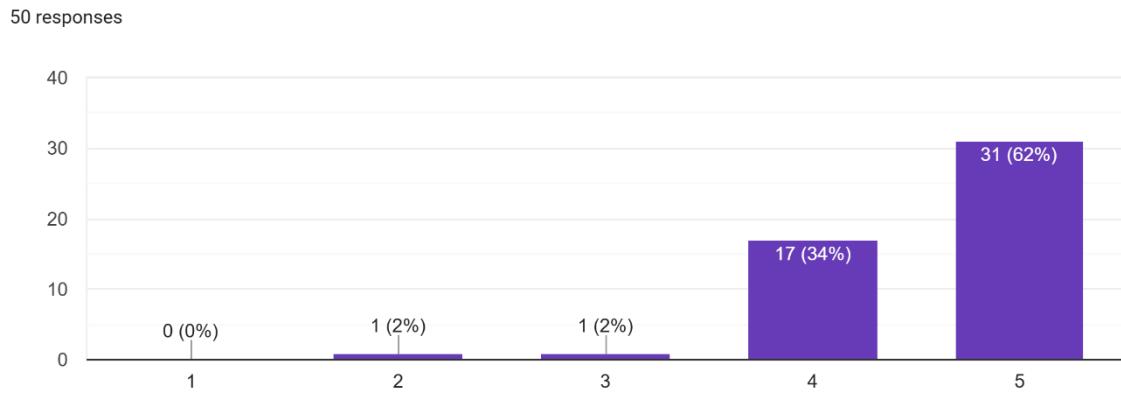


Figure 16.3 - Class Schedule Clarity

Figure 16.3 shows that the clarity of class schedules received strong ratings from 48 students (96%), who marked the system as very satisfied (5) or satisfied (4). Among these, 31 students (62%) rated it as 5, and 17 students (34%) rated it as 4. Only 2 students (4%) gave lower ratings, demonstrating excellent usability of the schedule display feature.

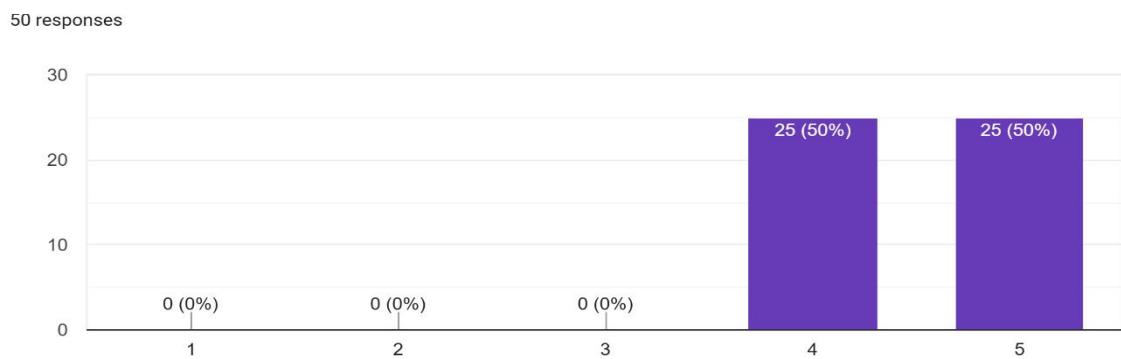


Figure 16.4 - Certificate Request Process

Figure 16.4 shows that the Certificate of Grades request process was rated positively by 50 students (100%), with 25 students (50%) giving a rating of 5 and 25 students (50%) giving a rating of 4. This suggests the form flow could be further simplified for enhanced user experience.

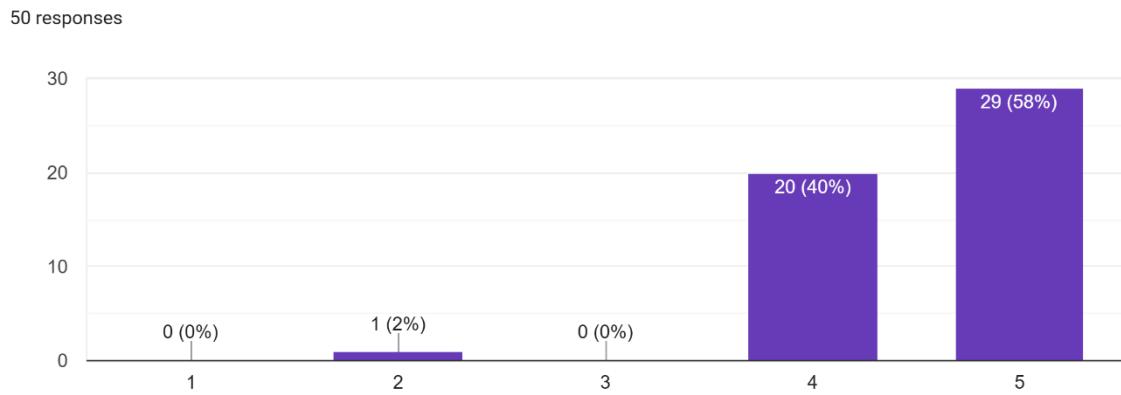


Figure 16.5 - Overall Student Satisfaction

In figure 16.5, when asked about overall satisfaction with the system, 49 students (98%) responded with ratings of very satisfied (5) or satisfied (4), with 29 students (58%) extremely satisfied and 20 students (40%) satisfied. Only 1 student (2%) provided lower satisfaction ratings. This demonstrates strong student endorsement of the enrollment system.

41 responses

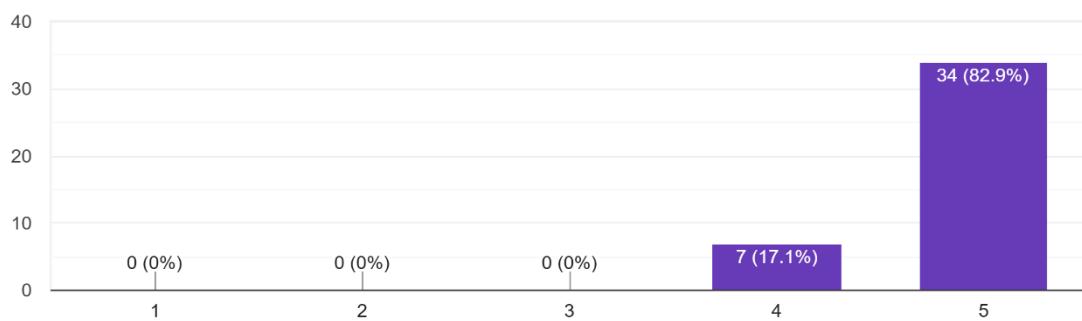


Figure 17.1 - Faculty Dashboard Access

Figure 17.1 shows that among 41 faculty respondents, 41 faculty members (100%) rated their ability to log in and access the faculty dashboard as very satisfied (5) or satisfied (4). Specifically, 34 faculty members (82.9%) gave a rating of 5, demonstrating strong confidence in the login functionality for faculty users.

41 responses

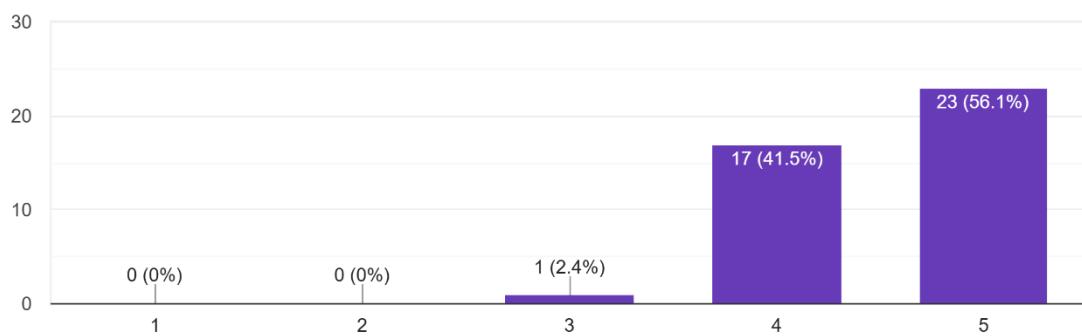


Figure 17.2 - Grade Encoding Efficiency

Figure 17.2 shows that the ease of adding or encoding student grades received positive feedback from 40 faculty members (97.6%), with 27 members (69.2%) rating it as 5 and 10 members (25.6%) rating it as 4. Only 1 faculty member (2.4%) provided lower ratings, indicating that the grade input interface is intuitive and efficient.

41 responses

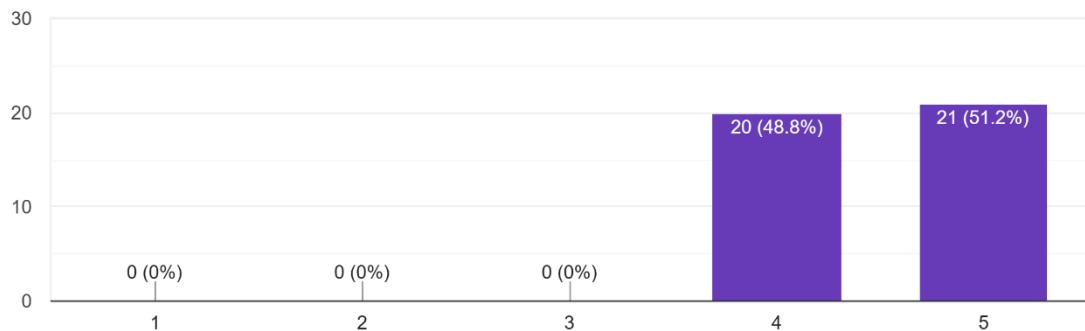


Figure 17.3 - Grade Submission Process

Figure 17.3 shows that the process of submitting grades to the Registrar was rated positively by 41 faculty members (100%), with 21 members (51.2%) giving a rating of 5 and 20 members (48.8%) giving a rating of 4. This suggests the submission workflow is well-designed and user-friendly.

41 responses

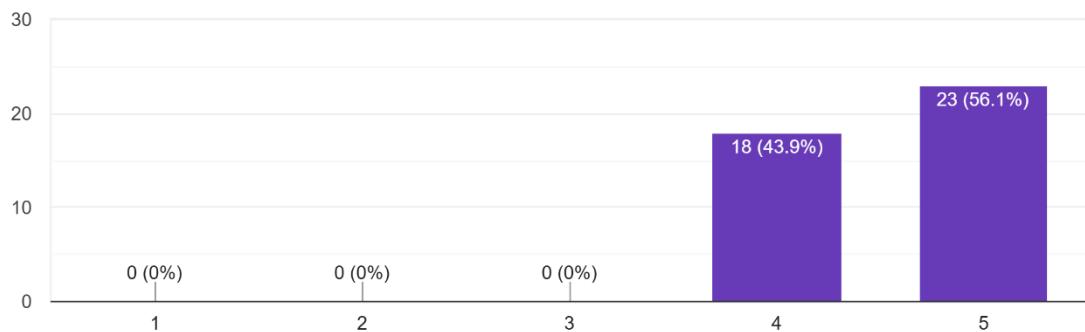


Figure 17.4 - Grade Change Request Management

In Figure 17.4, When asked about the grade change request process, 41 faculty members (100%) responded with ratings of very satisfied (5) or satisfied (4), with 23 members (56.1%) extremely satisfied and 18 members (43.9%) satisfied. This indicates potential areas for streamlining the grade modification workflow.

41 responses

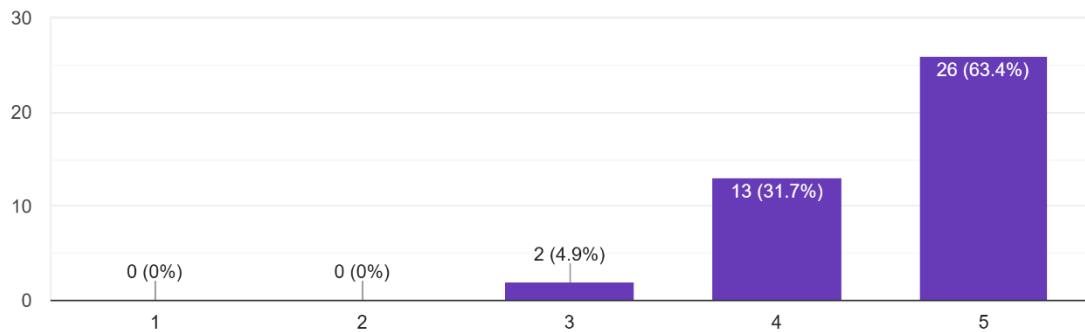


Figure 17.5 - Overall Faculty Satisfaction

Figure 17.5 shows that, regarding overall satisfaction with the system, 39 faculty members (95.1%) responded with ratings of very satisfied (5) or satisfied (4), with 26 members (63.4%) extremely satisfied and 13 members (31.7%) satisfied. Two faculty members (4.9%) provided lower satisfaction ratings. This demonstrates strong faculty approval of the enrollment system's grade management capabilities.

