

CURRICULUM EVALUATION MANAGEMENT SYSTEM :CASE STUDY MTAC

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**UGANDA CHRISTIAN
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Declaration

I **Mukhwana Yoweli** declare that this is my original work and has never been presented anywhere for the award of any academic qualification or any Publication.

Signature



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Student

Date 15/08/2024

APPROVAL

This is to certify to the best of my knowledge and profession that the piece of work titled “Curriculum Evaluation Management system submitted by Mukhwana Yoweli with Registration Number J23/MUC/BSIT/004 to the Department of Computing and Technology has not been duplicated by any other University for the award of a degree.

Faculty Supervisor

A handwritten signature in blue ink, appearing to read "Eliu Emmanuel", written over a dotted line. Below the signature is a large, stylized blue scribble or flourish.

Signature.....

Name of Supervisor: Doctor Eliu Emmanuel

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Abstract

This study explores the development and implementation of a curriculum evaluation management system, with a focus on the Management Training and Advisory Centre (MTAC) as the case study. The study covers the background, problem statement, main objectives, specific objectives, scope, justification, and definition of operational terms relevant to the research.

Guided by four key objectives, the study aimed to: identify different types of curriculum evaluation management systems, assess the significance of such systems in enhancing e-learning, examine the challenges associated with managing curriculum evaluation in an online learning environment, and propose solutions for more effective management of curriculum evaluation.

The methodology employed in this study involved data collection through interviews with key stakeholders, including administrators, lecturers, and students currently using the existing system at MTAC. This approach provided insights into the practical challenges and user experiences associated with curriculum evaluation in setting.

The results revealed that the existing system at MTAC faced significant challenges, including issues related to data management, the efficiency of evaluation processes, and the accessibility of evaluation records. The study found that these challenges hindered the overall effectiveness of curriculum evaluation, particularly in terms of timely feedback and the alignment of educational outcomes with learning objectives.

The research concluded that MTAC's curriculum evaluation management system requires significant improvements to address these challenges. Enhancing the system's capability to securely manage, retrieve, and analyze evaluation data will be crucial in optimizing the curriculum evaluation process and supporting the broader goals of e-learning.

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List of Acronyms

HTML.....Hyper Text Markup Language

Php Hypertext Preprocessor.

Mysql..... My Structured Query Language.

Css..... Cascading Style Sheets

MTAC..... Management Training and Advisory Centre

Chapter One

Introduction

Chapter one of this project present the background information to the study highlighting the problem statement, objectives, scope and significance to the study.

1.1 Background to the Study

Apparently, MTAC is in a situation where it currently lacks an online faculty evaluation system that enables Administrator, Faculties, and the Students. This has led to miss management of students, departments and faculties and administrators as whole. Therefore there is need for curriculum evaluation system. It's a system that will evaluate students, Teachers and administrators to have effective smooth running of the school and this application will work both manual and online to deliver reports on the improvement of the school.

1.2 Problem Statement

Currently MTAC does not have an online curriculum evaluation management system that enables administrators to evaluate students and faculties. This has brought about miss management such as collecting information about faculty through questionnaires from students

for better improvement of MTAC since the school doesn't have such system to do such the activities. Therefore there is need for a curriculum evaluation management system on e-learning.

1.3 Main Objective

The general objective was to develop a curriculum evaluation management system is to manage, evaluate and control the school faculties, department, course s and other activities of the school.

1.3.1 Specific Objectives

- i. To study the current system used to manage the students, faculties and departments at MTAC in order to identify System requirements.
- ii. To design a curriculum evaluation management system for MTAC using the identified requirements.
- iii. To implement the designed curriculum evaluation management system using various programming languages like PHP, MySQL, bootstraps and JavaScript among others.
- iv. To test and validate the curriculum evaluation management system so as to check for any errors and to see whether it meets the user requirements.

1.4 Scope

The system designed and developed will be used by MTAC administrators, students and lecturers in the different departments to evaluate faculties, students, grades for students and other activities like assignments, time tables

1.5 Significance

The system has the following significance.

- i. The student users are permitted only to evaluate the faculties assigned to their class per issue
- ii. The system enables students to view and retrieve the account details online like change password since it is web-based.
- iii. The students shall be able to see their results, assignments, time tables for exams and for lessons
- iv. The admin shall have the full control of the system
- v. The faculties users are only allowed to view their evaluation result even the evaluation is still ongoing.
- vi. The system saves time from collecting information about faculties

Chapter Two

Literature Review

2.0 Introduction

Chapter One presented the background information to the study highlighting the objectives, scope and significance to the study. This chapter is about the literature review of the curriculum evaluation management system on e-learning. It specifies what a curriculum evaluation management system is, what it needs and how it works for its enhancement.

2.1 curriculum evaluation management system on e-learning

Curriculum refers to planned learning experiences that the educational institution intends to provide for its learners Gwele(2005) and according to (Syomwene & Mwaka, 2013) curriculum is a learning experience planned by educational institutions that are provided for learners. The curriculum is an important part of the education system because the curriculum is a framework that expresses goals, expectations, and means (Suryad & Euis, 2017).

Curriculum evaluation is an integral part of curriculum development activities. The developed curriculum needs to be evaluated to see the achievement of the objectives of the curriculum.

However, curriculum evaluation is not only used to obtain information about achievement but also as a measure of the value or effectiveness of any particular activity in education

2.2 Types of curriculum evaluation management system on e-learning.

2.2.1 Placement evaluation management system

According to Tallinn. (2006), is system that manages everything from student profiling, training, and placements to finding, attracting, and signing up more corporates to your institute.

Pro ASP.NET Core MVC 2 Adam Freeman. (2017), Placement evaluation, except when a student places out of a course, results are reported in terms of profiles, patterns or sub-scores on the objectives or characteristics in question. In scoring for placement purposes the unit of analysis which provides the most appropriate data must be carefully chosen

2.2.2 Formative curriculum evaluation system

According to (1971 emphasis added) Formative curriculum evaluation system compares item response patterns to a predetermined level of mastery for the unit. This level of mastery maybe a

simple pass-fail criterion or it may be more complex and subjective, based on the teacher's judgment of what constitutes an adequate performance. They are used to direct teachers and students the information must be highly specific. Consequently, scoring and reporting are based on item response patterns.

2.2.3 Diagnostic curriculum evaluation management system on e-learning

Cognitive diagnostic assessment (CDA) refers to a set of cognitively grounded, diagnostic procedures attempting to pinpoint students' strengths and weaknesses in relation to their knowledge structures and processing skills (referred to as attributes) in the target domain (Lee & Sawaki, 2009).

2.3 Summative curriculum evaluation management system on e-learning

According to James (2007) Summative curriculum evaluation management is a type of curriculum evaluation system that occurs at the end of a learning period or program. It assesses students' learning and whether they have met the established learning goals. It evaluates the effectiveness of a learning program or to provide a final grade for a student's performance.

2.4 Management Evaluation Systems

According to Taylor (2018), management evaluation systems collect data from educational operations and convert it into analytical reports. These systems support the evaluation of teaching methods, student performance, and resource allocation, helping institutions make data-driven decisions to improve educational quality.

2.5 Data Processing Systems for Education

According to Johnson (2012), computerized data processing systems perform mathematical operations on educational data to transform it into useful information. This process involves converting raw educational data into comprehensive reports and insights. For instance, in a school's grading system, data processing systems ensure the accuracy and integrity of grade calculations and report generation, reducing manual labor and enhancing efficiency.

2.6 Educational Evaluation

According to Brown and White (2010), educational evaluation involves systematically recording, reporting, and analyzing educational activities and outcomes. Its purpose is to provide information necessary for making sound educational decisions. Educational evaluation helps

institutions analyze the effectiveness of their curriculum, identify areas for improvement, and measure overall performance.

2.6.1 Internal Evaluation Systems

According to Green (2015), internal evaluation systems are intended for use within educational institutions to provide managers with information necessary for making informed decisions. These systems support the management and control of internal curriculum processes, ensuring that educational objectives are met effectively.

2.6.2 External Evaluation Systems

According to Green (2015), external evaluation systems focus on preparing evaluative reports for external stakeholders, such as accreditation bodies, funding agencies, and government departments. These systems rely on data from internal evaluation systems to generate comprehensive reports that demonstrate compliance and accountability.

2.7 Related Systems and the models

2.7.1 Comprehensive Educational Management Systems (CEMS)

According to Walker (2020), a Comprehensive Educational Management System (CEMS) integrates various educational management functions, including curriculum management, student information systems, and performance evaluation. CEMS provides a holistic view of the educational environment, supporting effective decision-making and resource management.

How CEMS works

Comprehensive Educational Management Systems (CEMS) are software solutions designed to streamline and enhance various administrative and educational processes within schools, colleges, and educational institutions. The following are the different modules

- **Student Information Management:** CEMS centralize student data such as personal information, enrollment status, attendance records, grades, and academic history. This information is accessible to authorized personnel, including teachers, administrators, and parents, through secure logins.
- **Curriculum and Lesson Planning:** These systems often include tools for curriculum management and lesson planning. Educators can create, organize, and share lesson plans,

curriculum frameworks, and learning materials. This helps in ensuring alignment with educational standards and tracking progress against learning objectives.

- **Attendance Tracking:** CEMS automate attendance tracking, making it easier for teachers to record attendance digitally. Some systems integrate with biometric scanners, RFID, or mobile apps to streamline this process and improve accuracy.
- **Grade Management:** They facilitate grading and assessment processes by allowing teachers to input grades, calculate averages, and generate report cards electronically. This helps in maintaining accurate academic records and providing timely feedback to students and parents.
- **Communication and Collaboration:** CEMS often include communication tools such as messaging systems, forums, and portals where teachers, students, and parents can communicate. This fosters collaboration, facilitates parent-teacher communication, and enhances transparency in student progress.
- **Resource Management:** Educational resources such as textbooks, teaching aids, and equipment can be managed through these systems. Some CEMS include inventory tracking and resource allocation features to ensure efficient use and availability of educational materials.
- **Financial Management:** For educational institutions, CEMS may offer modules for managing finances, including budgeting, fee collection, and payroll processing for staff, and tracking expenditures. This helps in maintaining financial transparency and compliance.
- **Analytics and Reporting:** CEMS often come with analytics tools that provide insights into various aspects of educational operations. Administrators can generate reports on attendance trends, academic performance, resource utilization, and other metrics to support data-driven decision-making.
- **Security and Data Privacy:** Given the sensitive nature of educational data, CEMS prioritize security and data privacy. They implement measures such as role-based access control, data encryption, and regular backups to protect student and institutional information.

The benefits of CEMS

- **Efficiency and Streamlined Operations:** CEMS automate administrative tasks such as student enrollment, attendance tracking, grade management, and report generation. This reduces manual effort and improves overall efficiency and centralized data management.
- **Improved Communication and Collaboration:** Communication modules in CEMS facilitate better interaction among teachers, students, parents, and administrators. This improves transparency, enhances parent-teacher communication, and fosters a supportive learning environment.
- **Enhanced Academic Management:** Tools for curriculum planning, lesson preparation, and assessment management help educators align teaching practices with educational standards and analytics and reporting functionalities provide insights into student performance, allowing for personalized learning interventions.
- **Resource Optimization:** Resource management modules help institutions efficiently allocate and utilize educational resources such as textbooks, teaching aids, facilities, and staff to integrated library management systems improve access to educational materials, enhancing the learning experience.
- **Financial Transparency and Compliance:** Financial management modules ensure accurate budgeting, fee collection, payroll processing, and expenditure tracking. Which they support financial transparency, compliance with regulatory requirements, and effective resource allocation.
- **Data Security and Privacy:** CEMS implement robust security measures to protect sensitive student and institutional data. Features like role-based access control, data encryption, and secure authentication mechanisms ensure data confidentiality and integrity.
- **Scalability and Integration:** CEMS are scalable to accommodate the evolving needs of educational institutions, from small schools to large universities and integration capabilities

allow seamless connectivity with other educational systems (e.g., Learning Management Systems).

Challenges of CEMS

- **Implementation Complexity:** Implementing a CEMS requires significant planning, resources, and training for administrators, teachers, and staff to integrate with existing systems and data migration can be complex and time-consuming.
- **Cost Considerations:** Initial investment in CEMS software and infrastructure may be substantial. Ongoing costs include maintenance, updates and support budget constraints can be a barrier for some institutions.
- **User Adoption and Training:** Users (teachers, staff, and sometimes students) need adequate training to effectively use CEMS features and maximize their benefits to resist the change or lack of technical proficiency among users can hinder adoption.
- **Data Management and Privacy Concerns:** Ensuring data accuracy, security, and compliance with data protection regulations (e.g., GDPR, FERPA) is crucial but challenging to unauthorized access could compromise sensitive information, leading to legal and reputational risks.
- **Customization and Flexibility:** CEMS may not always fully meet the unique needs of every institution or allow for extensive customization, institutions may need to adapt their processes to fit the system's capabilities, which can impact workflow efficiency.
- **Maintenance and Support:** Continuous maintenance, updates, and technical support are essential for optimal system performance and dependence on external vendors for support can pose challenges, especially in terms of responsiveness and service quality.
- **Digital Divide and Accessibility:** Access to technology and internet connectivity can be uneven, particularly in rural or underserved areas to ensuring equitable access to CEMS functionalities for all students and stakeholders is a consideration

Conclusion

In conclusion, while Comprehensive Educational Management Systems offer significant benefits in terms of operational efficiency, communication, academic management, and resource

optimization, they also present challenges related to implementation complexity, cost, user adoption, data management, customization, and accessibility. Institutions must carefully assess their needs, capabilities, and readiness before adopting a CEMS to maximize its potential benefits while addressing potential challenges effectively.

2.7.2 Integrated Learning and Management System for Education (ILMS-E)

According to Harris (2019), an Integrated Learning and Management System for Education (ILMS-E) tracks and summarizes educational data, supporting management reporting and decision-making. ILMS-E integrates various educational modules, such as budgeting, resource management, and student performance tracking, providing a unified platform for educational administration.

How ILMS-E Works

An Integrated Learning and Management System (ILMS) combines the functionalities of both a Learning Management System (LMS) and a Management Information System (MIS) to streamline educational or organizational processes. Here's how it typically works:

- **Centralized Platform:** An ILMS provides a centralized platform where users can access various tools and resources. This includes learners, instructors, administrators, and sometimes even external stakeholders like parents or employers.
- **Learning Management System (LMS) Features:** ILMS allows instructors to create, manage, and deliver courses online. This includes uploading course materials, creating assignments, quizzes, and assessments.
- **Management Information System (MIS) Features:** ILMS integrates with databases to manage student records, enrollment data, and other administrative information and It provides tools for generating reports on student performance.
- **Integration Capabilities:** ILMS often integrates with other systems such as HR systems, financial management systems, and student information systems to streamline data flow and reduce redundancy.

- **Customization and Scalability:** Organizations can customize ILMS to fit their specific needs, whether it's for K-12 education, higher education, corporate training, or other sectors. It should also be scalable to accommodate growth and changing requirements.
- **User Experience:** A well-designed ILMS focuses on user experience, ensuring that learners find it intuitive to navigate courses and access resources, while administrators can efficiently manage operations.
- **Security and Accessibility:** ILMS platforms prioritize data security and compliance with regulations like GDPR or FERPA, depending on the jurisdiction. They also ensure accessibility for users with disabilities.

Benefits of ILMS-E

- **Centralization of Resources:** ILMS integrates various educational resources, administrative tools, and communication channels into one platform. This centralization improves accessibility and efficiency for users.
- **Streamlined Administration:** It simplifies administrative tasks such as course management, student enrollment, grading, and reporting. This reduces manual effort and improves accuracy.
- **Enhanced Communication and Collaboration:** ILMS facilitates communication between learners, instructors, and administrators through features like discussion forums, messaging systems, and collaborative tools. This fosters a more interactive learning environment.
- **Improved Learning Experience:** Learners benefit from easy access to course materials, multimedia resources, and interactive activities. Personalized learning paths and adaptive learning features can enhance engagement and understanding.
- **Data-Driven Insights:** ILMS provides analytics and reporting tools that offer insights into learner progress, course effectiveness, and administrative efficiency. This data-driven approach supports informed decision-making and continuous improvement.
- **Scalability and Flexibility:** ILMS platforms are often scalable to accommodate growing user bases and evolving educational needs. They can also be customized to fit specific organizational requirements.

- **Cost Efficiency:** While initial setup costs may be significant, ILMS can lead to cost savings over time by streamlining processes, reducing paperwork, and improving resource allocation.

Challenges of ILMS-E

- **Complex Implementation:** Integrating diverse systems (LMS, MIS, etc.) into a cohesive ILMS can be complex and time-consuming. It requires careful planning, technical expertise, and potentially significant investment in IT infrastructure.
- **Resistance to Change:** Users may resist adopting new technologies or changes to existing workflows. Proper training and change management strategies are essential to ensure acceptance and adoption.
- **Data Integration and Security:** Integrating data from various systems while maintaining data security and privacy can pose challenges. Compliance with regulations (e.g., GDPR, FERPA) adds complexity.
- **Technical Support and Maintenance:** ILMS platforms require ongoing technical support, maintenance, and updates to ensure smooth operation and security. This can strain IT resources and budgets.
- **User Experience Design:** Designing an ILMS that is intuitive and user-friendly for diverse user groups (students, instructors, and administrators) requires careful attention to user experience (UX) design principles.
- **Customization and Compatibility:** Organizations may have unique requirements that necessitate customization of the ILMS. Ensuring compatibility with existing systems and future scalability can be challenging.

Conclusion

In conclusion, while an Integrated Learning and Management System offers significant benefits in terms of efficiency, collaboration, and data-driven decision-making, organizations must navigate challenges related to implementation complexity, user adoption, data security, and ongoing maintenance. Addressing these challenges proactively can maximize the benefits and ensure successful integration of ILMS into educational or organizational settings.

2.7.3 School's Curriculum Management Systems (SCMS)

According to Mitchell and Jones (2016), a School's Curriculum Management System (SCMS) is an integrated platform that enables schools to manage their curriculum-related activities effectively. SCMS supports curriculum planning, implementation, and evaluation, providing insights for continuous improvement.

How SCMS works

A School's Curriculum Management System (CMS) typically consists of several interconnected modules that cater to different aspects of curriculum planning, development, delivery, assessment, and management. These modules are designed to streamline educational processes and enhance learning outcomes. The common modules found in a CMS:

- ✓ **Curriculum Planning and Development:** Aligns curriculum with educational standards and learning objectives to facilitate the creation and organization of courses, units, and lessons.
- ✓ **Resource Management:** Stores and organizes educational resources such as lesson plans, textbooks, digital content, multimedia materials to manage versions of curriculum documents to track changes and ensure educators use the most current materials.
- ✓ **Instructional Design:** Tools for educators to create and manage lesson plans aligned with curriculum standards to integrate with digital tools and platforms for delivering content, conducting assessments.
- ✓ **Assessment and Evaluation:** Allows educators to create and manage formative and summative assessments to provide tools for analyzing assessment data to evaluate student progress and inform instructional decisions.
- ✓ **Analytics and Reporting:** Tracks student progress across courses and grade levels to generates reports for educators, administrators, and parents/guardians to monitor student achievement and curriculum effectiveness.
- ✓ **Collaboration and Communication:** Facilitates collaboration among educators to share resources, best practices and instructional strategies to provides tools for communicating curriculum goals

- ✓ **Compliance and Accountability Module:** Ensures curriculum and instructional practices comply with educational standards and regulations to maintain audit trails of curriculum changes
- ✓ **Integration and Customization Module: Integration with Other Systems:** Integrates with other school systems such as Learning Management Systems (LMS), Student Information Systems (SIS), and Assessment Management Systems for seamless data flow.

The benefits of SCMS

- ✓ **Centralized Curriculum Management:** CMS provides a centralized platform for storing, organizing and managing curriculum resources, including lesson plans, assessments, and educational materials to reduce duplication of effort and improve consistency in teaching.
- ✓ **Alignment with Educational Standards:** CMS helps align curriculum with educational standards and learning objectives mandated by educational authorities to ensure that educational goals are met, and students receive a cohesive and standardized educational experience that prepares them for assessments and future education.
- ✓ **Enhanced Collaboration among Educators:** CMS facilitates collaboration among educators by providing tools for sharing resources, best practices and instructional strategies
- ✓ **Improved Instructional Design and Delivery:** CMS offers tools for designing and delivering instruction, including lesson planning, multimedia integration and digital content creation.
- ✓ **Efficient Assessment and Data Analysis:** CMS supports various forms of assessment, from formative to summative assessments and provides tools for analyzing assessment data and the educators can track student progress
- ✓ **Customization and Adaptability:** CMS can be customized to fit the specific needs and preferences of different schools, districts, or educational programs, this flexibility allows educators and administrators to tailor curriculum resources.

- ✓ **Enhanced Parent and Stakeholder Communication:** Many CMS platforms include features for communicating curriculum goals, student progress, assignments, and feedback to parents/guardians and stakeholders to improved communication

The challenges of SCMS

- ✓ **implementation Complexity: Challenge:** Implementing a CMS can be complex and time-consuming, requiring significant planning, training, and technical expertise and poorly managed implementations can lead to resistance from educators
- ✓ **Data Integration and Security Concerns:** Integrating data from various systems (e.g., Student Information Systems, Learning Management Systems) into the CMS while ensuring data security and privacy compliance can be challenging.
- ✓ **Resistance to Change:** Educators and staff may resist adopting new technologies or changes to existing workflows associated with the CMS.
- ✓ **Cost and Resource Allocation:** CMS implementation and maintenance costs, including software licenses, training, and ongoing support, can strain school budgets.
- ✓ **User Training and Support:** Providing adequate training and ongoing support for educators and administrators to effectively use the CMS can be resource-intensive and insufficient training can hinder educators' ability to utilize the CMS's full capabilities, limiting its impact on teaching and learning.
- ✓ **Technical Issues and Maintenance:** CMS platforms require regular updates, maintenance, and troubleshooting to ensure smooth operation Technical issues or downtime can disrupt teaching and learning activities, necessitating prompt resolution and proactive maintenance.

Conclusion

While School's Curriculum Management Systems offer significant benefits in terms of centralized management, enhanced collaboration, and improved instructional practices, they also present challenges related to implementation complexity, data security, resistance to change, and resource allocation. Addressing these challenges proactively through effective planning, training, and support can maximize the benefits and ensure successful integration and utilization of the CMS in educational settings.

6.7.4 Instructional Management System (IMS)

Introduction: An Instructional Management System (IMS) is a software solution that supports instructional design, delivery, and assessment (Wagner, 2019).

How it works

IMS works by providing tools for instructors to design and develop instructional materials, deliver online courses, and assess student learning outcomes.

Modules

- ✓ Instructional design and development
- ✓ Course delivery and management
- ✓ Assessment and evaluation management
- ✓ Instructional materials management

Benefits for IMS

- ✓ Supports instructional design and delivery (Wagner, 2019)
- ✓ Enhances assessment and feedback capabilities (Gibson, 2019)
- ✓ Facilitates continuous improvement of instructional materials (Wagner, 2019)

The challenges of IMS:

- ✓ Limited customization options (Gibson, 2019)
- ✓ Technical issues can disrupt instructional delivery (Wagner, 2019)
- ✓ Requires significant instructor training (Gibson, 2019)

Conclusion:

IMS is a valuable system for supporting instructional design and delivery, but its integration with Curriculum evaluation management system requires careful consideration of technical and pedagogical issues.

Wagner(2019). Instructional management systems: A review of the literature. Journal of Educational Technology Development and Exchange, 12(1), 1-22.

6.7.5 Educational Data Warehouse (EDW)

Introduction: An Educational Data Warehouse (EDW) is a centralized repository that stores and manages educational data for analysis and reporting Inmon(2002).

How the system works

EDW works by integrating data from various sources, storing and managing the data, and providing tools for analysis and reporting.

This system has the following modules:

- Data extraction and integration
- Data warehousing and management
- Data analysis and reporting
- Data visualization and dashboards

Benefits of EDW

- Supports data-driven decision-making (Inmon, 2002)
- Enhances data management and analysis capabilities (Kimball, 2013)
- Facilitates reporting and visualization of educational data (Inmon, 2002)

The challenges of the EDW

- High implementation costs (Kimball, 2013)
- Requires significant technical expertise (Inmon, 2002)
- May compromise data security and privacy (Kimball, 2013)

Conclusion

EDW is a valuable system for supporting educational data management and analysis, but its integration with Curriculum evaluation management system requires careful consideration of technical and ethical issues.

Inmon, W. H. (2002). Building the data warehouse. John Wiley & Sons

6.7.6 Assessment and Grading System (AGS)

Introduction

An Assessment and Grading System (AGS) is a software solution that supports the development, delivery, and grading of assessments (Baker, 2018).