5 responses

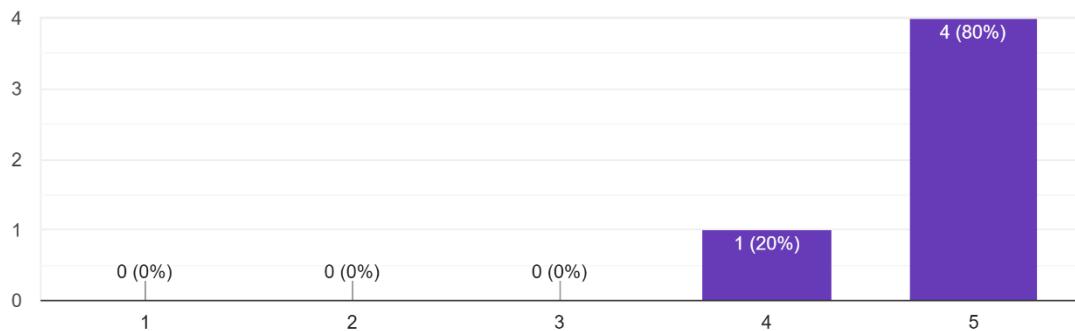


Figure 18.1 - Registrar Enrollment Management

Figure 18.1 shows that among 5 registrar respondents, all 5 registrars (100%) rated their ability to manage student enrollment efficiently as very satisfied (5) or satisfied (4). Specifically, 4 registrars (80%) gave a rating of 5, and 1 registrar (20%) gave a rating of 4, indicating excellent system support for enrollment operations.

5 responses

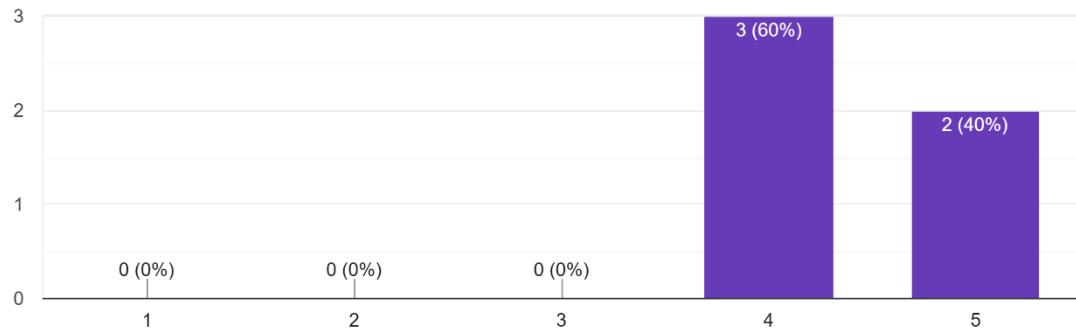


Figure 18.2 - Transcript and Certificate Request Processing

In Figure 18.2, the system's capability to process transcript and certificate requests received unanimous positive feedback from 5 registrars (100%), with 2 registrars (40%) giving a rating of 5 and 3 registrars (60%) giving a rating of 4. This demonstrates highly efficient document processing functionality.

5 responses

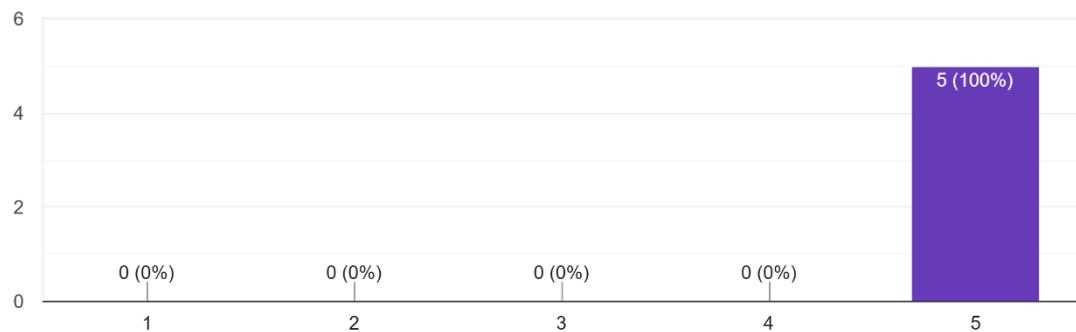


Figure 18.3 - Grade Verification

Figure 18.3 shows that when evaluating the organization and simplicity of receiving and verifying submitted grades, 5 registrars (100%) responded with ratings of very satisfied

(5) or satisfied (4). Specifically, 5 registrars (100%) rated it as 5, indicating robust verification workflows.

5 responses

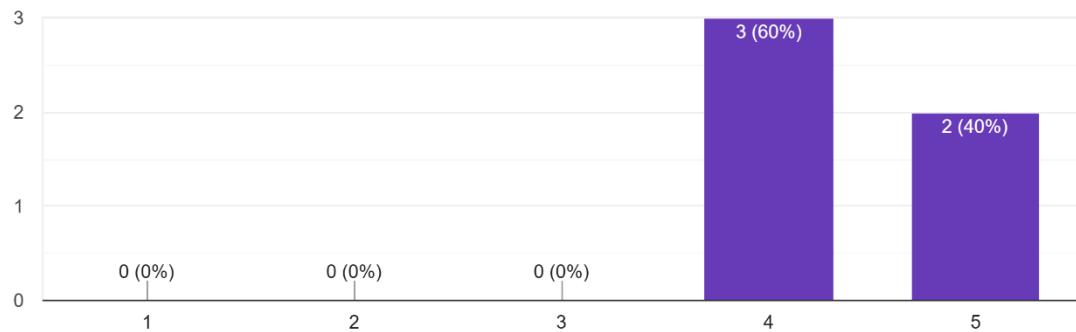


Figure 18.4 - Request Status Tracking

Figure 18.4 shows that the ease of tracking and updating the status of student requests was rated very positively by 5 registrars (100%), with 2 registrars (40%) giving a rating of 5 and 3 registrars (60%) giving a rating of 4. This shows excellent real-time status management capabilities.

5 responses

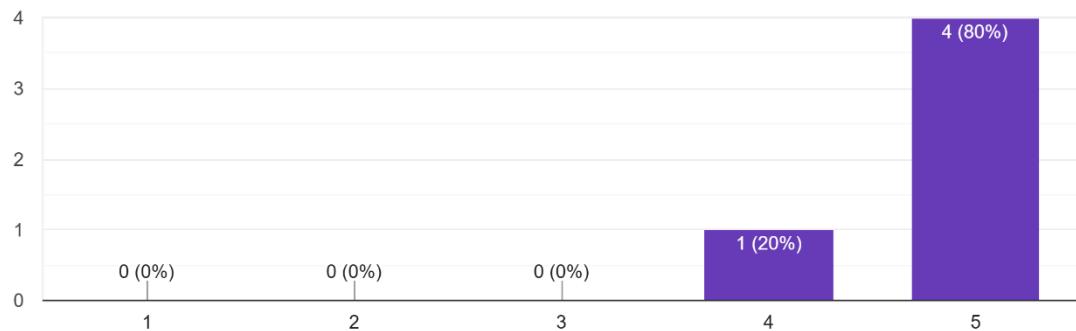


Figure 18.5 - Overall Registrar Satisfaction

Figure 18.5 shows that, regarding overall satisfaction with the system, all 5 registrars (100%) responded with ratings of very satisfied (5) or satisfied (4), with 4 registrars (80%) extremely satisfied and 1 registrars (20%) satisfied. This demonstrates unanimous registrar approval of the enrollment system's student records management features.

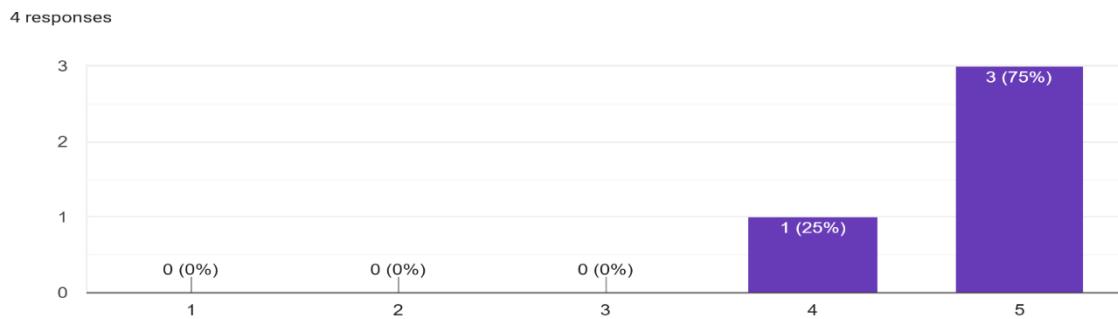


Figure 19.1 - Schedule Access

Figure 19.1 shows that among 4 program head respondents, all 4 program heads (100%) rated their ability to log in and access the scheduling features easily as very satisfied (5) or satisfied (4). Specifically, 3 program heads (75%) gave a rating of 5, demonstrating confident access to scheduling functions.

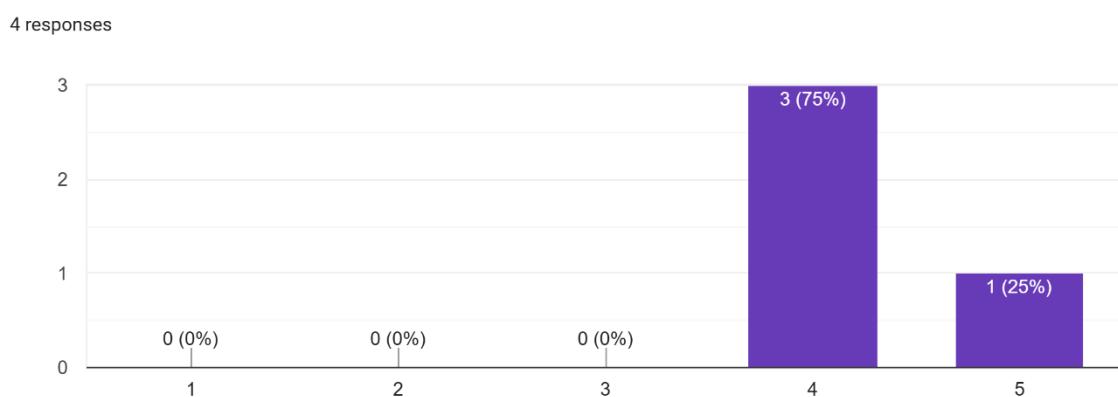


Figure 19.2 - Schedule Creation

Figure 19.2 shows that the ease of creating or editing class schedules received unanimous positive feedback from 4 program heads (100%), with 1 head (25%) rating it as 5 and 3 heads (75%) rating it as 4. This indicates highly intuitive schedule creation interfaces.

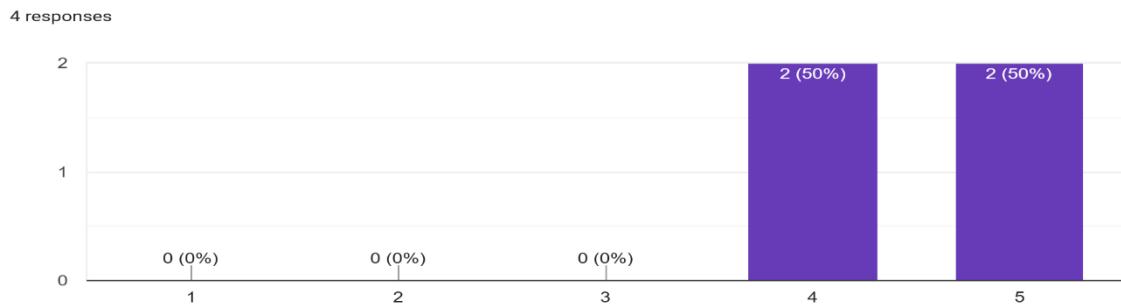


Figure 19.3 - Teacher and Subject Assignment

Figure 19.3 shows that when evaluating the ease of assigning teachers and subjects to classes, 4 program heads (100%) responded with ratings of very satisfied (5) or satisfied (4). Specifically, 2 program heads (50%) rated it as 5 and 2 program head (50%) rated it as 4, indicating streamlined assignment workflows.

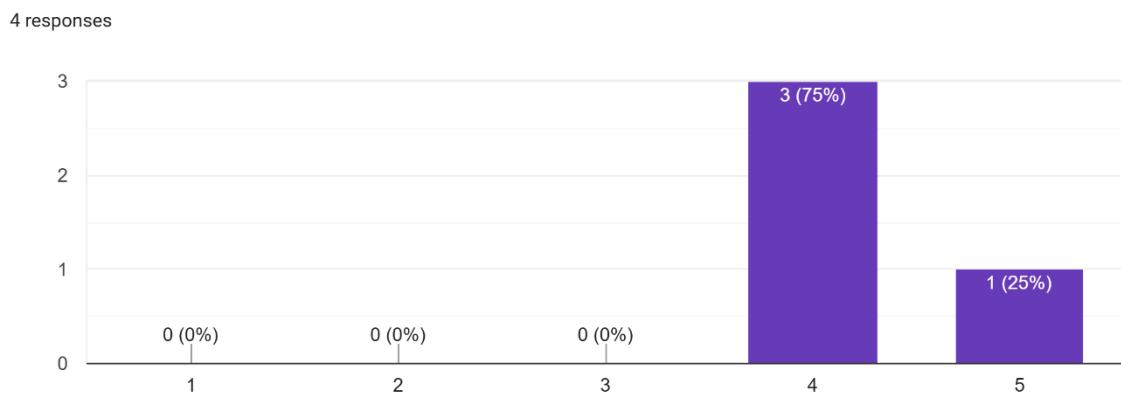


Figure 19.4 - Overall Program Head Satisfaction

Figure 19.4 shows that, regarding overall satisfaction with the system's scheduling functionality, all 4 program heads (100%) responded with ratings of very satisfied (5) or satisfied (4), with 1 head (25%) extremely satisfied and 3 heads (75%) satisfied. This demonstrates unanimous program head approval of the system's schedule management capabilities.