How it works

AGS works by allowing instructors to create and deliver assessments, automatically grade student responses, and track student progress. This system has the following modules

- Assessment development and management
- Assessment delivery and proctoring
- Grading and feedback management
- Reporting and analytics

The benefits of the AGS

- Streamlines assessment and grading processes (Baker, 2018)
- Enhances accuracy and consistency of grading (Baker, 2018)
- Supports data-driven decision-making (Pophal, 2019)

Challenges of using this system

- Technical issues can disrupt assessment delivery (Baker, 2018)
- Limited flexibility in assessment design (Pophal, 2019)

- May compromise academic integrity (Baker, 2018)

Conclusion

AGS is a useful system for supporting assessment and grading processes, but its integration with Curriculum evaluation management system requires careful consideration of technical and ethical issues.

Baker, R. (2018). Assessment and grading systems: A review of the literature. *Journal of Educational Computing Research*, 49(4), 419-433.

2.8 Comparison of related systems

Table 1: Comparisons for the related systems

System	Strength	Weakness	Technologies
CEMS	Holistic view, effective decision-making, resource management	High implementation costs, integration challenges	Web-based

ILMS-E	Improved access to data, enhanced decision-making, real-time analysis	Data integration challenges, high costs, need for continuous training	Web-based
SCMS	Enhanced curriculum planning, efficient management, improved tracking	Resistance to change, high maintenance costs	Web-based
IMS	Supports instructional design and delivery Enhances assessment and feedback	Limited customization options Technical issues can disrupt instructional delivery	Web-based
EDW	Supports data-driven decision-making Enhances data management and analysis capabilities Facilitates reporting and visualization of educational data	High implementation costs Requires significant technical expertise May compromise data security and privacy	Web-based

AGS	Streamlines assessment and grading processes Enhances accuracy and consistency of grading Supports data-driven decision-making	Technical issues can disrupt assessment delivery Limited flexibility in assessment design May compromise academic integrity	Web based
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Conclusion

This chapter reviewed the literature on curriculum evaluation management system on e-learnings, gathering information about related systems, their functions, and the enhancements needed to improve current curriculum evaluation processes. The comparison of related systems highlights their strengths and weaknesses, providing a basis for selecting and implementing the most effective system for curriculum evaluation management.

Chapter Three: Research Methodology

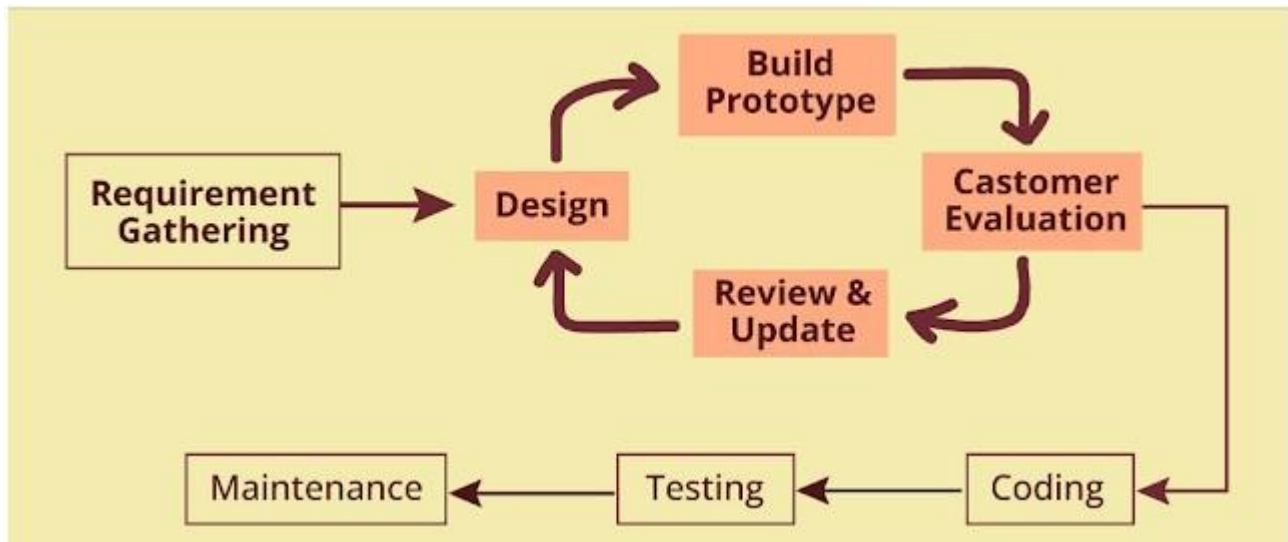
3.0 Introduction

This chapter talks about design methodology, research methodology, system analysis and design, implementation tools in the development of Curriculum evaluation management system (CEMS) and conclusion

3.1 System Design

Prototyping methodology is a software development process that involves creating an initial version of a software product or system, known as a prototype, to gather feedback and improve the final product. This methodology allows developers to quickly and iteratively build and test early versions of the software to identify potential issues and make necessary changes.

3.1.1 The flow diagram of system design methodology (Prototyping model)



3.2 The Development Process

The development process for the crime investigation management information system using the prototype model involved the following steps:

Step 1: Requirements gathering – The first step in the development process was to gather the requirements for the system. This involved consulting with the users to understand their specific needs and requirements for the system.

Step 2: Prototype creation – Once the requirements were gathered, I was able to create a prototype of the system. This prototype included the basic features of the system, such as crime scene management, case management, suspect and victim information management, and report generating.

Step 3: Testing and feedback – The prototype was then tested by inputting the dummy data into the system. Feedback was gathered from the system, and the prototype was refined based on this

feedback. This process was repeated until the prototype met the requirements of the management team.

Step 4: Final system development – Once the prototype was refined, the final system was developed. This involved adding additional features, such as charge sheet and making improvements to the user interface.

Step 5: Testing and deployment – The final system was then tested to ensure that it met the requirements before being deployed.

3.3 Benefits of the Prototype Model

The prototype model offers several benefits for software development, including:

Early and continuous feedback from users, which helps to ensure that the final system meets the requirements of the management team.

Faster development time, as the prototype can be created quickly and refined based on user feedback. Reduced development costs, as changes can be made to the prototype rather than the final system, which is more expensive to modify.

3.4 Challenges of the Prototype Model

Despite the benefits of the prototype model, there are some challenges associated with this approach. One of the main challenges is the potential for scope creep. As the prototype is refined based on user feedback, there is a risk that additional features may be added that were not originally part of the requirements. This can lead to increased development time and costs.

Another challenge is the potential for the prototype to become too complex. As additional features are added, the prototype can become more difficult to use, which can affect user adoption rates.

3.5 Conclusion

The prototype model was an effective approach to developing the crime investigation management information system for MTAC. The iterative approach allowed the development team to create a working model of the system that met the requirements of the management team. The prototype model allowed for early and continuous feedback, which helped to ensure that the final system was user-friendly and met the needs of the MTAC. Despite the potential challenges associated with the system.

3.6 System Study and Analysis

In this phase, the researchers conducted a thorough study to understand the existing curriculum evaluation processes within educational institutions. The goal was to identify both functional and non-functional requirements that the CEMS should fulfill. This greatly determined what the system was expected to do. They included:

- **Functional Requirements:**
 - **Automated Evaluation Reporting:** The system should automatically generate comprehensive reports based on evaluation data, providing insights into curriculum effectiveness, strengths, and areas needing improvement.
 - **User Requirement Identification:** Identify specific needs and preferences of educators, administrators, and other stakeholders through interviews and surveys.
 - **System Inputs and Outputs Definition:** Clearly define what data the system will take in (inputs) and what it will produce (outputs) in terms of evaluation results and reports.
- **Non-Functional Requirements:**
 - **Performance:** Ensure that the system can handle simultaneous requests during peak usage times without significant delays in generating reports or processing data.
 - **Reliability:** The system should operate reliably without frequent downtime, ensuring educators can access evaluation data whenever needed.
 - **Scalability:** It should be scalable to accommodate an increasing number of users and evaluation processes as educational institutions grow.
 - **Usability:** Design an intuitive user interface that requires minimal training for educators and administrators to use effectively.

3.7 Data Collection Techniques

The researchers employed various methods to gather necessary information about the current state of curriculum evaluation:

- **Interviews:**
 - **Functional Requirements:** Through semi-structured interviews with educators and administrators, the system's functional requirements were identified. For example, stakeholders expressed a need for real-time data access and easy report generation.

- **Non-Functional Requirements:** Interviews also revealed non-functional requirements such as the need for data security and system reliability to maintain trust in evaluation results. This technique is important to use since some data could not be collected by direct observation unless interviewed, hence it helps in enriching the data for quality processing.
- **Observation:**
 - **Functional Requirements:** Direct observation of manual evaluation processes helped determine the need for automation to streamline workflows and reduce evaluation time.
 - **Non-Functional Requirements:** Observations highlighted the importance of system performance to handle large volumes of evaluation data efficiently.
- **Reviewing Existing Documents:**

This involved the researcher visiting the case study and interacted with the officer in charge who provided the documents about the existing system in place and how curriculum evaluation works before coming up with the system .these were grouped in two ways;

- **Functional Requirements:** Researching policy documents and previous evaluation reports provided insights into required functionalities such as compliance with educational standards and regulations.
- **Non-Functional Requirements:** Documentation review also informed non-functional requirements like data privacy and regulatory compliance.
- **Questionnaires:**
 - **Functional Requirements:** Surveys distributed among educators and administrators gathered quantitative data on specific aspects of curriculum evaluation, influencing the system's feature set.
 - **Non-Functional Requirements:** Feedback from questionnaires highlighted the importance of system responsiveness and ease of use to ensure user satisfaction.

3.8 Data Analysis Methods

Collected data was analyzed to derive meaningful insights using appropriate tools and techniques:

- **Data Analysis Software (e.g., Microsoft Excel):**
 - **Functional Requirements:** Analyzed data to generate graphical representations (e.g., charts, graphs) of evaluation results, fulfilling the need for visual data presentation.
 - **Non-Functional Requirements:** Ensured that the software used for analysis was reliable and could handle large datasets efficiently to maintain system performance.

3.9 System Analysis and Design

The analysis and design of the system is done by clearly identifying the inputs, the processes that transform the inputs into outputs while satisfying the system constraints. Data flow diagrams and entity relationship diagrams are used to clearly demonstrate the processes of data transfer in the system as well as the relationship among entities in the system respectively.

This phase focuses on defining the system requirements and designing the system architecture to meet the specific needs of the Curriculum evaluation management system (CEMS), catering to administrators, lecturers, and students.

3.2.0 System analysis

Systems analysis is the process of identifying and summarizing data with the intent to extract useful information and develop conclusions. In system analysis requirements are determined. The requirements include functional and non-functional base on the system study.

3.2.1 Functional Requirements:

1. **Automated Reporting:** The system shall automatically generate reports based on evaluation data, such as student performance, internship evaluations, and exam results, ensuring consistency and accuracy in evaluation outcomes.
2. **User Management:** Implement role-based access control (RBAC) to manage permissions effectively. Administrators can define roles (e.g., student, lecturer, admin) with specific access rights to ensure data security and integrity.
3. **Data Visualization:** Incorporate features to visualize evaluation data through interactive charts, graphs, and customizable dashboards. This functionality enables users to interpret and analyze data easily.

4. **Student Admission and Management:** Design workflows to allow students to apply for courses, create accounts upon admission (including student registration numbers, access numbers, and passwords), and access school services through the system.
5. **Student Services:** Enable students to perform various tasks such as paying fees, viewing marks, accessing transcripts (with restrictions based on fee clearance), and receiving internship letters, submitting internship reports, and sending acceptance letters to departments.
6. **Assignment and Timetable Management:** Provide functionality for students to attend classes, upload/download assignments, and view the school timetable. For lecturers, allow them to upload course materials, set exams, assignments, and create timetables.
7. **Administration Control:** Empower administrators to manage admissions, departments, courses, and user accounts. They should be able to add, edit, and delete users and roles, generate passwords for lecturers and students, and oversee various administrative tasks.

3.2.2 Non-Functional Requirements:

1. **Performance:** Optimize system performance to handle simultaneous access by multiple users, ensuring minimal latency and quick response times even during peak usage periods.
2. **Security:** Implement robust security measures, including data encryption, secure user authentication mechanisms, and access controls to protect sensitive student and evaluation data from unauthorized access and breaches.
3. **Usability:** Design an intuitive and user-friendly interface that minimizes the learning curve for all users (administrators, lecturers, and students). Ensure the interface is accessible and responsive across different devices and browsers.

3.2.3 Conclusion

By addressing these functional and non-functional requirements, the system architecture will be robust enough to support the diverse needs of MTAC Vocational Institute, facilitating efficient curriculum evaluation and management processes for all stakeholders.

3.2.4 System Design

Process Modeling: This was achieved by use of Data Flow Diagrams to show processes and external entities in the system and the end product was a detailed description of processes involved (process models). The information used in building the Data Flow Diagram was obtained from the Data Dictionary.

Data Modeling: This was achieved using Entity-Relationship Diagrams to show the data requirements and model. This yielded the structure of relations in the relational schema (database).

3.2.5 System Implementation

The implementation of the Curriculum evaluation management system (CEMS) involves translating the designed system into a functional application using specific technologies and tools.

This involved the implementation of both the database and the application programs. It was achieved using the Data Definition Language (DDL) of the selected Database Management System (DBMS).

Here's how each technology is utilized in the implementation:

3.2.6 Implementation Tools:

1. WAMP/Apache Server:

- **Purpose:** The WAMP (Windows, Apache, MySQL, PHP) stack includes Apache, which serves as the web server for hosting the CEMS application locally during development and testing phases.
- **Usage:** Apache handles HTTP requests from clients (browsers) and serves web pages, ensuring that PHP scripts are executed server-side to generate dynamic content.

2. MySQL:

- **Purpose:** MySQL is an open-source relational database management system (RDBMS) used for storing and managing structured data.

- **Usage:** PHP scripts interact with MySQL to store and retrieve data related to students, courses, evaluations, and system configurations. It ensures data integrity and provides efficient querying capabilities.

3. **PHP:**

- **Purpose:** PHP (Hypertext Preprocessor) is a server-side scripting language designed for web development, particularly suited for dynamic web pages and server-side scripting.
- **Usage:** PHP scripts process data received from web forms, handle user authentication, interact with the MySQL database to perform CRUD operations (Create, Read, Update, Delete), and generate dynamic content based on user requests.

4. **JavaScript (JS):**

- **Purpose:** JavaScript is a client-side scripting language used to create interactive and dynamic elements on web pages.
- **Usage:** In the context of CEMS, JavaScript enhances user interaction by validating form inputs, enabling dynamic content updates without page reloads (Ajax), and providing client-side data validation to improve user experience.

5. **HTML and CSS:**

- **Purpose:** HTML (Hypertext Markup Language) is used for structuring content on web pages, while CSS (Cascading Style Sheets) is used for styling and formatting the HTML elements.
- **Usage:** HTML defines the structure of CEMS web pages, including forms, tables, and content sections. CSS styles these elements to ensure consistent branding, layout, and visual appeal across the application. Bootstrap 4, a CSS framework, further enhances the design with pre-built responsive components and layouts.

3.2.7 CRUD Operations:

- **Purpose:** CRUD (Create, Read, Update, and Delete) operations refer to the basic functions for managing database records.
- **Usage:** PHP scripts implement CRUD operations to manipulate data stored in the MySQL database. For example:
 - **Create:** Insert new student records, course details, or evaluation data into the database.
 - **Read:** Retrieve student information, course lists, evaluation reports, etc., from the database to display on web pages.

- **Update:** Modify existing student records, course details, or evaluation data in response to user inputs or system updates.
- **Delete:** Remove obsolete or redundant records from the database, such as outdated student information or expired evaluation data.

3.2.8 Conclusion

By leveraging these technologies and implementing CRUD operations effectively, the CEMS application can manage student admissions, course evaluations, administrative tasks, and user interactions efficiently. This approach ensures that the system is robust, scalable, and capable of meeting the diverse needs of MTAC Vocational Institute stakeholders.

3.2.9 System Testing and Validation

Ensuring the system meets functional and non-functional requirements through rigorous testing and validation is critical to the success of the Curriculum evaluation management system (CEMS) for MTAC Vocational Institute. This process includes both testing and validation activities to guarantee that the system operates as intended and meets all specified standards.

3.3.0 Testing

Testing is the process of executing application programs with the intent of finding errors and observing if it behaves as expected. The faults were corrected, and the process was repeated until the system was proven to be working according to users' specifications and performance requirements. This was achieved by:

- i. Performance and Efficiency Testing:** Evaluating the system's performance, efficiency, disk space usage, and throughput to ensure proper functioning.
- ii. Compatibility Testing:** Checking the compatibility of the system with different operating systems, such as Windows XP, Linux, and Windows 7, to ensure seamless operation across various platforms.

iii. **Security Testing:** Testing for security issues such as resistance to remote attacks and the effectiveness of authentication procedures to safeguard the system from unauthorized access.

3.3.1 Validation

Validation is the assessment of the system to ensure it meets the intended purpose and needs of its users. Validation was performed to check whether the CEMS meets the identified user, functional, and non-functional requirements. This was accomplished by:

- **User Validation:** Providing the system to end-user representatives who tested the system to verify that it meets their intended requirements and expectations.
- **Functional Requirements Validation:** Ensuring the system fulfills the educational institution's requirements for automated and accurate evaluation processes.
- **Non-Functional Requirements Validation:** Confirming that the system meets operational standards such as reliability, security, and scalability.

By meticulously testing and validating both functional and non-functional requirements, the Curriculum evaluation management system ensures a robust, secure, and user-friendly platform that meets the specific needs of the MTAC Vocational Institute.

3.3.2 Conclusion

This chapter has described the methodologies used for research, data collection, analysis techniques, and tools employed in designing and implementing the Curriculum evaluation management system on e-learning. By understanding both functional and non-functional requirements, the system was designed to effectively support curriculum evaluation processes in educational institutions, meeting user expectations and operational needs.

Chapter Four

System Study, Analysis, and Design

This chapter delves into the evaluation of the existing curriculum management system, identifies its limitations, analyzes the requirements for an improved system, and designs the proposed system based on this analysis.

4.1 Study of the Existing System

Current Challenges:

The existing curriculum management system at MTAC Institute has several issues:

Manual Processes: Teachers and administrative staff rely on paper-based records for tracking student progress, scheduling, and other curriculum related tasks.

Inefficiencies: Delays in updating and accessing curriculum details lead to inefficiencies in managing academic activities.

Limited Access: Information is not readily accessible to all relevant stakeholders, causing communication gaps and delays in decision making.

Strengths of the Existing System:

Document Generation: Capable of generating course schedules and student reports.

Historical Records: Maintains records of past curricula and student performance.

Security: Utilizes basic security measures to protect sensitive academic information.

Weaknesses of the Existing System:

Manual Entry: High reliance on manual data entry increases the likelihood of errors and delays.

Limited Integration: Poor integration between different functions, such as course management and student tracking.

Access Issues: Restricted access to curriculum information for students and faculty.

4.2 Data Analysis Results

Data Collection Methods:

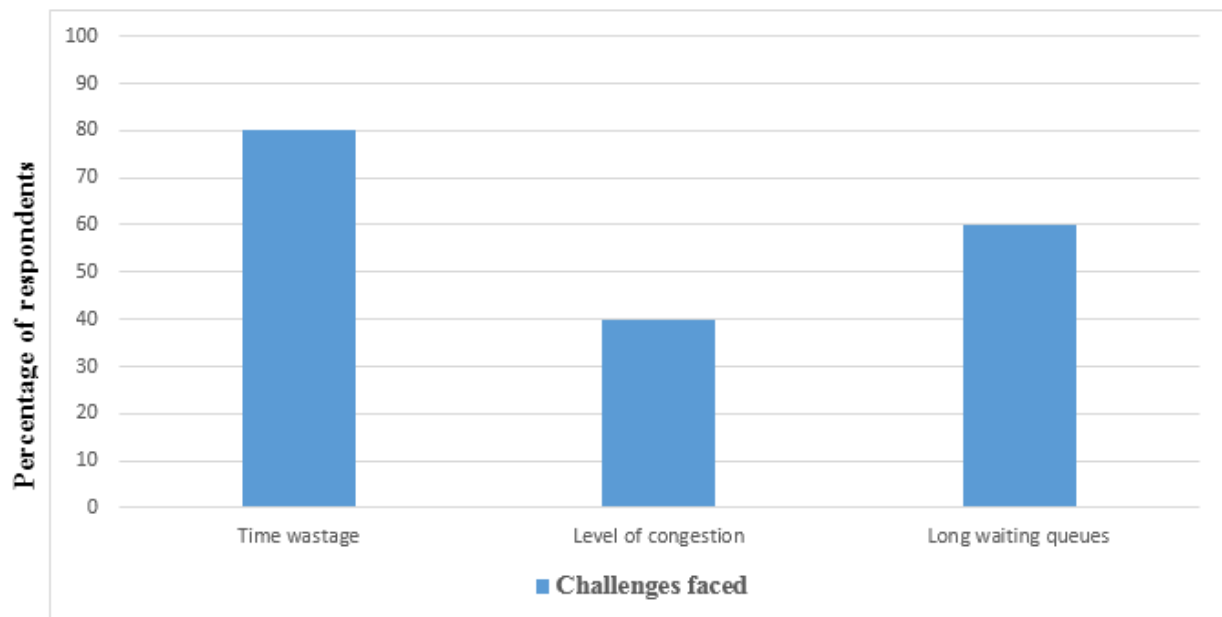
Surveys, interviews, and system usage logs were analyzed to identify challenges with the current curriculum management system. The data revealed issues such as inefficient data handling and delays in updating information.

Challenges Associated with the Current System:

Table 1: Challenges in the Current Curriculum Management System

Challenge	Number of Respondents (out of 5)	Percentage of Respondents
Time Wastage	4	80%
Inefficient Data Access	3	60%
Lack of Integration	2	40%

Graphical Representation of Challenges:



4.2.1 User Requirements

The system should address the following user requirements:

Data Management: Ability to manage and update curriculum data efficiently.

Accessibility: Ensure all stakeholders can access necessary information.

Reporting: Generate reports on student performance and curriculum status.

4.2.2 Functional Requirements

The system should:

Data Handling: Enable efficient storage, retrieval, and updating of curriculum data.

User Access: Allow various stakeholders to view and manage relevant information.

Reporting: Provide comprehensive reports on curriculum and student performance.

4.2.3 Nonfunctional Requirements

The system should:

Availability: Be accessible at all times.

Security: Ensure data privacy and protection.

Performance: Handle data processing and retrieval efficiently.

Flexibility: Allow easy updates and modifications.

4.2.4 System Requirements

Hardware Requirements:

Table 2: Hardware Requirements

Hardware Component	System Requirement	Justification
Processor	Intel Core i5 or above	Supports required processing power.
Processor Speed	2.5 GHz or above	Adequate for handling system operations.
Disk Space	100 GB or above	Sufficient for storing curriculum data and reports.

Software Requirements:

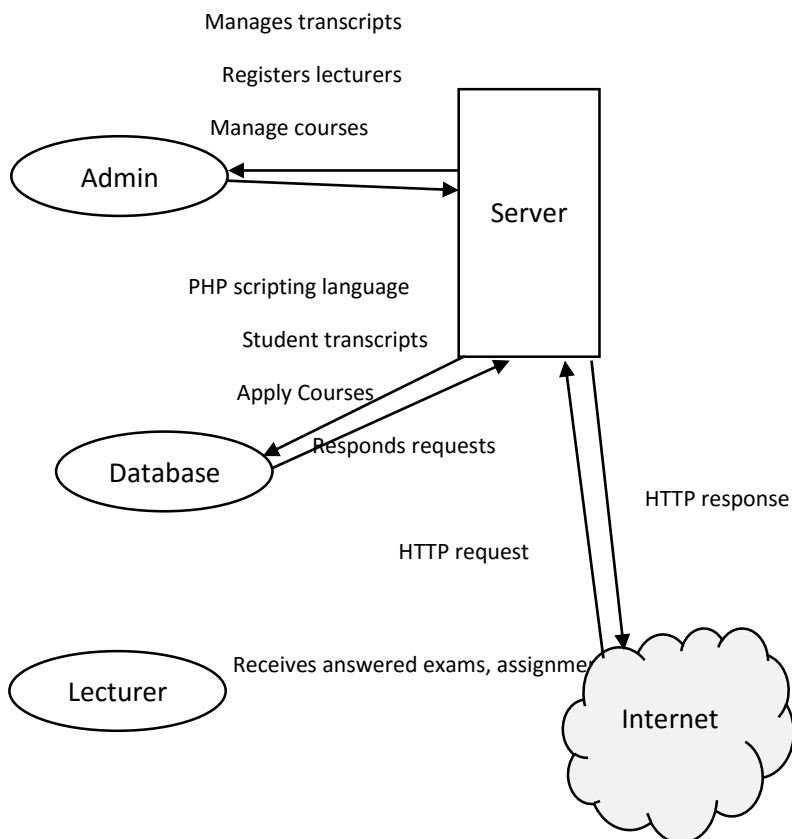
Table 3: Software Requirements

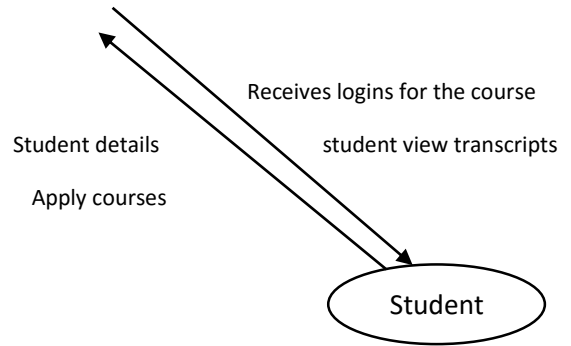
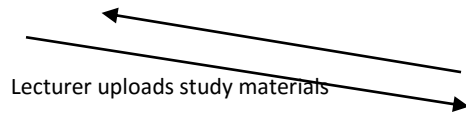
Software Component	System Requirement	Justification
Operating System	Windows 10 or above	Supports modern applications and security updates.
Database Management System	MySQL Server or equivalent	Manages large volumes of data efficiently.
Web Server	Apache HTTP Server	Provides robust web services for system access.