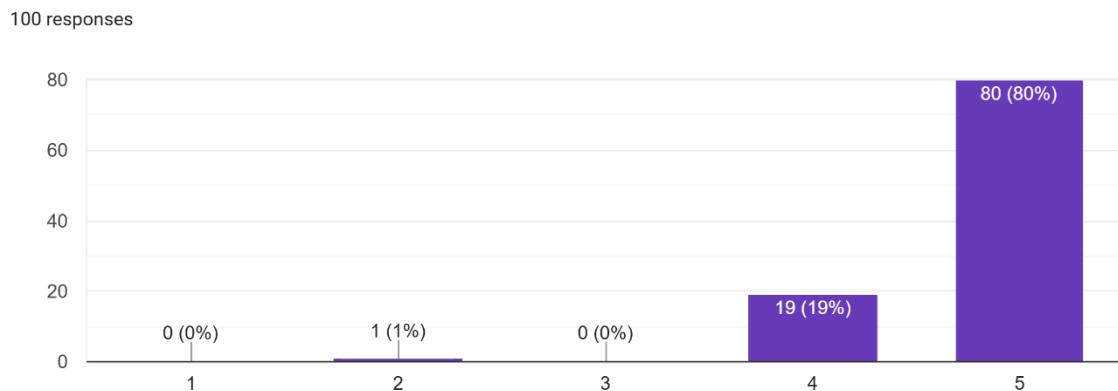


Figure 20.1 - Overall System Performance

In Figure 20.1, when evaluating overall system performance, 100 respondents (100%) out of 100 total respondents rated the system as very satisfied (5) or satisfied (4). Specifically, 80 respondents (80%) gave a rating of 5, and 19 respondents (19%) gave a rating of 4. Only 1 respondent (1%) provided lower ratings, indicating exceptional overall system performance.

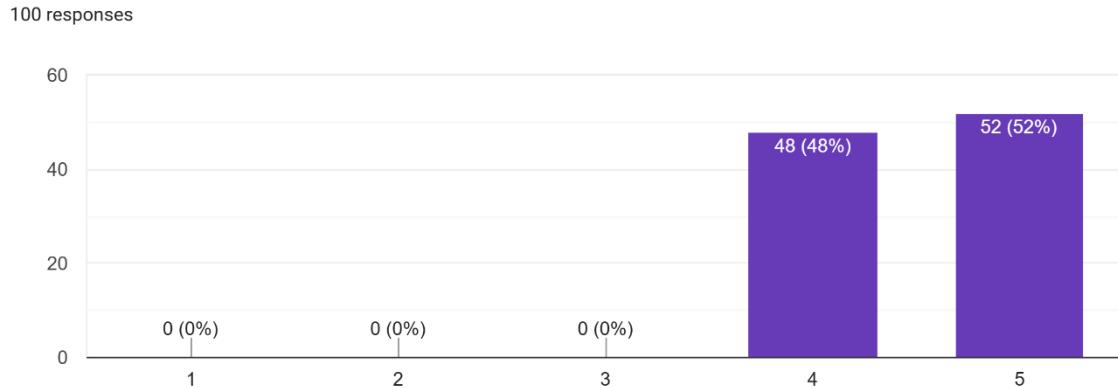


Figure 20.2 - Device Accessibility

Figure 20.2 show that, regarding the website's accessibility and responsiveness on different devices, 100 respondents (100%) rated the system as very satisfied (5) or satisfied (4), with 52 respondents (52%) giving a rating of 5 and 48 respondents (48%) giving a rating of 4. This demonstrates strong cross-device compatibility.

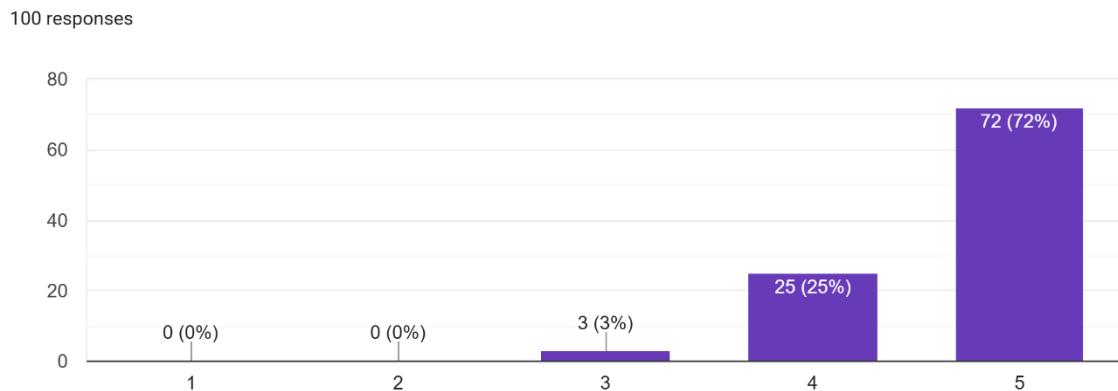


Figure 20.3 - Interface Design

Figure 20.3 shows that the interface design and color scheme were rated as visually clear and readable by 100 respondents (100%), with 72 respondents (72%) very satisfied and 25 respondents (25%) satisfied. Only 3 respondents (3%) provided lower ratings, indicating excellent visual design implementation.

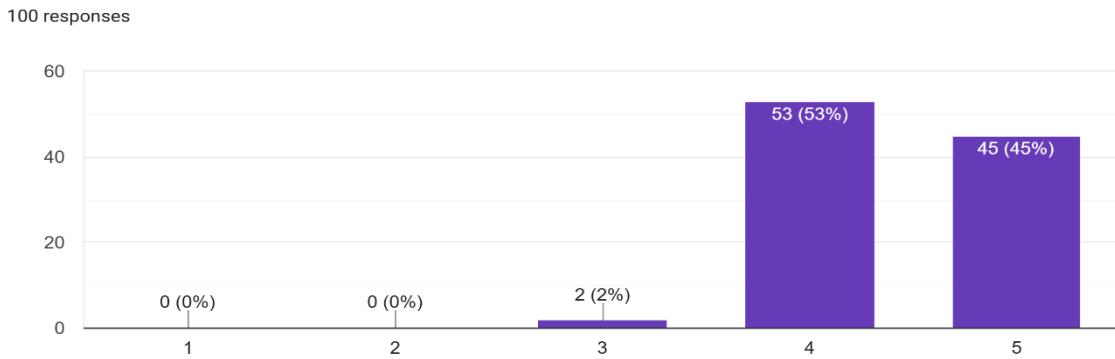


Figure 20.4 - System Navigation

In Figure 20.4, navigation throughout the system was rated as intuitive and easy by 100 respondents (100%), with 45 respondents (45%) giving a rating of 5 and 53 respondents (53%) giving a rating of 4. Only 2 respondents (2%) provided lower ratings, suggesting well-organized information architecture.

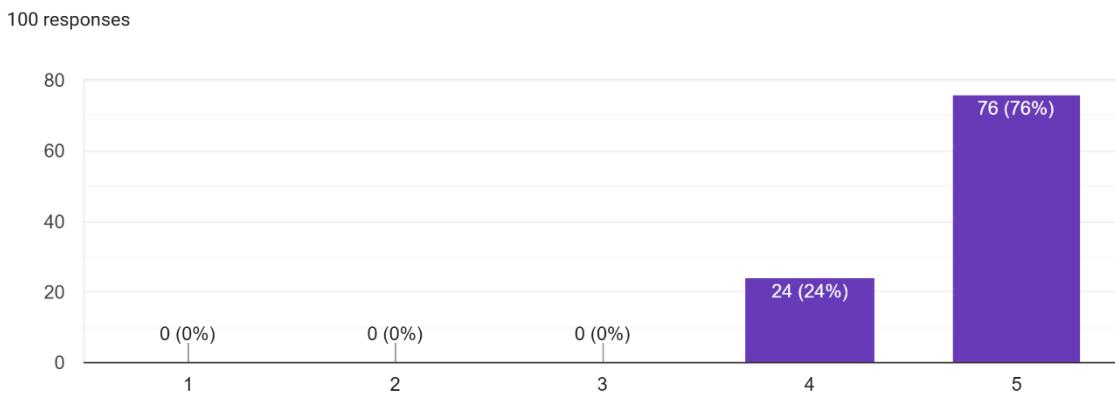


Figure 20.5 - System Recommendation

Figure 20.5 shows that when asked if they would recommend the system for official institutional use, 100 respondents (100%) responded with ratings of very likely (5) or likely (4), with 76 respondents (76%) very likely to recommend and 24 respondents (24%) likely to recommend. This overwhelming endorsement demonstrates strong stakeholder confidence in the system's readiness for institutional deployment.

1. Developing and Implementing a Web-Based Enrollment System

The user testing results provide strong evidence supporting the success of the developed web-based enrollment system. A large majority of students (97%) confirmed that logging in and accessing their accounts was easy and seamless, while all registrar respondents reported smooth, error-free system access. Students rated enrollment-related functions, including certificate and grade requests, with mean scores above 4.7 out of 5, indicating that these processes became faster and more convenient compared to traditional manual methods.

Registrar users unanimously gave a perfect score for managing student enrollment tasks, emphasizing that online processing and status tracking features greatly improved their workflow. The transition to an integrated online platform minimized paperwork, reduced wait times, and enabled remote interactions between students and staff—an essential improvement for modern educational institutions. Additionally, clear scheduling tools, automated confirmations, and user-friendly online forms increased operational efficiency and institutional accessibility, fulfilling the goal of modernizing Calabanga Community College's enrollment processes.

2. Creating a Centralized Academic Records Management System

Centralizing academic records emerged as one of the most significant achievements of the project. Faculty members rated the ease of encoding and submitting grades at an average of 4.7 out of 5, noting the system's simplicity and accuracy. Registrars, who depend on precise academic data, rated the accuracy and completeness of student records at 4.8 out of 5, describing their workflow as more organized and consistent than before.

The capability to generate official documents such as transcripts, certificates, and grade reports also received high satisfaction ratings across all user groups, reflecting improved accessibility and dependability. The centralized structure of the eCCC system allows efficient data retrieval, verification, and updating, reducing human error and improving

response times to student concerns. Overall, the centralized records management feature strengthened accuracy, accountability, and coordination among departments, effectively addressing issues identified in the initial system assessment.

3. Streamlining Administrative Processes Within the Institution

Efficiency gains were clearly reflected in the responses of faculty, registrars, and program heads. Faculty respondents rated the ease of adding and encoding grades at 4.6 out of 5, showing substantial improvement compared to previous manual practices. Administrative users, particularly registrars and program heads, reported that tracking and updating the status of student requests became faster and more transparent, with most respondents giving perfect satisfaction ratings.

Automated notifications and alert features were among the most appreciated system components, with over 85% of administrative users rating them as highly useful for monitoring pending tasks and deadlines. These innovations have considerably reduced turnaround times during critical academic periods such as enrollment and grade submission. Registrars also confirmed that the system enabled smooth and error-free processing of transcripts, certificates, and grade adjustments. As a result, both students and staff now experience a more responsive and organized workflow aligned with Calabanga Community College's modernization goals.

4. Enhancing Data Security and Compliance

The system's data protection mechanisms were validated through user testing, with no reports of data loss or unauthorized access. Features related to transaction confirmations—such as grade submissions, document requests, and record updates—received consistent ratings between 4.7 and 5.0, demonstrating user trust in the platform's security measures.

The eCCC system enforces strict access controls and maintains detailed audit trails to ensure compliance with data privacy regulations. Administrative staff confirmed that only authorized personnel could view or modify sensitive records, preserving transparency and accountability. These findings indicate that the system successfully meets institutional and regulatory standards while maintaining operational efficiency and safeguarding academic information.

5. Improving User Experience and System Adoption

High satisfaction and strong adoption rates across all user groups confirm the system's effectiveness and usability. Students, faculty, registrars, and program heads rated statements such as "The layout and navigation were user-friendly" and "The interface design was clear and readable" with averages above 4.6 out of 5. Compatibility across both desktop and mobile platforms was highly praised, earning an average accessibility score of 4.8 out of 5.

Nearly all respondents (97%) expressed willingness to recommend the system for institutional implementation. Participants emphasized the intuitive design, clear process guidance, and responsive technical support as major contributors to their positive experience. Overall, the eCCC platform demonstrates not only technical reliability but also a user-centered approach that supports inclusivity, ease of use, and sustainable institutional adoption.

Reliability Testing for Real-Time Data Retrieval and Transcript Generation

To ensure the dependability of the E-CCC system during demanding operations, a series of reliability tests were conducted focusing on real-time data retrieval and large transcript file generation. The goal was to determine whether the system could maintain stable performance, accuracy, and responsiveness under typical and high-demand usage conditions.

Functionality and Data Accuracy Test

Functionality testing ensured that each transcript file generated reflected accurate and up-to-date student records. The system was tested with various student datasets, including those with multiple semesters of records. All generated transcripts displayed complete and correctly formatted information, verifying that data retrieval and computation processes worked precisely during real-time operations.

Recovery and Resilience Testing

To examine how the system reacts to unexpected issues, recovery testing was performed by simulating temporary server interruptions. When the connection was restored, the system successfully resumed incomplete operations, maintaining data integrity and consistency. This demonstrated the E-CCC system's resilience in managing unforeseen network disruptions.