4.3 System Design

Architectural Design:

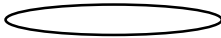

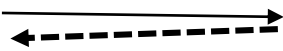
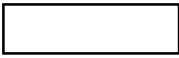
The new Curriculum evaluation management system on ELearning will include modules for data collection, processing, storage, and display (see Figure 4.3).



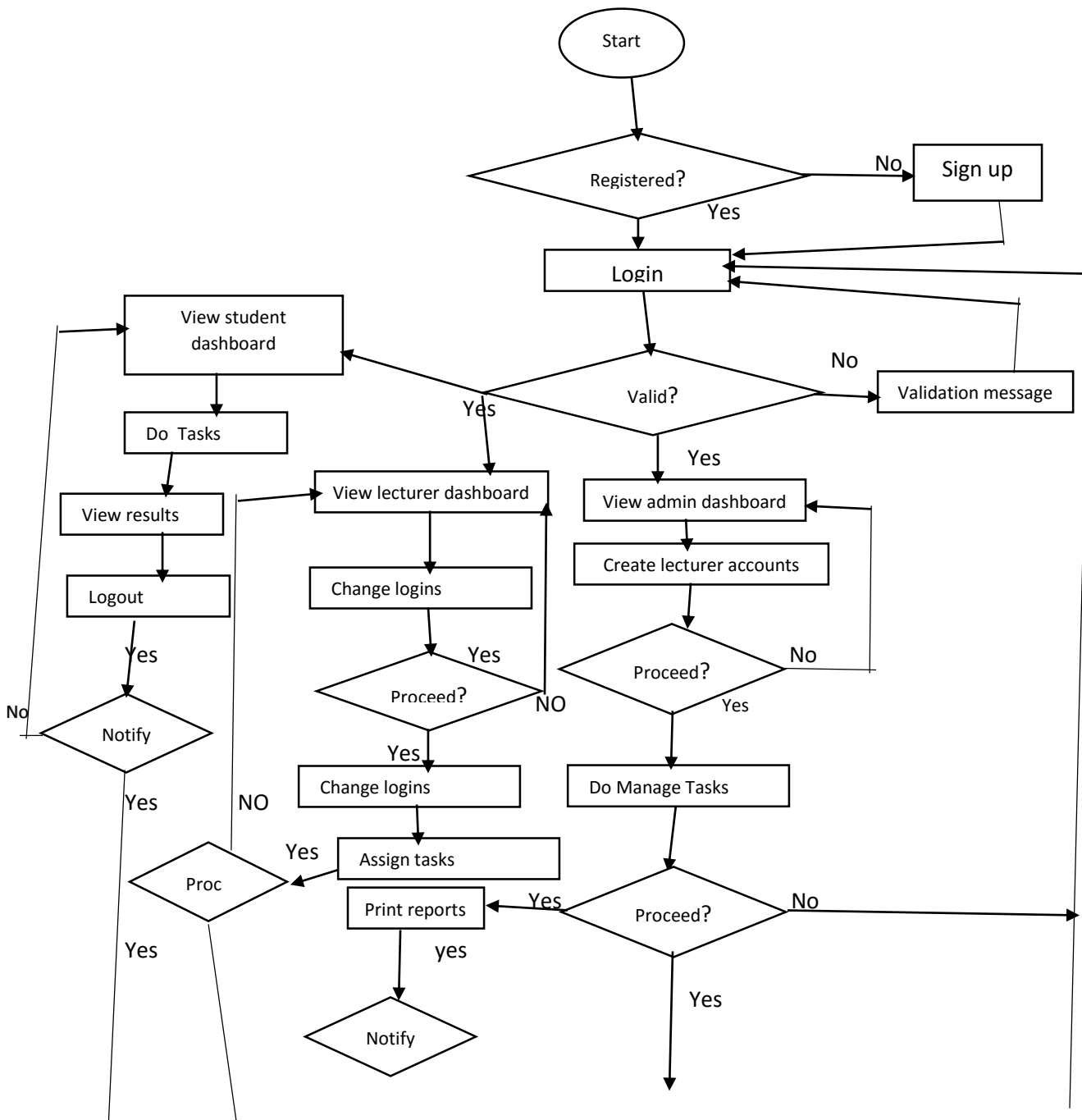


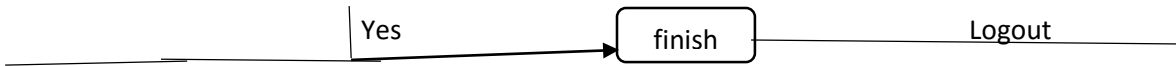
Process Modeling:

Table 4: Key Symbols for Process Modeling

Symbol	Name	Description
	External Entity	An entity that interacts with the system.
	Data Store	Where data is stored after processing.
	Data Flow	Movement of data between components.
	Process	Activities to achieve a specific task.

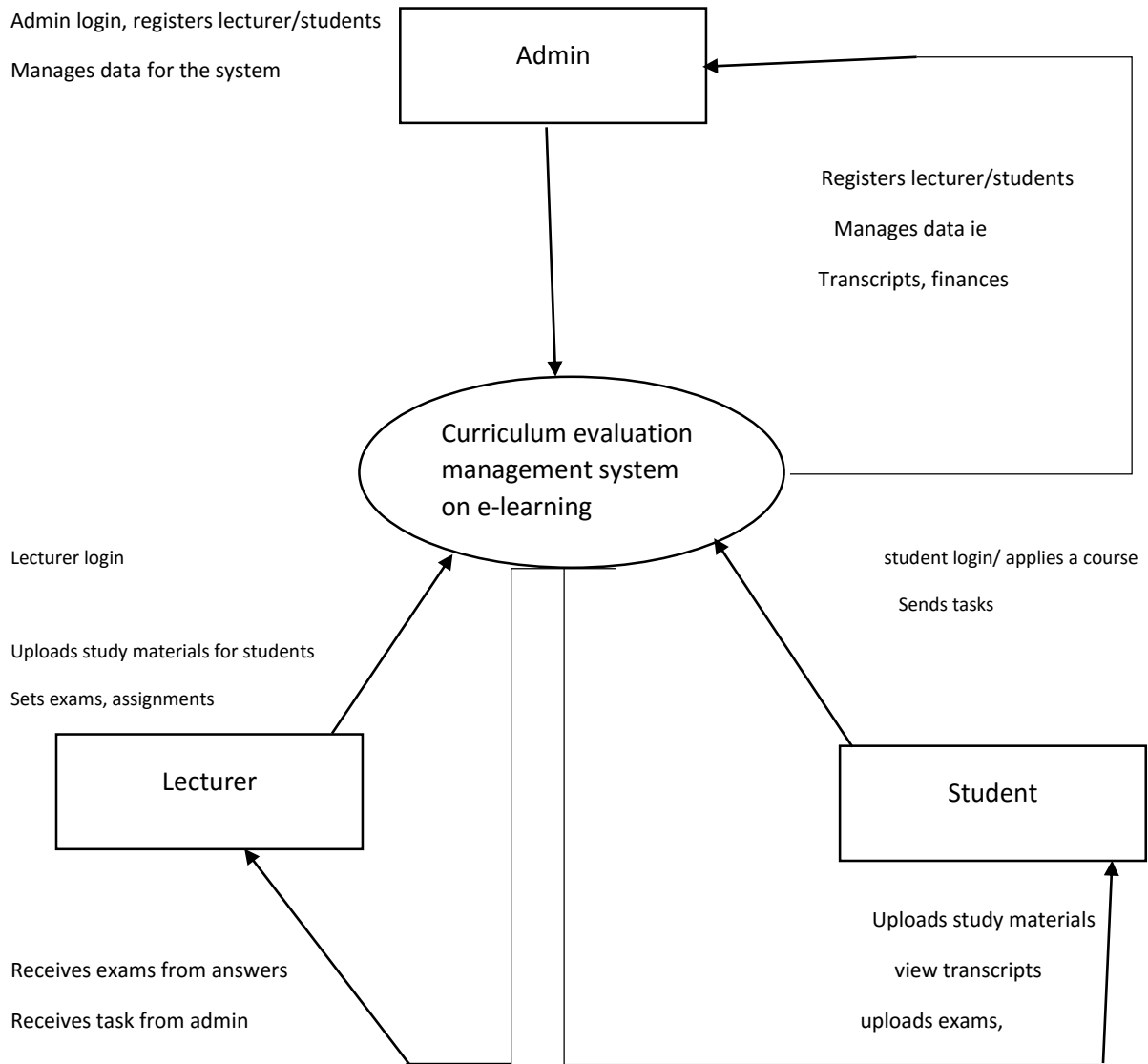
Data Flow Diagrams (DFD):