Test Case ID	Test Description	Input	Expected Output	Actual Output	Result
TC-01	Login Authentication	Correct username/password	User is redirected to assigned dashboard	Redirect successful	PASS
TC-02	Login Authentication	Incorrect password	“Invalid Credentials” message displayed	Message displayed	PASS
TC-03	Faculty Grade Submission	Grades encoded for all students in a subject	Grades uploaded; submission status updated	Status updated instantly	PASS
TC-04	Registrar Grade Verification	Faculty-submitted grades pending review	Registrar sees pending list; can approve/reject	List displayed; actions valid	PASS
TC-05	Student Document Request	Student submits a TOR request	Request saved; status becomes “Pending”	Status updated real-time	PASS
TC-06	Transcript Generation	Registrar clicks “Generate TOR”	System retrieves and compiles records within 5 seconds	Completed within 4 seconds	PASS
TC-07	Data Sync Across Modules	Faculty updates grades	Registrar and Program Head dashboards show updated data	Synced correctly	PASS
TC-08	Load Test (Peak Usage)	100 concurrent users submitting data	System remains responsive with <3s load time	Load time: 2.8s	PASS
TC-09	Role-Based Access Control	Student attempts to access Registrar dashboard	Access denied	Access denied	PASS
TC-10	Mobile Responsiveness	Student views dashboard on smartphone	Layout adjusts; all elements visible	Layout responsive	PASS

Table 3. Structured Test Cases for ECCC System

The structured test cases were developed to systematically evaluate the functionality, reliability, and usability of the ECCC Document Processing and Management

System. Each test case outlines specific inputs, expected outputs, and actual results to verify whether the system performs according to its design specifications. The test procedures targeted all major modules of the system, including user authentication, document processing, request handling, and administrative functions. By following a structured format, the evaluation ensured that every feature was thoroughly checked for accuracy, consistency, and responsiveness.

The results of the structured test cases show that the system successfully met the expected outcomes for all validated functions. Log-in procedures accurately authenticated user credentials, document requests were processed without errors, and data were stored and retrieved correctly based on user roles. Any minor issues identified during the testing phase were documented and corrected before deployment, contributing to improved performance and system stability. Overall, the structured test cases demonstrated that the E-CCC system is functional, user-friendly, and capable of supporting efficient document processing within Calabanga Community College.

CONCLUSION AND RECOMMENDATIONS

Based on the findings, the E-CCC System has proven to be an effective and transformative solution for addressing the long-standing inefficiencies in Calabanga Community College's enrollment, grade submission, and document processing operations. By integrating these core functions into a centralized web-based platform, the system significantly streamlined workflows, reduced turnaround times, and minimized human error. This digital consolidation enabled smoother coordination among departments and ensured that academic transactions were performed with greater accuracy and consistency.

The study concludes that digital transformation in academic management substantially enhances institutional productivity, accountability, and stakeholder satisfaction. Faculty members benefited from automated grade submission and verification tools, which reduced manual encoding tasks and allowed them to focus more on instruction and student support. Registrars gained considerable efficiency through centralized records, real-time tracking of requests, standardized processing workflows, and automated generation of academic documents. Program heads improved curriculum monitoring, faculty coordination, and decision-making through accessible dashboards and consolidated academic information. Students, on the other hand, enjoyed improved accessibility to their records, faster processing of their requests, and the convenience of an online portal that reduced the need for on-site transactions.

Moreover, the system demonstrated strong performance in terms of security, usability, and data reliability. The incorporation of secure login protocols, role-based access control (RBAC), and audit trails ensured that sensitive academic data remained protected against unauthorized access and tampering. High usability ratings across all user groups indicated that the interface was intuitive, responsive, and easily adaptable even for users with limited digital experience. Data reliability was strengthened through automated validation, standardized encoding formats, and structured database storage that minimized the risks of discrepancies, file loss, or duplicated records.

In addition, the system promoted transparency by providing users with clear transaction histories, status updates, and digital documentation, fostering trust in institutional processes. Its web-based nature also aligned with modern educational standards, enabling remote accessibility and supporting continuity of operations even during unforeseen disruptions such as natural calamities or public health emergencies.

The outcomes affirm that a well-designed web-based management system can serve as a sustainable and scalable technological innovation that supports the goals of efficiency, transparency, and modernization in higher education institutions. The successful implementation of the E-CCC System provides a practical model for other colleges seeking to upgrade their administrative systems and demonstrates how digital solutions can lead to measurable improvements in service delivery, operational integrity, and institutional effectiveness.

Recommendations

Based on the results and conclusions of the study, the following recommendations are proposed:

1. **Institutional Implementation** – It is recommended that the administration of Calabanga Community College officially adopt and deploy the E-CCC System for full institutional use to improve overall academic and administrative efficiency.
2. **Continuous System Enhancement** – Regular system updates should be conducted to improve scalability, security, and integration with other institutional services such as accounting, library, and student portals.
3. **Capacity Building and Training** – Faculty, registrars, and program heads should undergo periodic training sessions to familiarize themselves with system features and ensure consistent data management practices.

4. **Expansion of Features** – Future developers may include additional modules such as student attendance monitoring, faculty evaluation, and digital class scheduling to further enhance system functionality.
5. **Data Backup and Maintenance** – Implement scheduled data backup procedures and secure cloud storage solutions to ensure data integrity and recovery in case of system failure.
6. **Future Research** – Researchers may conduct a follow-up study evaluating the long-term impact of the E-CCC system on institutional productivity and student satisfaction, or explore its integration with mobile applications and learning management systems.

REFERENCES

- Aspa, S. M. C., Bonalos, C. M. B., Moredo, D. M. N., Peralta, N. O., & Ramos, R. A. (2025). Enhancing academic efficiency: A comprehensive online enrollment system for college students in Asbury College Incorporated. *International Journal of Latest Technology in Engineering Management & Applied Science*, 14(1), 222–228. <https://www.ijltemas.in/submission/index.php/online/article/view/1304>
- Berro, A. A., Galarrita, R. S., & Batiquin, M. S. (2025). Evaluating satisfaction and intention of online enrollment: A case of a university in the Philippines. *ResearchGate*. <https://www.researchgate.net/publication/391173495>
- Cierva, C. L. (2023). Evaluation of the online enrollment system of Bato Institute of Science and Technology. *International Journal of Advanced Research in Computer Science*, 14(2), 80–85. <https://ijarcs.info/index.php/Ijarcs/article/download/7018/5760>
- Custodio, M., & Castro, R. (n.d.). User-centered analysis on the existing online enrollment platform. *International Journal of Research in Engineering and Technology*. <https://www.irejournals.com/formatedpaper/1704466.pdf>
- Daing, C. A., & Riño, J. L. (2022). Challenges in handling student records and characteristics of student information management system in public secondary school in Marilao South District IV, Bulacan. *ResearchGate*. <https://www.researchgate.net/publication/363087884>
- Doctor, R. D. (2022). Development and evaluation of an integrated educational management tool. *arXiv*. <https://arxiv.org/abs/2212.08039>
- Duruin, R. D., & Siddayao, S. A. (2024). Student record management system for Magalalag National High School. *AIDE International Research Journal*, 2(1), 23–29. <https://journal.aide-inc.net/index.php/aide-irj/article/view/112>

- Grepon, B., Baran, N., Gumonan, K., Martinez, A., & Lacsa, M. (2021). Designing and implementing e-schools system: An information systems approach to school management of a community college in northern Mindanao, Philippines. *International Journal of Computing Sciences Research*, *in press*. <https://stepacademic.net/ijcsr/article/view/255/103>
- Grepon, C. B., Ycay, A. D., & Pacardo, M. J. (2021). Design and implementation of an e-school system for a community college in Northern Mindanao. *arXiv*. <https://arxiv.org/abs/2109.00198>
- Lorilla, F. M. (2023). e-GRADO: Development of a standardized grading portal for departmental courses in the College of Engineering. *Science International*, *5547*, 411–416.
- Matos, Z. A. Jr. (2022, September). Design and implementation of an online enrolment system for higher education institutions amidst COVID-19 pandemic in Zamboanga Peninsula, Philippines. *International Journal for Research in Applied Science and Engineering Technology*, *10*(9), Article 46760. <https://www.ijraset.com/best-journal/online-enrolment-system-for-higher-education-institution-amidst-covid19-pandemic-in-zamboanga-peninsula-philippines>
- Mayo, R. F., Reyes, J. P., Delos Santos, D. C., & Ocampo, R. J. (2022). Web-based enrollment system for public junior high school in the Philippines: A case study in the province of Cavite public schools. In *2022 2nd International Conference in Information and Computing Research (iCORE)* (pp. 134–138). IEEE. <https://ieeexplore.ieee.org/document/10071564>
- Niño, V. H. (2022). Paperless enrollment system: Functionality and credibility as an online platform. *International Journal of Computer Science and Mobile Computing*, *11*(7), 112–120. <https://ijcsmc.com/docs/papers/July2022/V11I7202212.pdf>
- Orboc, C. C. (2025). Transforming academic administration: Development of a streamlined student information and grading system for Surigao del Norte College of

- Agriculture and Technology. *International Journal of Research and Innovation in Social Science*. <https://rsisinternational.org/journals/ijriss/articles/transforming-academic-administration-development-of-a-streamlined-student-information-and-grading-system-for-surigao-del-norte-college-of-agriculture-and-technology/>
- Purcia, M. C. P., & Velarde, R. S. (2022). Student registration and records management services of the three private universities in the Philippines: Basis for academic records digitization. *ResearchGate*. <https://www.researchgate.net/publication/363019571>
- ScanOptics. (n.d.). The importance of record management & processing in higher education. <https://insights.scanoptics.com/blog/the-importance-of-record-management-processing-in-higher-education>
- Sethi, N., & Malhotra, A. (2023). Efficiency engine: Designing and implementing an academic management system. *International Journal of Innovative Research in Engineering and Management*. <https://www.ijirem.org/DOC/16-efficiency-engine-designing-and-implementing-an-academic-management-system.pdf>
- Silwamba, F. K., & Matela, M. (2025). Design and development of a student record system. *Scientific Journal of Engineering, and Technology*, 2(1), 40–54. <https://journals.stecab.com/sjet/article/view/424>
- Sibua Polonio, K. L., Pugoy, R. A., & Paglinawan, J. L. (2023). Digital transformation on administrative efficiency in public schools. *ResearchGate*. <https://www.researchgate.net/publication/376488625>
- Tanuan, L., Rojero, R., & Magnaye, N. (2023). E-retention: Web-based applying deterministic approach of HEI board programs. *International Journal of Metaverse*, 1(1), 5–10. <https://journals.e-palli.com/home/index.php/ijm/article/view/1465>
- The Australian. (2023). Digital transformation in education: The shift towards paperless operations. <https://www.theaustralian.com.au/>

Wagan, M., Briones, J., Baldovino, F., & Refozar, R. (2025). Digital transformation in the records management of a private higher education institution. *International Journal of Marketing and Digital Creative.*
<https://journals.researchsynergypress.com/index.php/ijmadic/article/view/2878>

Wikipedia contributors. (2024, December 15). *openSIS*. Wikipedia.
<https://en.wikipedia.org/wiki/OpenSIS>

GLOSSARY

Academic Records – Official documents containing student grades, enrollment history, and related academic information.

Administrator – User role with full system control, including user management, system configuration, and access to institutional reports.

Audit Trail / Activity Log – A record of key system actions for accountability and security monitoring.

Authentication – Process of verifying user credentials before granting access to the system.

Centralized Database – Unified storage for student data, grades, enrollment information, and requests, ensuring consistency and real-time updates.

Certificate of Grades (COG) – Official document containing a student's course grades.

Cloud Computing – Hosting the system on remote servers to support accessibility, scalability, and reliability.

Curriculum Structure – Defined academic program layout configured in the system for proper course and grade mapping.

Data Encryption – Security method used to protect stored and transmitted academic information.

Data Flow Diagram (DFD) – Visual model showing how data moves across system processes and user roles.

Data Gathering Tools – Methods used to collect requirements, such as interviews, surveys, consultations, and document analysis.

Document Request System – Platform that allows students to request official academic documents and track request status.

Entity Relationship Diagram (ERD) – Representation of database entities and their relationships within the system.

Enrollment – Digital process of verifying requirements, recording student information, and registering students for the academic term.

FilamentPHP – Framework used to build administrative interfaces on top of the Laravel backend.

Functional Requirements – Detailed list of system features categorized by user role.

Grade Submission Module – Tool for faculty to encode, submit, update, and correct student grades.

Integration Testing – Process of checking how system modules interact and synchronize data.

Laravel – Primary web framework used for backend development.

Load Testing – Evaluation of system performance under high user volume.

Matriculation – Record of a student's enrolled subjects and academic load.

Non-Functional Requirements – System quality expectations such as usability, performance, security, scalability, and accessibility.

Performance Requirements – Benchmarks for system speed, response time, and output generation.

Philippine Data Privacy Act of 2012 (RA 10173) – Legislation that governs the collection, processing, and storage of personal and sensitive information in the Philippines. It mandates lawful, fair, and transparent.

Program Head – User role responsible for monitoring grade submissions and faculty compliance.

Registrar – User role responsible for managing academic records, verifying grades, and generating official documents.

Role-Based Access Control (RBAC) – Permission system restricting data and system functions based on user roles.

Scalability – System capacity to handle increasing users, data, or features without major redesign.

Scrum Methodology – Agile development framework using short, iterative sprints to build the system.

Student Portal – Interface where students view grades, schedules, and submit document requests.

Structured Test Cases – Predefined test scenarios used to validate system functions and expected outcomes.

Survey Questionnaire – Tool used to collect feedback from stakeholders regarding system needs and performance.

System Usability – Measure of how easy the platform is to navigate, understand, and use across devices.

Transcript of Records (TOR) – Comprehensive official document summarizing a student's academic performance.

User Acceptance Testing (UAT) – Final evaluation by actual users to ensure system features meet institutional requirements.

Web-Based Platform – Online system accessible on various devices for managing academic and administrative processes.

APPENDICES

Appendix A. RESOURCE PERSONS

Lance Stephen Bronzal
IT Capstone Coordinator
STI College Naga

Angel B. Belleza, PhD.
School Administrator
Calabanga Community College

Raymond Iglesia, LPT
IT Program Head
STI College Naga

Harvey M. Plaza
Capstone Adviser
STI College Naga

Mary Claire A. Reondanga, LPT
Administrative Officer II – Sagnay District
Department of Education – Camarines Sur

APPENDIX B. RELEVANT SOURCE CODE

Source code link: <https://github.com/jeffcleds/E-CCC>

jeffcleds E-CCC v1		aaaa6db · last week	2 Commits
.cursor	E-CCC v1		last week
junie	E-CCC v1		last week
app	E-CCC v1		last week
bootstrap	E-CCC v1		last week
config	E-CCC v1		last week
database	E-CCC v1		last week
public	E-CCC v1		last week
resources	E-CCC v1		last week
routes	E-CCC v1		last week
storage	E-CCC v1		last week
tests	E-CCC v1		last week
.editorconfig	E-CCC v1		last week
.env.example	E-CCC v1		last week
.gitattributes	Initial commit		last week
.gitignore	E-CCC v1		last week
.nvmrc	E-CCC v1		last week
README.md	Initial commit		last week
artisan	E-CCC v1		last week
composer.json	E-CCC v1		last week
composer.lock	E-CCC v1		last week
package-lock.json	E-CCC v1		last week
package.json	E-CCC v1		last week
phpunit.xml	E-CCC v1		last week
vite.config.js	E-CCC v1		last week

This repository was uploaded November 29, 2025. It contains the full Laravel project structure for the E-CCC v1 system, including backend application code, configuration files, routes, resources, public assets, and all required Composer/NPM dependencies. It represents the complete source code for the E-CCC.

APPENDIX C. EVALUATION TOOL/TEST & DOCUMENTS



STI College Naga

March 31, 2025

Dr. Angel B. Belleza

Dear Sir,

Greetings!

We, the 4th year college students pursuing a Bachelor of Science in Information Technology at STI College Naga, would like to conduct the following activities:

1. Interview with the CCC Registrar, Program Heads, Students and Teachers.
2. Interview and present the project proposal to the School Administrator or representative regarding our capstone project entitled **E-CCC: A Web-Based Enrollment and Academic Records Management System for Calabanga Community College** as part of our requirement for the said degree.

We kindly request your approval and assistance in facilitating these activities. It will cover the overall Document Processing of CCC including Grades and TOR Requests, Admission Checklist and their responses of having a Centralized Management System for Documents Processing.

Your participation would be of great help towards our academic development. All information gathered will be strictly used for academic purposes only and treated with utmost confidentiality. We can be reached at **09126771929** to further discuss details of the activities.

We look forward to the possibility of working together and contributing to the improvement of railway services. Thank you and God bless.

Respectfully yours,

BSIT Students/Researchers:

Joshua Gabriel Gamora Allan Aboga-a Ernie Joseph Cledera Chrysan Ray Festin

Noted and Approved by:

Marbert P. Plaza, LPT
Capstone Project Coordinator

Appendix C.1 Request to Conduct Study



STI College Naga

October 6, 2025

Dr. Angel B. Belleza

Dear Sir,

We are 4th year BSIT students from STI College Naga, and we are currently working on our capstone project titled "**E-CCC: A Web-Based Enrollment and Academic Records Management System for Calabanga Community College.**"

We are inviting the Registrar, Program Heads, Teachers, and student to join a user testing session on October 07, 2025 at Calabanga Community College. This session will help us test the system's features, which aim to streamline the enrollment process, improve the management of academic records, and enhance overall administrative efficiency.

We have also prepared a survey questionnaire to gather their feedback on the system's design and functionality. Your input is crucial and will help us improve the system to better meet the specific needs of Calabanga Community College.

We appreciate your support and hope for a positive response. If you have any questions, feel free to contact us at gamorajoshua05@gmail.com.

Thank you so much for your time and cooperation!

Respectfully yours,

BSIT Students/Researchers:

Joshua Gabriel Gamora

Allan Aboga-a

Ernie Joseph Oledera

Chrystian Ray Festin

Approved by:

Dr. Angel B. Belleza
Administrative Head

Appendix C.2 Request to Conduct User Testing



STI College Naga

October 6, 2025

Dr. Angel B. Belleza

Dear Sir,

We respectfully request your review and signature on the attached **Endorsement and Implementation Confirmation Document** for the E-CCC.

Your signature will serve as formal confirmation that:

1. Calabanga Community College acknowledges and endorses the E-CCC.
2. The organization intends to **adopt and implement the system** as part of its operational processes.
3. The decision to implement the system is made in alignment with your internal policies, procedures, or strategic directives.
4. The signed document will act as an official record of your organization's commitment to proceed with system implementation.

This endorsement is an important requirement for final documentation and ensures that both parties are aligned on the next steps for deployment and integration.

We appreciate your cooperation and continued partnership in this initiative. Please let us know if you require any adjustments or additional information prior to signing.

Thank you, and we look forward to your confirmation.

Respectfully yours,

BSIT Students/Researchers:

Joshua Gabriel Gamora Allan Aboga-a Ernie Joseph Cledera Chrystian Ray Festin

Approved by:

Dr. Angel B. Belleza, Ph. D.
Administrative Head

Appendix C.3 Endorsement and Implementation Confirmation Letter

SURVEY QUESTIONNAIRE

For Students:

1. **How do you currently check your grades?**
 Printed copy from the registrar
 Teacher announcement
 Informal message (chat/text)
 I don't check
 Other: _____
2. **Have you experienced any of the following issues when accessing your grades?**
(Check all that apply)
 Delays in grade release
 Mistakes or inconsistencies
 No digital copy
 No record of past grades
 None
3. **Have you ever received incorrect grade information?**
 Yes
 No
4. **How would you rate the process of requesting academic records?**
 Very easy
 Easy
 Neutral
 Difficult
 Very difficult
5. **How important is it for you to access your grades online?**
 Very important
 Important
 Neutral
 Not very important
 Not important at all
6. **How important is it for you to have real-time access to your academic records?**
 Very important
 Important
 Neutral
 Not very important
 Not important at all
7. **Do you think a secure student portal for viewing grades and requesting documents would improve your experience?**
 Yes
 No
8. **Are you confident using online systems to access academic information?**
 Very confident
 Confident
 Neutral
 Not confident
 Not confident at all
9. **What improvements would you like to see in how the school provides access to your academic records and grades?**

For Faculty:

1. **How do you currently submit student grades?**
 Printed grade sheets
 Google Sheets or email
 Other:
2. **What challenges do you experience when submitting or managing student grades?**
(Check all that apply)
 Encoding errors
 Lost/misplaced submissions
 Lack of confirmation or tracking
 Time-consuming paperwork
 Delays in registrar processing
 None
3. **How do you currently access class lists or previous student records?**
 Provided manually by registrar
 Maintained personally
 Requested each time
 Other:
4. **How confident are you using a web-based system to encode and manage student grades?**
 Very confident
 Confident
 Neutral
 Not confident
 Not confident at all
5. **Do you believe a centralized academic system would help reduce errors and improve coordination with the registrar?**
 Yes
 No
6. **Would you support the implementation of a system that allows you to submit grades directly online and access academic records?**
 Yes
 No
7. **What features would you like in a digital grading system? (Check all that apply)**
 Grade encoding and updating
 Class list access
 Grade submission confirmation
 Submission history
 Auto-calculation of final grades
 Other:
8. **Do you think a digital grading system would improve your workflow?**
 Yes
 No
9. **What challenges do you currently face that you think a digital system could help solve?**

For Registrar:

1. **How do you currently receive grade submissions from faculty?**
 Printed grade sheets
 Email or Google Sheets
 Manual encoding from paper forms
 Other: _____
2. **What challenges do you commonly face when processing academic record requests?**
(Check all that apply)
 Incomplete or delayed grade submissions
 Manual verification takes time
 Lost or misplaced requests
 High volume of requests
 No digital tracking of requests
 None
3. **How long does it usually take to process and release a Transcript of Records?**
 1-2 days
 3-5 days
 1 week
 More than 1 week
4. **Would having a centralized system for grade submissions and document requests improve your efficiency?**
 Yes
 No
5. **What features would help you the most in a records management system?**
 Digital grade submissions
 Request tracking system
 Student request history
 Other: _____
6. **What are your biggest difficulties in managing student academic records and document requests?**

For Program Heads:

1. **How do you currently monitor whether faculty have submitted their final grades?**
 Manual confirmation
 Email updates from registrar
 No consistent process
 Other: _____
2. **What issues have you encountered in tracking faculty grade submissions? (Check all that apply)**
 Delays in submission
 No real-time updates
 Lack of visibility per subject/teacher
 Difficult follow-ups
 None
3. **Would a system that gives you real-time updates on faculty submissions help improve your oversight?**
 Yes
 No
4. **What coordination challenges do you face with the registrar or faculty regarding grade monitoring?**

SURVEY QUESTIONNAIRE FOR USER TESTING

Scale
5 - Strongly Agree
4 - Agree
3 - Neutral
2 - Disagree
1 - Strongly Disagree

For Students

#	Statement	1	2	3	4	5
1	I was able to log in and access my account without issues.					
2	It was easy to view my grades in the system.					
3	My class schedule was clear and easy to understand.					
4	The process of submitting a Certificate of Grades request was simple.					
5	I received confirmation after submitting my request.					
6	The system loaded pages quickly and responded efficiently.					
7	The layout and navigation were user-friendly.					
8	I encountered no errors or confusion while using the system.					
9	The system features were helpful for my needs as a student.					
10	Overall, I am satisfied with my experience using the system.					

For Faculty:

#	Statement	1	2	3	4	5
1	I was able to log in and access my dashboard easily.					
2	Viewing my class schedule was clear and convenient.					
3	Adding or encoding student grades was simple and efficient.					
4	Submitting grades to the Registrar was easy and well-guided.					
5	The grade change request process was straightforward.					

6	I received confirmation or feedback after submitting grades.					
7	I encountered no technical issues while encoding grades.					
8	The system accurately recorded and saved the grades I entered.					
9	The interface design made my tasks faster to complete.					
10	I am satisfied with the system's performance for my teaching tasks.					

For Registrar

#	Statement	1	2	3	4	5
1	I was able to manage student enrollment efficiently.					
2	The system allowed me to process transcript and certificate requests easily.					
3	Receiving and verifying submitted grades was organized and simple.					
4	It was easy to track and update the status of student requests.					
5	The grade change request process was easy to handle.					
6	The system allowed me to generate or print documents without issues.					
7	Notifications or alerts helped me monitor pending tasks.					
8	Student data and records were accurate and complete.					
9	The interface helped me organize and manage records effectively.					
10	I am satisfied with the system's performance in processing student records.					

For Program Head

#	Statement	1	2	3	4	5
1	I was able to log in and access the scheduling features easily.					
2	Creating or editing class schedules was simple and intuitive.					
3	Assigning teachers and subjects to classes was easy.					
4	Viewing and verifying existing schedules was convenient.					

5	The forms and fields for creating schedules were clear.					
6	The system provided confirmation after saving schedules.					
7	The scheduling feature worked smoothly and without errors.					
8	The interface layout made it easy to manage class schedules.					
9	I did not experience any technical issues while creating schedules.					
10	Overall, I am satisfied with the system's scheduling functionality.					

General Evaluation (For All Roles)

#	Statement	1	2	3	4	5
1	The system's overall performance met my expectations.					
2	The website was accessible and responsive on different devices.					
3	The interface design and color scheme were visually clear and readable.					
4	Navigation throughout the system was intuitive and easy.					
5	I would recommend this system for official institutional use.					

APPENDIX D. SAMPLE INPUT/OUTPUT/REPORTS

Students Modules

The screenshot shows the 'Your Enrollments' section of the Students Modules interface. On the left, there's a sidebar with 'Dashboard', 'Your Enrollments' (which is highlighted), 'Academic Tracker', 'Requests', 'Grade Requests', and 'TOR Requests'. The main area has a header 'Your Enrollments' and a search bar. Below it, there are two filter boxes: one for 'BSE' with 'BSE Curriculum 2025', 'First Year', 'BSE-1A', and a 'View' button; and another for 'BSE' with 'BSE Curriculum 2025', 'Second Year', 'BSE-1A', and a 'View' button. At the bottom, it says 'Showing 1 to 2 of 2 results' and 'Per page 16'.

Your Enrollments

In this section, Students can check their currently enrolled subject and view the previous subjects taken from the previous terms.

The screenshot shows the 'Academic Tracker' section for the 'Bachelor of Secondary Education - English' program. The sidebar is identical to the previous screenshot. The main area has a header 'Bachelor of Secondary Education - English' and 'BSE Curriculum 2025'. Below it is a table with columns: Subject, Code, Prelims, Midterm, Pre finals, Finals, and Average. The table lists various subjects with their corresponding codes and grades.