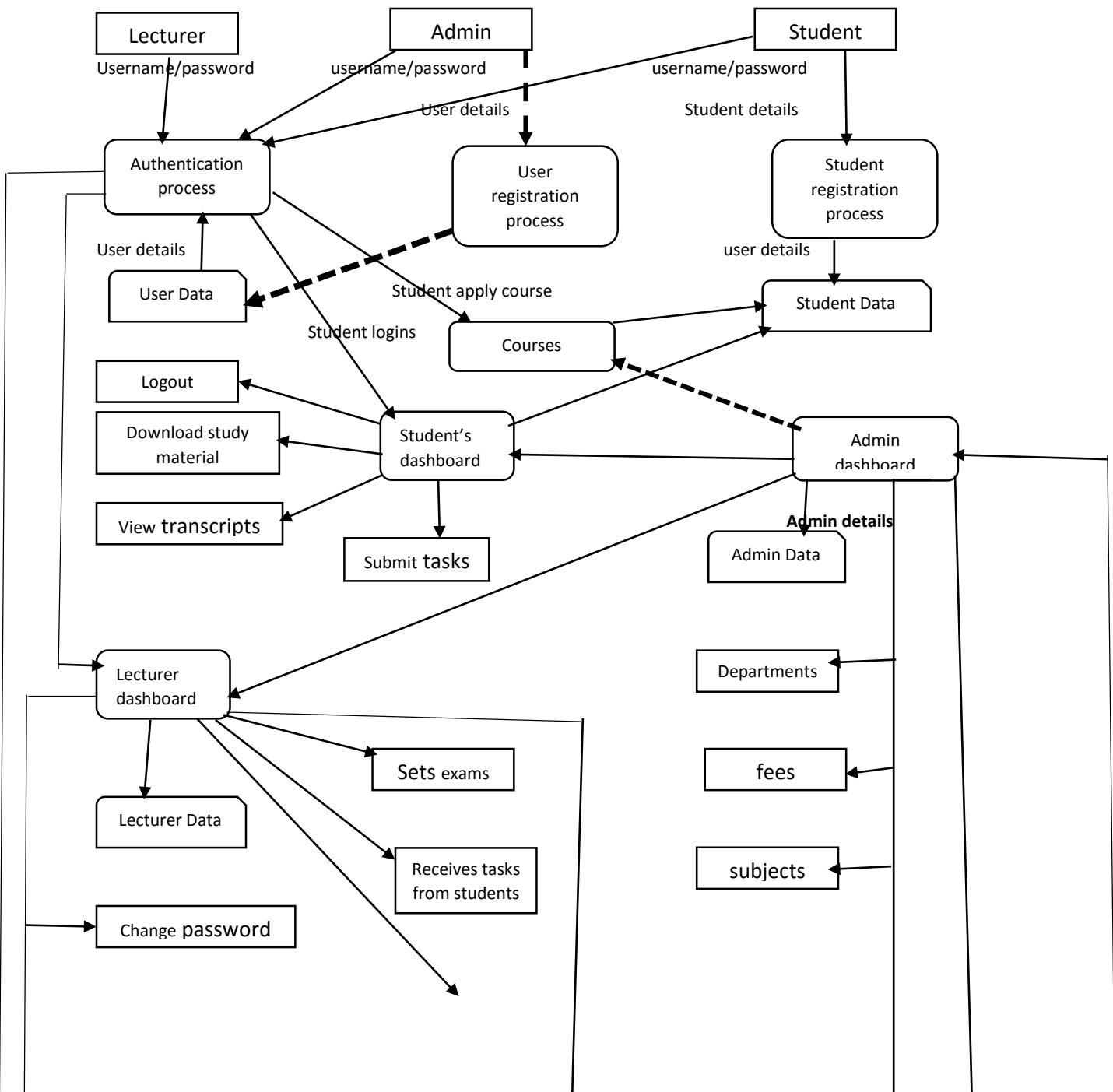


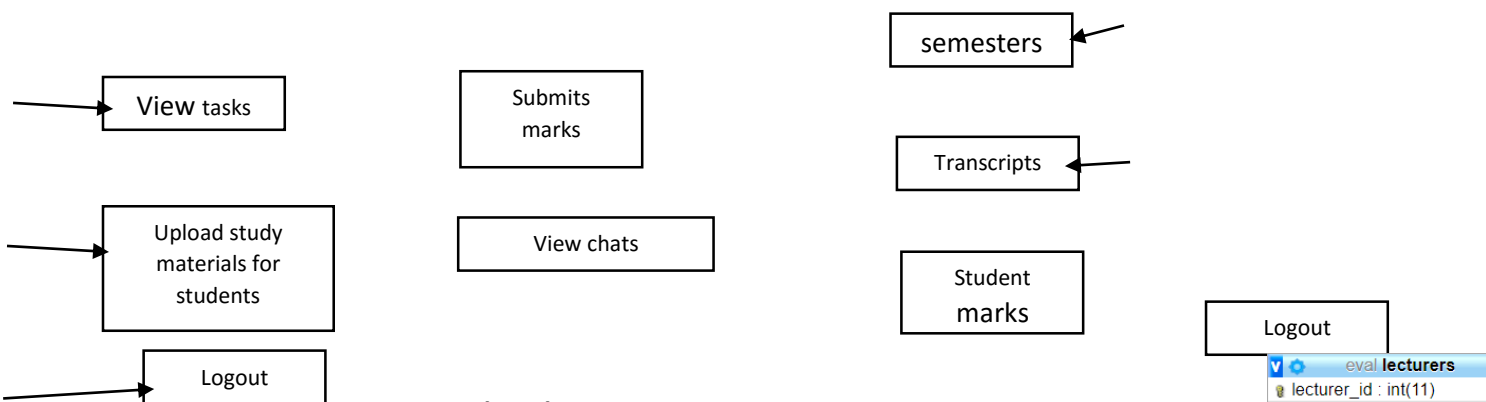
Context Level DFD:

Admin login, registers lecturer/students
 Manages data for the system

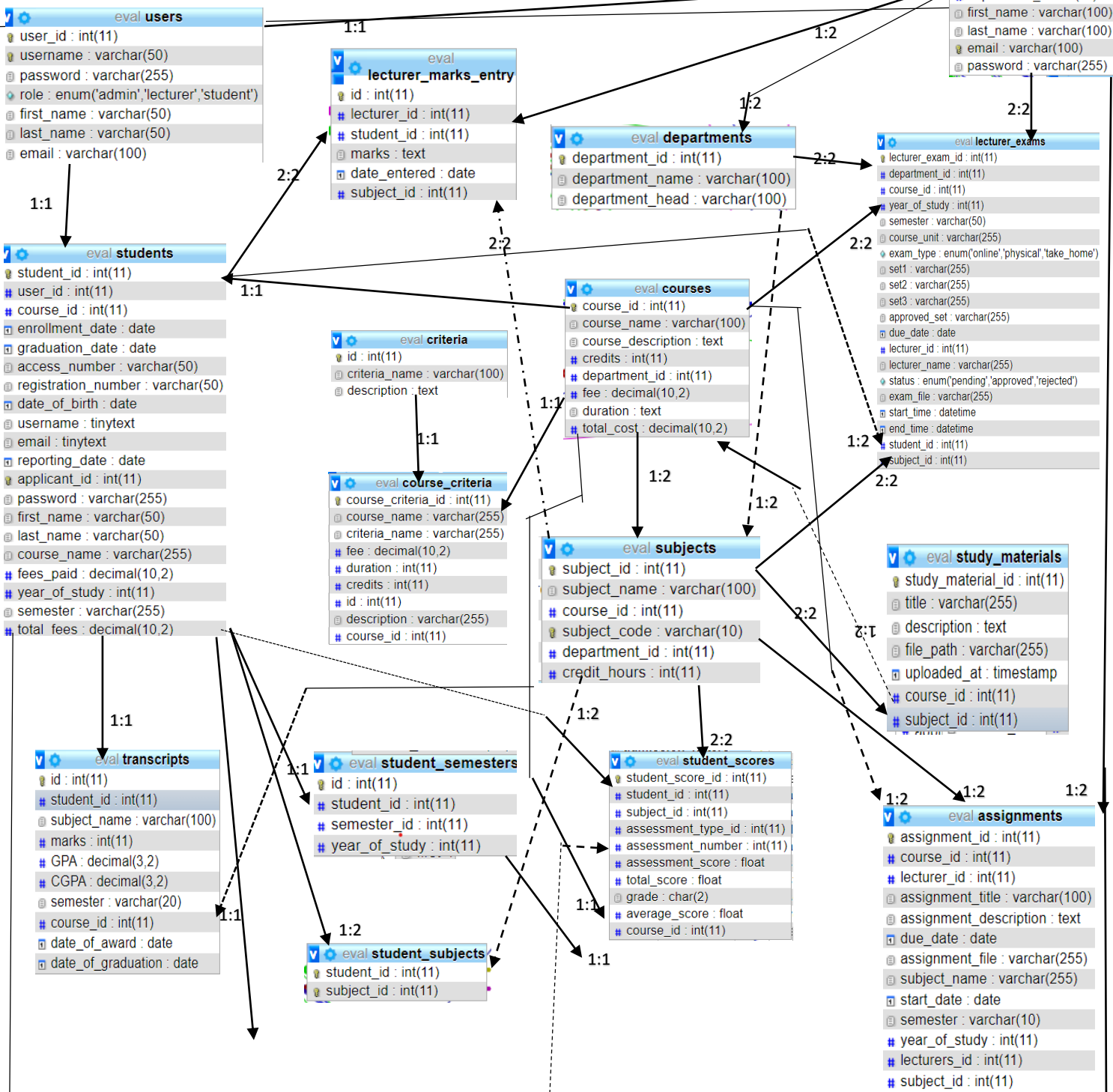


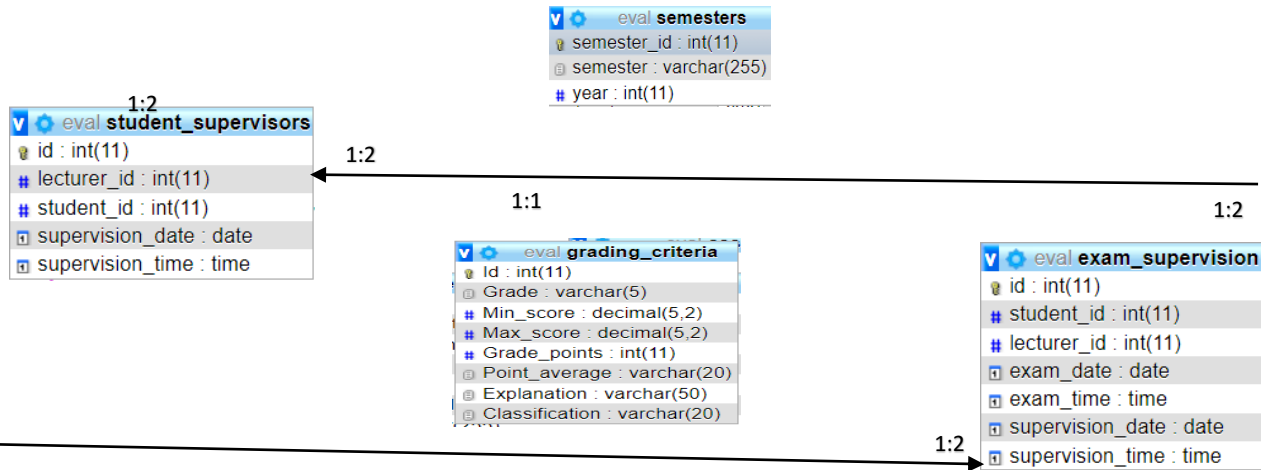
Level 1 DFD FOR CURRICULUM EVALUATION MANAGEMENT SYSTEM ON E-LEARNING





Entity Relationship Diagram (ERD):





4.3.6 Mapping of ERD to Relational Schema

Users Table:

Table 5: Users Table Schema

Field Name	Data Type	Constraint
User_ID	INT	Primary Key, Not Null
username	VARCHAR	Not Null, Unique
password	VARCHAR	Not Null
role	VARCHAR	Not Null
email	VARCHAR	Not Null, Unique

1. Admin Management Tables

Applicants Table

Manages applications from students.

Field Name	Data Type	Constraint
applicantID	INT	Primary Key, Auto Increment, Not Null
userID	INT	Foreign Key (references Users Table), Not Null
courseID	INT	Foreign Key (references Courses Table), Not Null
applicationDate	DATE	Not Null

Admissions Table

Tracks student admissions.

Field Name	Data Type	Constraint
admissionID	INT	Primary Key, Auto Increment, Not Null
applicantID	INT	Foreign Key (references Applicants Table), Not Null
admissionDate	DATE	Not Null
status	VARCHAR(50)	Not Null

Course Table:

Table 6: Course Table Schema

Field Name	Data Type	Constraint
Course_id	INT auto increment	Primary Key, Not Null
Course_name	Varchar(255)	Not Null
Course-description	text	Not Null
Functional_fee	decimal(10,2)	Not Null
fees	decimal(10,2)	Not Null
duration	Varchar(255)	Not Null
Total_fees	decimal(10,2)	Not Null

Departments Table

Manages academic departments.

Field Name	Data Type	Constraint
departmentID	INT	Primary Key, Auto Increment, Not Null
departmentName	VARCHAR(255)	Not Null
headOfDepartment	INT	Foreign Key (references Lecturers Table), Not Null

Criteria Table

Defines criteria for admissions and courses.

Field Name	Data Type	Constraint
criteriaID	INT	Primary Key, Auto Increment, Not Null
criteriaType	VARCHAR(255)	Not Null
description	TEXT	Not Null

Faculty Table

Stores information about faculty members.

Field Name	Data Type	Constraint
facultyID	INT	Primary Key, Auto Increment, Not Null
userID	INT	Foreign Key (references Users Table), Not Null
departmentID	INT	Foreign Key (references Departments Table), Not Null
hireDate	DATE	Not Null

Course Criteria Table

Links courses with specific criteria.

Field Name	Data Type	Constraint
courseCriteriaID	INT	Primary Key, Auto Increment, Not Null
courseID	INT	Foreign Key (references Courses Table), Not Null
criteriaID	INT	Foreign Key (references Criteria Table), Not Null

Grading System Table

Defines the grading system.

Field Name	Data Type	Constraint
gradeID	INT	Primary Key, Auto Increment, Not Null
grade	VARCHAR(10)	Not Null
description	TEXT	Not Null

Assessment Types Table

Defines different types of assessments.

Field Name	Data Type	Constraint
assessmentTypeID	INT	Primary Key, Auto Increment, Not Null
typeName	VARCHAR(255)	Not Null
description	TEXT	Not Null

Pass Marks Table

Sets the minimum passing marks.