Subject	Code	Prelims	Midterm	Pre finals	Finals	Average
Introduction to Linguistic	MC ELT 101	2.75	2.25	2.5	2.25	2
Understanding the Self	GE 1	2	3	2	1	2
Reading in the Philippine History	GE 2	2	2	2	2	2
The Contemporary World	GE 3	2	2	2	2	2
The Child and Adolescent Learners a...	Prof. Ed 1	1.75	1.75	1.5	1.75	1.75
Stylistics and Discourse Analysis	Cognate Elec1	-	-	-	-	-
Movement Competency Training	PATHFIT 1	-	-	-	-	-
Literacy Training Services	NSTP 1	-	-	-	-	-
Language, Culture and Society	MC ELT 102	-	-	-	-	-
Structure of English	MC ELT 103	-	-	-	-	-

Academic Tracker

An Academic Tracker records student's finished subjects and grades, and provides an organized view of their remaining coursework.

The screenshot shows a user interface for managing grade requests. On the left, there's a sidebar with links to Dashboard, Your Enrollments, Academic Tracker, Requests (Grade Requests selected), and TOR Requests. The main area has a header "Grade Requests > List" and a "Grade Requests" title. A "New grade request" button is in the top right. Below is a table with the following data:

School year	Status	Date Requested	Prepared by
2025	Completed	2025-09-16 11:45:54	View
2025	Processing	2025-09-23 09:10:18	View
2025	Requested	2025-09-23 10:57:26	View More
2025	Processing	2025-10-07 05:36:19	View
2025	Processing	2025-10-07 05:39:17	View
2025	Completed	2025-10-07 05:45:14	View
2025	Requested	2025-10-07 06:40:38	View More
2025	Processing	2025-10-10 09:35:27	View

Showing 1 to 9 of 9 results Per page: 10

Grade Requests

The Grade Requests feature allows students to request an official copy of their grades for personal, academic, or administrative use.

The screenshot shows a user interface for managing transcript of records requests. The sidebar and header are identical to the Grade Requests page. The main area has a header "TOR Requests > List" and a "TOR Requests" title. A "New TOR Request" button is in the top right. Below is a table with the following data:

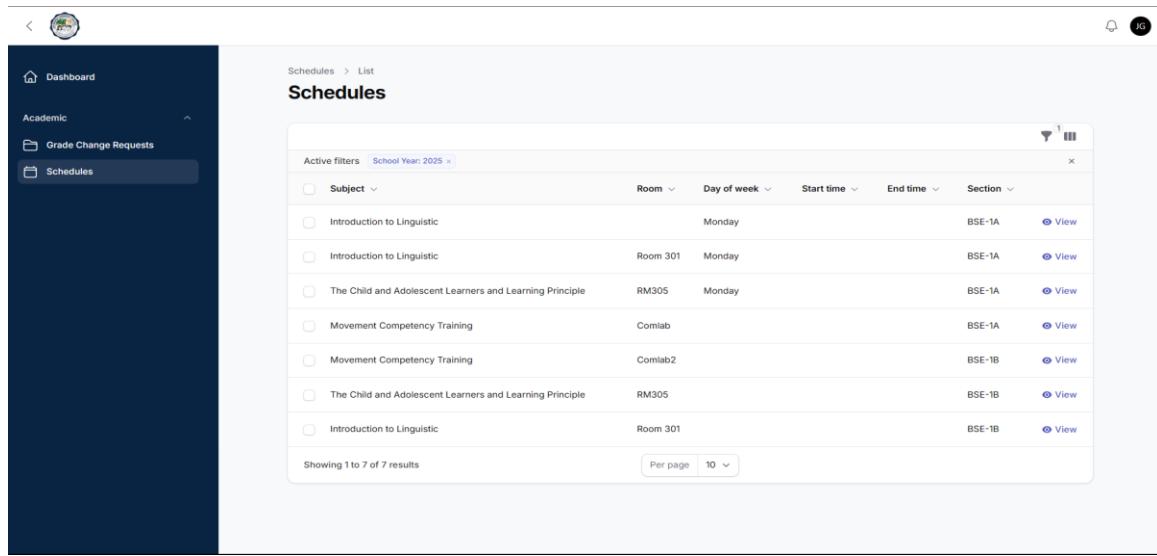
Status	Program	Date Requested	Prepared by
Completed	Bachelor of Secondary Education	2025-09-15 10:41:46	Admin View
Completed	Bachelor of Secondary Education	2025-09-16 11:45:48	Admin View
Processing	Bachelor of Secondary Education	2025-09-23 09:10:52	Admin View
Processing	Bachelor of Secondary Education	2025-10-07 06:43:18	Admin View

Showing 1 to 4 of 4 results Per page: 10

Tor Requests

TOR Requests allow students to request an official Transcript of Records and monitor the status of their application.

Teacher Modules



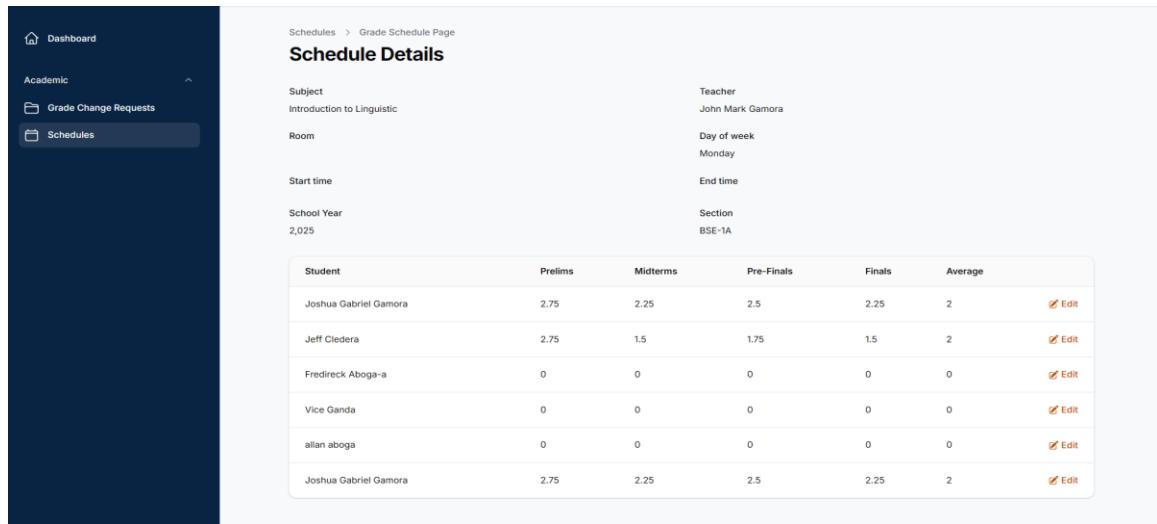
The screenshot shows the 'Schedules' module. On the left, a sidebar menu includes 'Dashboard', 'Academic' (with 'Grade Change Requests' and 'Schedules' selected), and 'Schedules'. The main area is titled 'Schedules' and shows a table of class schedules for the 'School Year: 2025'. The table has columns for Subject, Room, Day of week, Start time, End time, and Section. There are 7 results listed:

Subject	Room	Day of week	Start time	End time	Section
Introduction to Linguistic		Monday			BSE-1A
Introduction to Linguistic	Room 301	Monday			BSE-1A
The Child and Adolescent Learners and Learning Principle	RM305	Monday			BSE-1A
Movement Competency Training	Comlab				BSE-1A
Movement Competency Training	Comlab2				BSE-1B
The Child and Adolescent Learners and Learning Principle	RM305				BSE-1B
Introduction to Linguistic	Room 301				BSE-1B

Showing 1 to 7 of 7 results

Schedules

This feature provides teachers with a clear overview of their daily and weekly class schedules for easier planning and coordination.



The screenshot shows the 'Schedule Details' module. On the left, a sidebar menu includes 'Dashboard', 'Academic' (with 'Grade Change Requests' and 'Schedules' selected), and 'Schedules'. The main area is titled 'Schedule Details' and shows detailed information for a class. It includes fields for Subject (Introduction to Linguistic), Teacher (John Mark Gamora), Room, Day of week (Monday), Start time, End time, School Year (2,025), and Section (BSE-1A). Below this is a table of student grades:

Student	Prelims	Midterms	Pre-Finals	Finals	Average	Edit
Joshua Gabriel Gamora	2.75	2.25	2.5	2.25	2	
Jeff Cledera	2.75	1.5	1.75	1.5	2	
Fredireck Aboga-a	0	0	0	0	0	
Vice Ganda	0	0	0	0	0	
allan aboga	0	0	0	0	0	
Joshua Gabriel Gamora	2.75	2.25	2.5	2.25	2	

Schedule Details/Grading

This feature provides teachers with access to specific schedule information and integrated grading tools for each class.

Program Head

The screenshot shows the Program Head dashboard. On the left is a dark sidebar with navigation links: Dashboard, Department Management (with Programs selected), Teachers, Classes (with Schedules and Sections), and a user icon. The main area is titled "Dashboard" and displays the following information:

- Current School Year: 2025
- Students: 9 Total Students
- Enrolled Students: 6 Education Enrolled Students School Year: 2025
- Teachers: 5 Education Teachers

Dashboard

This dashboard gives the program head an overview of the current enrolled students and teachers under the same program.

The screenshot shows the "Programs" page. The sidebar on the left is identical to the one in the dashboard. The main area is titled "Programs" and shows a table of current programs:

Name	Major	Code	Department	Action
Bachelor of Secondary Education	English	BSE	Education	<input type="checkbox"/> Edit
Bachelor Science Information Technology		BSIT	IT	<input type="checkbox"/> Edit
Bachelor of Science Information Technology		Cpg01	IT	<input type="checkbox"/> Edit
BSIT	Computer Programming	CP2	IT	<input type="checkbox"/> Edit
Bachelor of Science in Physical Education	P.e	123	Education	<input type="checkbox"/> Edit

Showing 1 to 5 of 5 results

Programs

This feature provides a view of the current programs offered and can edit a specific program.

The screenshot shows the 'Teachers' list page. On the left is a dark sidebar with navigation links: Dashboard, Department Management (Programs, Teachers), Classes (Schedules, Sections). The main area has a header 'Teachers > List' and a title 'Teachers'. It includes a search bar, a 'New Teacher' button, and a 'Sort by' dropdown. A modal window is open, showing a teacher's profile: Teacher, Teacher@ccc.com, Education, with an 'Edit' link. Below the modal, it says 'Showing 1 result' and there are 'Per page' and '16' dropdowns.

Teachers

This section provides the Program Head a view of the current teachers under the same program.

The screenshot shows the 'Schedules' list page. The sidebar is identical to the previous one. The main area has a header 'Schedules > List' and a title 'Schedules'. It includes a search bar, a 'New schedule' button, and a 'Sort by' dropdown. A modal window is open, showing a schedule: Introduction to Linguistic, Teacher: John Mark Gamora, Class: BSE-1A, Day: Monday, Time: 01:50 PM-03:50 PM, with 'Edit' and 'Delete' links. Below the modal, it says 'Active filters School Year: 2025' and there is a 'Sort by' dropdown. The main list displays several scheduled classes, each with an 'Edit' and 'Delete' link:

Schedule Details	Schedule Details	Schedule Details	Schedule Details
Introduction to Linguistic Teacher: John Mark Gamora Class: BSE-1A Day: Monday	Introduction to Linguistic Teacher: John Mark Gamora Class: BSE-1A Day: Monday	Introduction to Linguistic Teacher: John Mark Gamora Class: BSE-1A Day: Monday	Reading in the Philippine History Teacher: John Mark Gamora Class: BSE-1A Day: Monday
Reading in the Philippine History Teacher: John Mark Gamora Class: BSE-1A Day: Tuesday	The Contemporary World Teacher: John Mark Gamora Class: BSE-1A	The Child and Adolescent Learners and Learning Principle Teacher: John Mark Gamora Class: BSE-1A Room: 301 Day: Monday	The Child and Adolescent Learners and Learning Principle Teacher: John Mark Gamora Class: BSE-1A Room: 301 Day: Tuesday
Movement Competency Training Teacher: John Mark Gamora Class: BSE-1A Comlab	Movement Competency Training Teacher: John Mark Gamora Class: BSE-1B Comlab2	Understanding the Self Teacher: Ernie Joseph Cledera Class: BSE-1B Comlab2	The Child and Adolescent Learners and Learning Principle Teacher: John Mark Gamora Class: BSE-1B

Schedule

The program head can assign and change schedules and can also assign them to a specific subject.

The screenshot shows a web-based application for managing academic sections. On the left, a dark sidebar menu includes 'Dashboard', 'Department Management' (with 'Programs' and 'Teachers' sub-options), 'Classes' (with 'Schedules' and 'Sections' sub-options), and 'Sections'. The main content area is titled 'Sections' and shows a table of sections for the 'School Year: 2025'. The table has columns for 'Name', 'Program', 'Year level', and 'School year'. The sections listed are: BSE-1A (Bachelor of Secondary Education, First Year, 2025), BSE-1B (Bachelor of Secondary Education, First Year, 2025), BSE-2A (Bachelor of Secondary Education, First Year, 2025), BSE-2B (Bachelor of Secondary Education, Second Year, 2025), BSIT-1B (Bachelor Science Information Technology, First Year, 2025), BSIT-1A (Bachelor Science Information Technology, First Year, 2025), and BSIT-4A (Bachelor Science Information Technology, Fourth Year, 2025). A search bar and a 'New section' button are at the top right of the table.

Section

The program head can create and edit the section and assign them to a specific teacher.

Registrar Modules

The screenshot shows the 'Registrar Modules' dashboard. The left sidebar includes 'Dashboard', 'Academic Records' (with 'Enrollments' and 'Grade Change Requests' sub-options), 'Students' (with 'Students' and 'Requests' sub-options), 'Requests' (with 'Grade Requests' and 'TOR Requests' sub-options), and 'Classes' (with 'Sections' sub-option). The main dashboard area is titled 'Dashboard' and shows the 'Current School Year: 2025'. It includes two summary boxes: 'Students' (Total Students: 9) and 'Enrolled Students' (Enrolled Students School Year: 2025, Total: 7).

Dashboard

The Registrar dashboard gives the registrars an overview of the current students and enrolled students.

The screenshot shows the 'Enrollments' section of a software interface. On the left is a dark sidebar with navigation links: Dashboard, Academic Records (Enrollments selected), Grade Change Requests, Students, Requests (Grade Requests, TOR Requests), Classes, and Sections. The main area has a header 'Enrollments > List' and a sub-header 'Enrollments'. It includes a search bar, a 'New enrollment' button, and a table with columns: First Name, Last Name, Student ID, Program, Year level, and School year. The table lists seven students with their details. At the bottom, it says 'Showing 1 to 7 of 7 results' and has a 'Per page' dropdown set to 10.

First Name	Last Name	Student ID	Program	Year level	School year
Joshua Gabriel	Gamora	1234567	Bachelor of Secondary Education	First Year	2025
Jeff	Cledera	02000	Bachelor of Secondary Education	Second Year	2025
Fredireck	Aboga-a	0200001234	Bachelor of Secondary Education	First Year	2025
Vice	Ganda	124356765899	Bachelor of Secondary Education	First Year	2025
allan	aboga	123	Bachelor of Secondary Education	First Year	2025
sydney	regalado	102395	Bachelor Science Information Technology	First Year	2025
Joshua Gabriel	Gamora	1234567	Bachelor of Secondary Education	Second Year	2025

Enrollments

The Registrar can enroll a student into a specific school year, section, and curriculum.

The screenshot shows the 'Students' section of the software. The sidebar is identical to the previous one. The main area has a header 'Students > List' and a sub-header 'Students'. It includes a search bar, a 'New student' button, and a table with a 'Sort by' dropdown. The table lists eight student profiles, each with their name, ID, email, phone number, and edit/delete buttons. The profiles are arranged in two rows of four.

Joshua Gabriel Gamora ID: 1234567 Email: joshuagamora@ccc.com Phone: 1234556 Edit Delete	allan aboga ID: 123 Email: allan@ccc.com Phone: 123 Edit Delete	Jeff Cledera ID: 02000 Email: jeff@gmail.com Phone: 09123456789 Edit Delete	nicole de guzman ID: 02000123 Email: nicole@ccc.com Phone: 09123412341 Edit Delete
Fredireck Aboga-a ID: 0200001234 Email: fredireck@ccc.com Phone: 09123412394 Edit Delete	Vice Ganda ID: 124356765899 Email: gaire@ccc.com Phone: 09123412394 Edit Delete	sofia atienza ID: 020001232 Email: atienza@ccc.com Phone: 09090909091 Edit Delete	boy pal ID: 10293 Email: pal@ccc.com Phone: 09123412341 Edit Delete
sydney regalado ID: 102395 Email: sydney@ccc.com Edit Delete			

Students

In this section, the Registrar can view and edit the students information.

The screenshot shows the 'Grade Requests' section of the admin portal. The left sidebar includes links for Dashboard, Academic Records, Enrollments, Grade Change Requests, Students, Requests (Grade Requests selected), TOR Requests, Classes, and Sections. The main content area displays a table titled 'Grade Requests' with columns for Student, Status, School year, and Prepared by. The table lists various students with their request status (Completed, Processing, Requested) and the year (2025). A search bar and a 'New grade request' button are at the top right.

Student	Status	School year	Prepared by
Joshua Gabriel Gamora	Completed	2025	View
Jeff Cledera	Completed	2025	View
Joshua Gabriel Gamora	Processing	2025	View
Joshua Gabriel Gamora	Requested	2025	View
boy pal	Processing	2025	View
allan aboga	Completed	2025	View
Joshua Gabriel Gamora	Processing	2025	View
Joshua Gabriel Gamora	Processing	2025	View
Joshua Gabriel Gamora	Processing	2025	View
Joshua Gabriel Gamora	Completed	2025	View

Grade Requests

This section will display the requests made by the students for their copy of grades and this is where they can track the status and process the documents.

The screenshot shows the 'TOR Requests' section of the admin portal. The left sidebar includes links for Dashboard, Academic Records, Enrollments, Grade Change Requests, Students, Requests (Grade Requests selected), TOR Requests, Classes, and Sections. The main content area displays a table titled 'TOR Requests' with columns for Student, Program, Status, and Prepared by. The table lists students with their program (Bachelor of Secondary Education or Bachelor Science Information Technology), request status (Completed, Processing, Requested), and the preparer (Admin or Maricar Belen). A search bar and a 'New TOR Requests' button are at the top right.

Student	Program	Status	Prepared by
Joshua Gabriel Gamora	Bachelor of Secondary Education	Completed	Admin
Joshua Gabriel Gamora	Bachelor of Secondary Education	Completed	Admin
Joshua Gabriel Gamora	Bachelor of Secondary Education	Processing	Admin
boy pal	Bachelor of Secondary Education	Processing	Maricar Belen
sydney regalado	Bachelor Science Information Technology	Requested	View
Joshua Gabriel Gamora	Bachelor of Secondary Education	Processing	Admin

Tor Request

This section will display the requests made by the students for the transcript of records and this is where they can also track the status and process the documents.

Name	Program	Year level	School year
BSE-1A	Bachelor of Secondary Education	First Year	2025
BSE-1B	Bachelor of Secondary Education	First Year	2025
BSE-2A	Bachelor of Secondary Education	First Year	2025
BSE-2B	Bachelor of Secondary Education	Second Year	2025
BSIT-1B	Bachelor Science Information Technology	First Year	2025
BSIT-1A	Bachelor Science Information Technology	First Year	2025
BSIT-4A	Bachelor Science Information Technology	Fourth Year	2025

Sections

The Registrar can add and edit and assign a subject and teacher under a specific section.

ADMIN

Dashboard

This will give the Admin an overview of the current students, enrolled students, and teachers.

The screenshot shows the 'Billing Settings' page under the 'Settings' menu. The left sidebar includes links for Dashboard, Settings (Billing Settings selected), System Setup (Admission Requirements, Departments, Rooms, School Years), Academic Records (Enrollments, Grade Change Requests, Students), and Requests (Grade Requests, TOR Requests). The main content area is titled 'Billing Settings' and contains a 'Fees' section with fields for Library fees (100), Computer fees (100), Lab fees (100), Athletic fees (100), Cultural fees (100), Guidance fees (1), Handbook fees (100), and Registration fees.

Billing Settings

This is where the Admin can generate financial reports for the billing to be submitted to CHED.

The screenshot shows the 'Admission Requirements' page under the 'Settings' menu. The left sidebar includes links for Dashboard, Settings (Admission Requirements selected), System Setup (Departments, Rooms, School Years), Academic Records (Enrollments, Grade Change Requests, Students), and Requests (Grade Requests, TOR Requests). The main content area is titled 'Admission Requirements' and shows a list of requirements: Name, Birth certificate, and Good moral. A search bar and edit/delete buttons are also present.

Admission Requirements

The Admin can edit and add additional admission requirements for enrollment.

The screenshot shows a web-based administrative interface for managing departments. The left sidebar contains a navigation menu with categories like Dashboard, Settings, System Setup, Academic Records, Requests, and Department Management. Under Department Management, 'Departments' is selected. The main content area is titled 'Departments' and shows a list of two entries: 'Name' (Education) and 'IT'. Each entry has 'Edit' and 'Delete' buttons. A search bar at the top right and a per-page dropdown are also visible.

Departments

The Admin can add, edit and delete the departments.

The screenshot shows a web-based administrative interface for managing rooms. The left sidebar contains a navigation menu with categories like Dashboard, Settings, System Setup, Academic Records, Requests, and Department Management. Under Department Management, 'Rooms' is selected. The main content area is titled 'Rooms' and shows a list of five rooms with their names and capacities: Comlab (44), Room 301 (41), RM305 (45), Comlab2 (32), and RM307 (42). Each room entry has 'Edit' and 'Delete' buttons. A search bar at the top right and a per-page dropdown are also visible.

Room

The Admin can add, edit and delete the rooms. This is where you can see the capacity of each room.

The screenshot shows the 'School Years' list page in the Admin Portal. The left sidebar contains navigation links for Dashboard, Settings, System Setup, Academic Records, Requests, and Department Management. The main content area displays a table with two rows of school years. The columns are Name, Start date, End date, and Is current. Row 1: Name '2025', Start date 'Jan 1, 2025', End date 'Dec 31, 2025', Is current 'Yes'. Row 2: Name 'SY 2026-2027', Start date 'Jan 29, 2026', End date 'Sep 30, 2026', Is current 'Yes'. Action buttons for each row include 'Billing Report', 'Edit', and 'Delete'.

Name	Start date	End date	Is current
2025	Jan 1, 2025	Dec 31, 2025	Yes
SY 2026-2027	Jan 29, 2026	Sep 30, 2026	Yes

School Year

The Admin can add, edit and delete a specific school year. This is where they can also check for the billing report.

The screenshot shows the 'Users' list page in the Admin Portal. The left sidebar contains navigation links for Academic Records, Requests, Department Management, Classes, Authentication, and Users. The main content area displays a table with eleven user entries. Each entry includes the user's name, email, role, and edit link. The roles listed are Admin, Teacher, Registrar, Program Head, and various combinations of these roles like Teacher & Education, Program Head & Education, etc.

User	Email	Role	Action
Admin	admin@ccc.com	Admin	Edit
Teacher	teacher@ccc.com	Teacher	Edit
Registrar	registrar@ccc.com	Registrar	Edit
Program Head	programhead@ccc.com	Program Head	Edit
Ernie Joseph Cledera	jeff@gmail.com	Teacher	Edit
Maricar BeLEN	maricar@ccc.com	Registrar	Edit
Marbel Plaza	plaza@ccc.com	Program Head	Edit
Baste De Leon	baste@ccc.com	Teacher	Edit
Raymond Iglesia	iglesia@ccc.com	Program Head	Edit
Everild Gerd Pablo	gerdpablo@ccc.com	Teacher	Edit
John Mark Gamora	teach@ccc.com	Teacher	Edit

Users

Enables creation of user accounts, roles, and access permissions within the system.

Billing Report

Academic Units	Athletic Fee	Computer Fees	Cultural Fees	Development Fees	Entrance/Admission Fees	Guidance Fees	Handbooks	Library Fees	Medical Fees	Registrations	School ID Fees
	₱100.00	₱100.00	₱100.00	₱100.00	₱99.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00
	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00
	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00
	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00
	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00
	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00
	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00	₱100.00

View and generates detailed summaries of billing transactions and balances for accounting and review.

Student ID	Given Name	Surname	Learner's Degree	Pr Year	Level	Sex at Birth	Laborator	Computer Academic Units	Academic Units of Tuition Fee based on NSTP	Fee	Athletic Fee	Computer Cultural Fee	Development Fee	Guidance Handbook	Library Fee	Medical Fee	Registrations	School ID Fees
1234567890	Joshua	Ga Sto Domingo	BSE	1st	0	0	22	0	0	0	100	100	100	99	100	100	100	100
1234567891	Jeff	C	BSE	2nd	0	0	18	0	0	0	100	100	100	100	100	100	100	100
1234567892	Friedrick A.	Alce	BSE	1st	0	0	29	0	0	0	100	100	100	100	100	100	100	100
1234567893	Allan	Bading	BSE	1st	0	0	29	0	0	0	100	100	100	100	100	100	100	100
1234567894	sydney	polli	BSE	1st	0	0	23	0	0	0	100	100	100	100	100	100	100	100
1234567895	regalado		BSE	1st	0	0	3	0	0	0	100	100	100	100	100	100	100	100
1234567896	Gamora	Joshua Ga Sto Domingo	BSE	2nd	0	0	29	0	0	0	100	100	100	100	100	100	100	100

This is an example generated financial report from the billing report.

Certificate of Grades



Republic of the Philippines
Commission of Higher Education
Region V - Bicol
CALABANGA COMMUNITY COLLEGE
Belen, Calabanga, Camarines Sur
OFFICE OF THE REGISTRAR

CCC-RR-03

CERTIFICATION

To Whom It May Concern:

This is to certify that as per records on file in this office, **JOSHUA GABRIEL STO DOMINGO GAMORA** has taken the following subjects in Bachelor of Science in Entrepreneurship during 1 year 1 Semester S/Y 2025, with corresponding ratings and credits below:

SUBJECT CODE	DESCRIPTION	FINAL GRADES	UNITS
MC ELT 101	Introduction to Linguistic	2	3
GE 1	Understanding the Self	2	3
GE 2	Reading in the Philippine History	2	3
GE 3	The Contemporary World	2	3
Prof. Ed 1	The Child and Adolescent Learners and Learning Principle	1.75	3
Cognate Elec1	Stylistics and Discourse Analysis		3
PATHFIT 1	Movement Competency Training		2
NSTP 1	Literacy Training Services		3
	General Weighted Average	2.0	23

Grading System

1.0 — 100	1.4 — 95	1.8 — 90	2.25 — 85	2.7 — 80	3 — Conditioned 5 — 70 and Below (Failed)
1.1 — 99	1.5 — 94	1.9 — 89	2.3 — 84	2.75 — 79	DO — Dropped Officially
1.2 — 98	1.6 — 93	2.0 — 88	2.4 — 83	2.8 — 78	UD — Unauthorized Dropping
1.25 — 97	1.7 — 92	2.1 — 87	2.5 — 82	2.9 — 77	DFS — Dropped w/ Failed Standing
1.3 — 96	1.75 — 91	2.2 — 86	2.6 — 81	3.0 — 76-75	Dropped for Exceed 20% Absences

DNC — Incomplete
NG — No Grade

This certification is issued this 13th day of Oct, 2025 at Calabanga Community College, Belen, Calabanga, Camarines Sur for Any purposes.

ADMIN

COLLEGE REGISTRAR

Transcript of Records



Republic of the Philippines
Commission of Higher Education
Region V - Bicol
CALABANGA COMMUNITY COLLEGE
Belen, Calabanga, Camarines Sur
OFFICE OF THE REGISTRAR

OFFICIAL TRANSCRIPT OF RECORDS

Name: **JOSHUA GABRIEL GAMORA** Gender: _____ Citizenship: _____
Address: Paolbo, Kalye putol ENTRANCE DATA
Date of Birth: November 02, Date of Admission: 2025-10-14
2002
College of: Education Elem. School: _____
Date of Graduation: 2025-10-14 High School: _____
Degree/TITLE Conferred: Bachelor of Secondary Education Address: Paolbo, Kalye putol
Major: English

TERM	COURSE NO.	DESCRIPTION/SUBJECTS	GRADES	CG/RG	CREDIT UNITS
BACHELOR OF SECONDARY EDUCATION <u>Major in English</u>					
1 st Semester	MC ELT 101 GE 1 GE 2 GE 3 Prof. Ed 1 Cognate Elec1 PATHFIT 1 NSTP 1	Introduction to Linguistic Understanding the Self Reading in the Philippine History The Contemporary World The Child and Adolescent Learners and Learning Principle Stylistics and Discourse Analysis Movement Competency Training Literacy Training Services	2 2 2 2 1.75 3 2 3		3 3 3 3 3 3 2 3
2 nd Semester	MC ELT 102 MC ELT 103 GE 4 G.E. 5 Prof. Ed 2 Cognate Elec2 PATHFIT 2 NSTP 2	Language, Culture and Society Structure of English Mathematics in the Modern World Purposive Communication Foundation of Special and Inclusive Education Translation and Editing of Text Exercise-based Fitness Activities Literacy Training Services			3 3 3 3 3 3 2 3
1 st Semester	MC ELT 104 MC ELT 105 MC ELT 106 Prof. Ed 3 GE 6 GE 7 GE 8 PATHFIT 3	Mythology and Folklore Language programs and policies in Multilingual Societies Technical Writing The Teaching Profession Art Appreciation Science, Technology and Society Ethics Dance			3 3 3 3 3 3 3 2

Page 1 of 3

Certificate of Matriculation

CALABANGA COMMUNITY COLLEGE Calabanga, Camarines Sur OFFICE OF THE REGISTRAR CERTIFICATE OF MATRICULATION							
Name:	Joshua Gabriel Sto Domingo Gamora		Course:	BSE	School Year:	2025	Student Number:
Sub. Code	Subject Description	Day	Time	Instructor's Name	Units	Room	Assessment of Fees
MC ELT 101	Introduction to Linguistic	Monday	-	John Mark Gamora	3	-	Library Fees 100.00
GE 2	Reading in the Philippine History	Monday	-	Teacher	3	-	Computer Fees 100.00
GE 3	The Contemporary World		-	Teacher	3	-	Lab. Fee 0.00
Prof. Ed 1	The Child and Adolescent Learners and Learning Principle	Monday	-	John Mark Gamora	3	RM305	Athletic Fess/LCUAA 100.00
PATHFIT 1	Movement Competency Training		-	John Mark Gamora	2	Comlab	Cultural Fees 100.00
PATHFIT 1	Movement Competency Training		-	John Mark Gamora	2	Comlab2	Guidance Fees 100.00
GE 1	Understanding the Self		-	Ernie Joseph Cledera	3	Comlab2	Handbook Fees 100.00
Prof. Ed 1	The Child and Adolescent Learners and Learning Principle		-	John Mark Gamora	3	RM305	Registration Fees 100.00
							Medical & Dental Fees 100.00
							School ID Fees 100.00
							Admission Fees 99.00
							Entrance Fees 100.00
							Tuition Fees 6,600.00
							Dev't Fees 100.00
							ALCO Mem. Fees 100.00
							PTA 100.00

Recommending Approval: _____ Total: 8,099.00

**JOSHUA GABRIEL STO DOMINGO
GAMORA**

SIGNATURE OVER PRINTED NAME

PROGRAM HEAD PROGRAM HEAD (EDUCATION)	ADMIN COLLEGE REGISTRAR
--	----------------------------

APPENDIX E. USER'S GUIDE

For Web Application Users (Administrator and Cashier)

1. Logging In

- 1.1. Open E-CCC Web Application for designated URL.
- 1.2. Input Log in Credentials:
- 1.3. Enter email and password.
- 1.4. Click Login to access the respective dashboard.

2. For Admin:

- Admin user hold full control over the system.

2.1. Dashboard Feature

- Data of the school Students and enrollees and teacher

2.2. Management Control

- Admin can add, update, and delete the following aspects:
 - User Accounts (Admin, Registrar, Teacher, Students and Program Head)
 - Billing Settings (Prices of each billing)
 - TOR requests, Grades Request, Enrollment and Schedule

2.3. Manage Profile

- Superadmin can manage Profile by clicking the user icon or profile image on the header.
- Personal Information such as contact number and password are updated with validations.

3. For Registrar:

- Registrar users have access to managing operations at a specific scope, with a focus on scheduling, handling TOR and Grades Request and Enrollments.

3.1. Dashboard Features

- Numbers of students registered and students enrolled.

3.2. Management Control

- Registrar can add update delete following aspects:
 - Accounts (Students, Teachers)

- Schedules
- Sections
- Subjects

3.3. Enrollments.

- Enroll Students
- Print matriculation

3.4 Process Requests

- View Requests for TOR and Grades
- Print the TOR and Grades automatically.

3.5. Manage Profile

The Admin can manage the Profile by clicking the user icon or profile image in the header. Personal Information such as contact number and password are updated with validations.

4. For Teacher:

-The teacher handles the grading of the students.

4.1. Grading system

-Issue grades to the students enrolled in her subjects.

-View Enrolled Students.

4.2. Manage Profile

-The Teacher can manage the Profile by clicking the user icon or profile image on the header.

=Personal Information such as contact number and password are updated with validations.

5. For Student:

The Student can view their schedule and grades. They can also view their academic tracker and request TOR and Grade,

5.1. Grade Request and View enrolled subjects

- Request for TOR and Grades certificates.
- View Enrolled Subjects and Grades.
- View schedules and track taken subjects.

6. For Program Head:

-Program Head users have access to managing operations at a specific scope, with a focus on scheduling, creation of section, adding of teacher and validation of prospectus using the academic tracker.

6.1. Dashboard Features

- Numbers of students registered and students enrolled and teachers.

6.2. Management Control

- Registrar can add update delete following aspects:

- Accounts (Teachers)
- Schedules
- Sections
- Subjects

6.3. Validate Prospectus

- Program head can see the schedules and academic tracker to verify students eligible subjects.

6.5. Manage Profile

- The Program Head can manage the Profile by clicking the user icon or profile image in the header. Personal Information such as contact number and password are updated with validations.

7. Common Troubleshooting for All Roles

Failed Login Attempts: After a certain number of failed login attempts, your account will be temporarily locked from logging in. At a specified lockout period, the feature will be available again. This security measure helps protect your account from unauthorized access.

Access Denied: If you receive an "Access Denied" message, verify that your login credentials are correct and that you have the necessary permissions for the section you're trying to access. If the issue persists, contact the super Admin or Admin for further assistance.

Other section: Check your connectivity to ensure a smooth working experience with the system. Ensure that your device is connected to a stable internet network (Wi- Fi or mobile data) and that there are no disruptions in service.

APPENDIX F. CERTIFICATE OF PROOFREADING

C E R T I F I C A T I O N

This is to certify that the capstone project entitled "**E-CCC: A Web-Based Enrollment and Academic Records Management System for Calabanga Community College**" submitted by **CHRYSTIAN RAY C. FESTIN, ERNIE JOSEPH CLEDERA, ALLAN ABOGA-A JR., & JOSHUA GABRIEL GAMORA** has been reviewed and proofread by the undersigned. The document has been thoroughly checked for content clarity, grammatical accuracy, and adherence to the required formatting standards.



MARY CLAIRE A. REONDANGA, LPT
Administrative Officer II – Sagñay District
Department of Education - Camarines Sur

APPENDIX G. PERSONAL TECHNICAL VITAE

Curriculum Vitae of
ALLAN A. ABOGA-A JR.
Manguiring, Calabanga, Camarines Sur
abogaa.allan@gmail.com
09666946050

EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2021-2026	STI College Naga
Vocational/Technical		
High School	2012-2017	Cayetano Arellano High School
Elementary	2006-2012	Antonio Regidor Elementary School

PROFESSIONAL OR VOLUNTEER EXPERIENCE

Inclusive Dates	Nature of Experience/ Job Title	Name and Address of Company or Organization

AFFILIATIONS

Inclusive Dates	Name of Organization	Position

SKILLS

SKILLS	Level of Competency	Date Acquired
Computer Literate	Advanced Level	2013

TRAININGS, SEMINARS, OR WORKSHOPS ATTENDED

Inclusive Dates	Title of Training, Seminar, or Workshop
October 2024	USAID Webinar (5G Mobile Networks)
October 2024	USAID Webinar (AI Ethics and Governance)
October 2024	USAID Webinar (Artificial Intelligence/Machine Learning)
June 2024	Introduction to S/4HANA using Global Bikes

Curriculum Vitae of
ERNIE JOSEPH B. CLEDERA
San Felipe, Naga City, Camarines Sur
cledera.ernie@gmail.com
09296529698

EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2022-2026	STI College Naga
	2014-2018	Ateneo De Naga University
High School	2010-2014	Camarines Sur National High School
Elementary	2004-2010	Naga Central School 1

PROFESSIONAL OR VOLUNTEER EXPERIENCE

Inclusive Dates	Nature of Experience/ Job Title	Name and Address of Company or Organization
April 2021	Dispatch Manager	Mr. Rooter – Ottawa
Feb 2020	Insurance Coordinator	Concentrix Naga
March 2018	Customer Service Representative	Quantrics Enterprises Naga
March 2016	Engineering Internship	Ateneo de Naga University

AFFILIATIONS

Inclusive Dates	Name of Organization	Position
January 2018	Institute of Computer Engineering of the Philippines	Member
October 2018	Alpha Phi Omega	Member

SKILLS

SKILLS	Level of Competency	Date Acquired
Computer Literate	Advanced Level	2013

TRAININGS, SEMINARS, OR WORKSHOPS ATTENDED

Inclusive Dates	Title of Training, Seminar, or Workshop
October 2024	USAID Webinar (5G Mobile Networks)
October 2024	USAID Webinar (AI Ethics and Governance)
October 2024	USAID Webinar (Artificial Intelligence/Machine Learning)
June 2024	Introduction to S/4HANA using Global Bikes

Curriculum Vitae of
CHYSTIAN RAY C. FESTIN
San Felipe, Naga City, Camarines Sur
chrystian.festin@gmail.com
09455314173

EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/ Institution
Tertiary	Tertiary	2022-2026
		2012-2016
High School	High School	2008-2012
Elementary	Elementary	2002-2008

PROFESSIONAL OR VOLUNTEER EXPERIENCE

Inclusive Dates	Nature of Experience/ Job Title	Name and Address of Company or Organization
N/A	N/A	N/A

AFFILIATIONS

Inclusive Dates	Name of Organization	Position
January 2013	Institute of Computer Engineering of the Philippines	Member

SKILLS

SKILLS	Level of Competency	Date Acquired
Computer Literate	Advanced Level	2013

TRAININGS, SEMINARS, OR WORKSHOPS ATTENDED

Inclusive Dates	Title of Training, Seminar, or Workshop
October 2024	USAID Webinar (5G Mobile Networks)
October 2024	USAID Webinar (AI Ethics and Governance)
October 2024	USAID Webinar (Artificial Intelligence/Machine Learning)
June 2024	Introduction to S/4HANA using Global Bikes

Curriculum Vitae of
JOSHUA GABRIEL S. GAMORA
Paolbo, Calabanga, Camarines Sur
gamorajoshua@gmail.com
09126771929

EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2022-2026	STI College Naga
High School	2014-2021	Calabanga National High School
Elementary	2010-2014	Calabanga West Central School

PROFESSIONAL OR VOLUNTEER EXPERIENCE

Inclusive Dates	Nature of Experience/ Job Title	Name and Address of Company or Organization
October 2024	Executive Virtual Assistant	Magic Inc.
October 2023	TripAdvisor/Sales Agent	Sutherland Inc.
January 2023	Service Crew	GADC Inc

AFFILIATIONS

Inclusive Dates	Name of Organization	Position
N/A	N/A	N/A

SKILLS

SKILLS	Level of Competency	Date Acquired
Computer Literate	Advanced Level	2014

TRAININGS, SEMINARS, OR WORKSHOPS ATTENDED

Inclusive Dates	Title of Training, Seminar, or Workshop
October 2024	USAID Webinar (5G Mobile Networks)
October 2024	USAID Webinar (AI Ethics and Governance)
October 2024	USAID Webinar (Artificial Intelligence/Machine Learning)
June 2024	Introduction to S/4HANA using Global Bikes