Field Name	Data Type	Constraint
passMarkID	INT	Primary Key, Auto Increment, Not Null
courseID	INT	Foreign Key (references Courses Table), Not Null
passMark	DECIMAL(5,2)	Not Null

Student Scores Table

Tracks student scores for various assessments.

Field Name	Data Type	Constraint
scoreID	INT	Primary Key, Auto Increment, Not Null
studentID	INT	Foreign Key (references Students Table), Not Null
courseID	INT	Foreign Key (references Courses Table), Not Null
assessmentTypeID	INT	Foreign Key (references Assessment Types Table), Not Null
score	DECIMAL(5,2)	Not Null

Assignments Table

Manages assignments given to students.

Field Name	Data Type	Constraint
assignmentID	INT	Primary Key, Auto Increment, Not Null
courseID	INT	Foreign Key (references Courses Table), Not Null
title	VARCHAR(255)	Not Null
dueDate	DATE	Not Null

Exams Table

Tracks exam details.

Field Name	Data Type	Constraint
examID	INT	Primary Key, Auto Increment, Not Null
courseID	INT	Foreign Key (references Courses Table), Not Null
examDate	DATE	Not Null
type	VARCHAR(50)	Not Null

Fees Table

Manages fee structures for courses.

Field Name	Data Type	Constraint
feeID	INT	Primary Key, Auto Increment, Not Null
courseID	INT	Foreign Key (references Courses Table), Not Null
amount	DECIMAL(10,2)	Not Null

Internship Reports Table

Tracks student internship reports.

Field Name	Data Type	Constraint
reportID	INT	Primary Key, Auto Increment, Not Null
internshipID	INT	Foreign Key (references Internships Table), Not Null
reportDate	DATE	Not Null
reportContent	TEXT	Not Null

Evaluated Lecturers Table

Tracks lecturer evaluations.

Field Name	Data Type	Constraint
evaluationID	INT	Primary Key, Auto Increment, Not Null
lecturerID	INT	Foreign Key (references Lecturers Table), Not Null
studentID	INT	Foreign Key (references Students Table), Not Null
evaluationDate	DATE	Not Null
comments	TEXT	Not Null

2. Lecturer Management Tables

Tasks Table

Tracks tasks assigned to lecturers.

Field Name	Data Type	Constraint
taskID	INT	Primary Key, Auto Increment, Not Null
lecturerID	INT	Foreign Key (references Lecturers Table), Not Null
taskDetails	TEXT	Not Null
assignedDate	DATE	Not Null

Study Material Table

Stores study materials uploaded by lecturers.

Field Name	Data Type	Constraint
materialID	INT	Primary Key, Auto Increment, Not Null
courseID	INT	Foreign Key (references Courses Table), Not Null
title	VARCHAR(255)	Not Null
uploadDate	DATE	Not Null
filePath	VARCHAR(255)	Not Null

3. Student Management Tables

Notes Table

Stores course notes for students.

Field Name	Data Type	Constraint
noteID	INT	Primary Key, Auto Increment, Not Null
courseID	INT	Foreign Key (references Courses Table), Not Null
noteContent	TEXT	Not Null

Transcripts Table

Tracks student transcripts.

Field Name	Data Type	Constraint
transcriptID	INT	Primary Key, Auto Increment, Not Null
studentID	INT	Foreign Key (references Students Table), Not Null
courseID	INT	Foreign Key (references Courses Table), Not Null
gradeID	INT	Foreign Key (references Grading System Table), Not Null
issueDate	DATE	Not Null

Internship Requests Table

Tracks internship request letters sent by students.

Field Name	Data Type	Constraint
requestID	INT	Primary Key, Auto Increment, Not Null
studentID	INT	Foreign Key (references Students Table), Not Null
companyName	VARCHAR(255)	Not Null
requestDate	DATE	Not Null

Semester Registrations Table

Tracks semester registrations for students.

Field Name	Data Type	Constraint
registrationID	INT	Primary Key, Auto Increment, Not Null
studentID	INT	Foreign Key (references Students Table), Not Null
semesterID	INT	Foreign Key (references Semesters Table), Not Null
registrationDate	DATE	Not Null

Chat Table

Manages chat communications between students and lecturers.

Field Name	Data Type	Constraint
chatID	INT	Primary Key, Auto Increment, Not Null
senderID	INT	Foreign Key (references Users Table), Not Null
receiverID	INT	Foreign Key (references Users Table), Not Null
message	TEXT	Not Null
timestamp	DATETIME	Not Null

Administrator Functions:

Table 8: Administrator Management Functions

Function	Description
Manage Applicants	Oversee and process applications from students and parents
Manage Admissions	Handle student admissions process.
Manage Departments	Administer academic departments.
Manage Criteria	Set and update criteria for courses and admissions.
Manage Faculty	Oversee faculty members.
Manage Course Criteria	Define criteria for course offerings.
Manage Grading System	Set and manage grading standards.
Manage Assessment Types	Define types of assessments used.
Manage Pass Mark	Set minimum passing marks.
Manage Student Scores	Track and manage student scores.

Manage Assignments	Oversee assignments given to students.
Manage Exams	Handle exam creation and scheduling.
Department Approve Exams	Approve exams created by departments.
Manage Fees	Oversee and manage fee structures.
Manage Lecturer Supervisor for Exams	Assign supervisors for exam monitoring.
Assign Lecturers Tasks	Allocate tasks to lecturers.
Manage Lecturer Supervisor for Internships and Projects	Oversee lecturers supervising internships and projects
Manage Registered Semester Students	Track students registered for each semester.
Manage Internship Reports	Handle and review internship reports.
Manage Department Review Exams	Review and approve department exams.
Manage Courses	Oversee course offerings and details.
Manage Lecturers	Handle lecturer details and management.
Manage Evaluated Lecturers	Manage evaluations of lecturers.
Manage Acceptance Letters	Oversee issuance of acceptance letters.
Manage Students	Administer student records and details.
Manage Semesters	Manage academic semesters and scheduling.
Manage Student Semester	Track student enrollment per semester.
Manage Subjects	Administer subject details.
Manage Student Subjects	Oversee student enrollment in subjects.
Review Marks	Assess and review student marks.
Manage Transcripts	Oversee creation and distribution of transcripts.
Manage Pages	Maintain and update system pages for various users.

Lecturer Functions:

Table 9: Lecturer Management Functions

Function	Description
Set Assignments	Create and set assignments for students.
Set Exams	Create and set exams.
Manage Exams	Oversee and manage exam schedules and details.
Manage Online Exams	Handle online examination processes.
Change Timetable	Update and manage class timetables.
Upload Study Material	Provide and manage study materials.
Manage Classes	Oversee and manage class schedules and details.
Submit Marks	Enter and update student marks.
Send Feedback	Provide feedback to students on assignments and exams.
View Tasks	View and manage tasks assigned to lecturers.
Chat with Students	Communicate with students regarding assignments, marks, and Other matters.

Student Functions:

Table 10: Student Management Functions

Function	Description
Welcome, John!	Personalized welcome message.
View Notes	Access and review course notes.
Submit Assignment	Submit completed assignments.
Pay Fees	Pay academic fees.
View My Fees Structure	Check and view the fee structure.
Do Assignments	Complete and submit assignments.
Do Exams	Take and submit exams.

Submit Exams	Submit completed exams.
View Time Table	Access and view class timetable.
Evaluate Lecturers	Provide feedback on lecturer performance.
View Results	Check academic results.
View Transcripts	Access and download academic transcripts.
Send Internship Letter	Send request letters for internships.
Upload Internship Report	Submit internship reports.
Register Semester	Register for the upcoming semester.
View Assigned Lecturer	View details of the assigned lecturer.
Chat with Lecturers and Classmates	Communicate with lecturers and classmates about coursework.

4.4 Conclusion

This chapter detailed the evaluation of the existing curriculum management system, including its strengths and weaknesses. Requirements for the new system were analyzed, and the design was outlined to address identified challenges

Chapter Five

System Implementation, Testing, and Validation

This chapter describes the implementation of the new curriculum management system, including system functions, sample screenshots, and results from testing and validation.

5.1 System Functions

Functions Provided to Users:

Administrator:

Manage applicants

Manage admissions

Manage departments

Manage criteria

Manage faculty

Manage course criteria

Manage grading system

Manage assessment types

Manage pass marks

Manage student scores

Manage assignments

Manage exams

Department approve exams

Manage fees

Manage lecturer supervisor for exams

Assign lecturers tasks
Manage lecturer supervisor for internships and projects
Manage registered semester students
Manage internship reports
Manage department review exams
Manage courses
Manage lecturers
Manage evaluated lecturers
Manage acceptance letters
Manage students
Manage semesters
Manage student semesters
Manage subjects
Manage student subjects
Review marks
Manage transcripts
Manage pages

Lecturer:

Set assignments
Set exams
Manage exams
Manage online exams
Change timetable
Upload study material
Manage classes
Submit marks
Send feedback
View tasks
Chat with students

Student:

Welcome, John!

[View notes](#)

[Submit assignment](#)

[Pay fees](#)

[View my fees structure](#)

[Do assignments](#)

[Do exams](#)

[Submit exams](#)

[View timetable](#)

[Evaluate lecturers](#)

[View results](#)

[View transcripts](#)

[Send internship letter](#)

[Upload internship report](#)

[Register semester](#)

[View assigned lecturer](#)

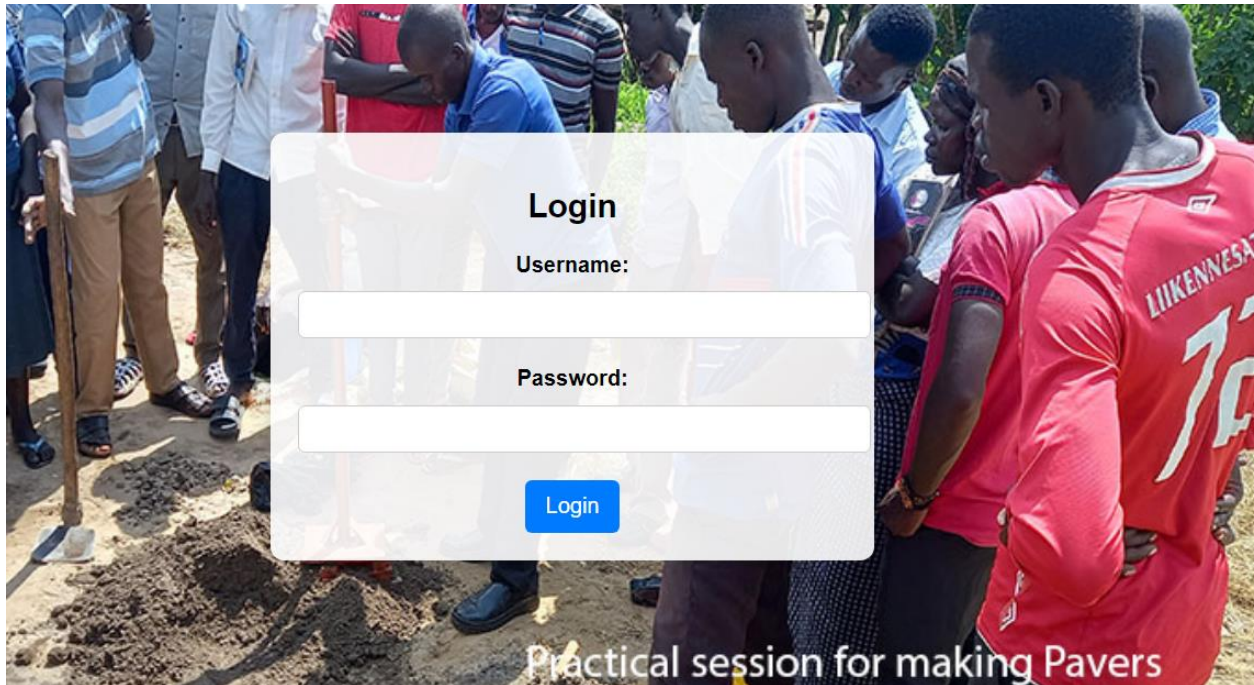
[Chat with lecturers and classmates](#)

5.2 Sample Screenshots

Home Page:



Administrator Login Page:



Administrator Dashboard:

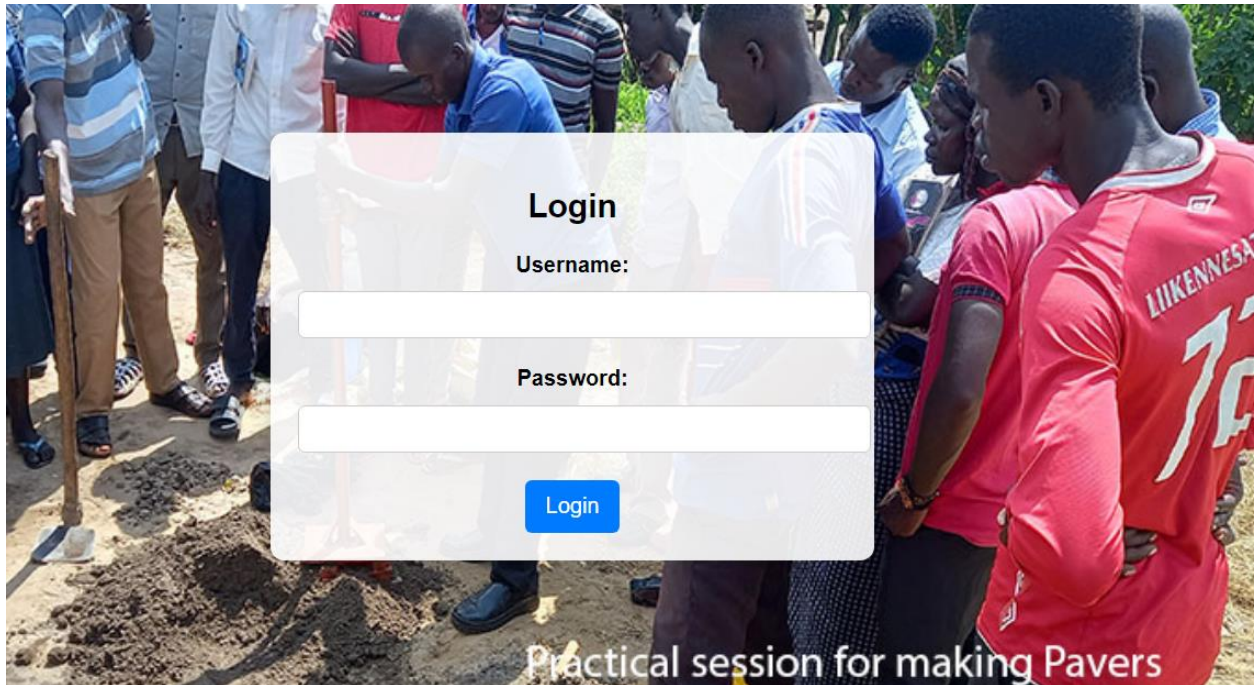
MTAC

Search...

- Home
- Admissions
- Students
- Departments
- Exams
- Fees
- Pages
- Contact Us
- About Us

Total Students 5	Total Admissions 6	Total Lecturers 2
Total Fees Collected 210,909,549.99	Total Departments 5	Total Courses 5

Lecturer Login Page:



Lecturer dashboard:

MTAC

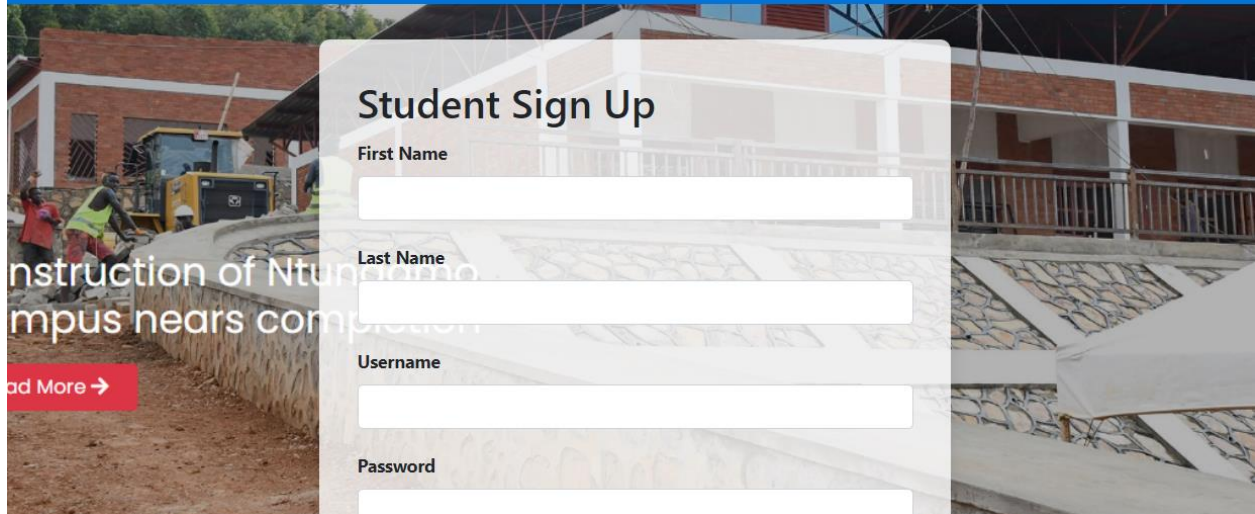
Search...

- Manage Assignments
- Submit Exams
- Manage Exams
- Manage Online Exams
- Change Timetable
- Upload Materials
- Manage Classes
- Submit Marks

Total Assignments 0	Total Exams 0	Total Classes 0
Total Marks Submitted 0	Total Feedbacks Received 0	

07:36
18/08/2024

Student sign up:



Student Sign Up

First Name


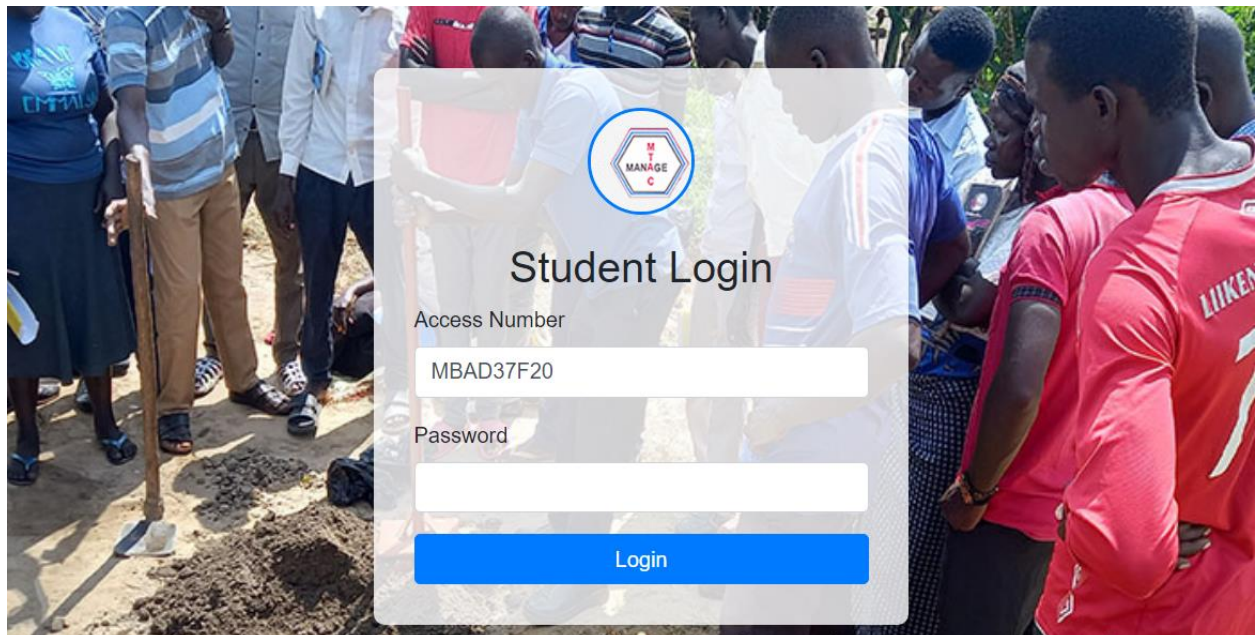
Last Name

Username

Password

[Read More →](#)

Login:



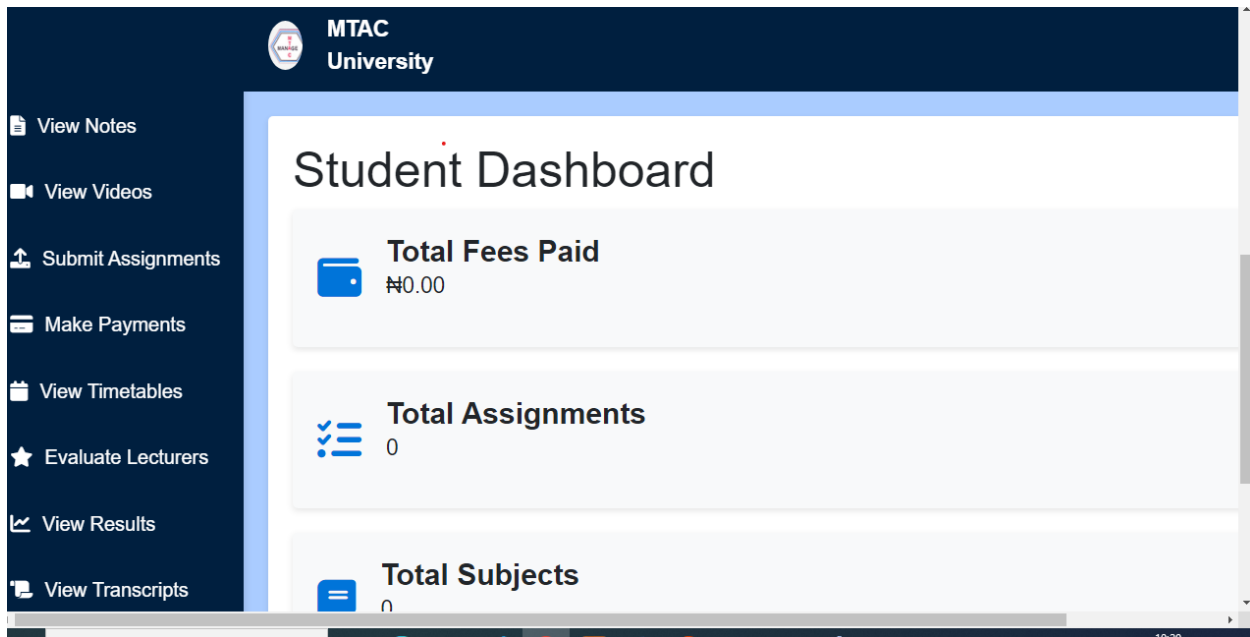
Student Login

Access Number

Password

[Login](#)

Student Portal:



5.3 System Testing and Validation Results

5.4.1 System Testing Results

The Curriculum evaluation management system was presented to users with the intent of finding errors and observing if it behaved as expected. The faults were corrected and the process was repeated until the system was proven to be working according to users' specification and performance requirements.

We also tested the system to see whether it was capturing valid data, this was done by putting wrong data and then the system responded by alert messages displaying the type of error. Testing and validation was done successfully.

5.4.2 Validation Results

The Curriculum evaluation management system was presented to different users so as to get feedback about the system performance as to whether the system met their needs or user

requirements for which it was designed for. The process involved checking input and output data of the system to ensure that they are complete and accurate especially in the area of database to check whether the system conformed to the standards of similar systems under defined operating conditions. Further tests on validation were carried out on the system to verify that it met the specified user requirements.

The users were satisfied with the system and concluded that the system was simple to use allowing them to navigate through the system with ease. The system was fast in responding to the different requests and that it satisfied the intended user needs or requirements. A questionnaire was also designed to capture their responses and thoughts

Table 11: Validation Results

Feature	Number of Users (out of 5)	Percentage of Users
Learnability	4	80%
User Friendly	3	60%
Improved Process Efficiency	3	60%
Reduced Transaction Delays	4	80%

5.4 Conclusion

The new system effectively addresses the issues of the previous curriculum management system. It improves data accessibility, streamlines curriculum management, and enhances overall efficiency.

Chapter Six

Summary, Recommendations, and Conclusion

6.1 Summary

The new curriculum management system automates manual processes, enhances data accessibility, and improves management efficiency. Users can now perform their tasks more effectively and with fewer delays.

6.2 Recommendations

Further research should focus on addressing any additional needs of stakeholders and exploring advancements in curriculum management technology. The system should be regularly updated to incorporate user feedback and evolving educational requirements.

6.3 Future Work

Future enhancements could include:

Integrating advanced analytics for student performance.

Expanding the system to support additional academic programs.

Implementing features for interactive learning and online collaboration.

6.4 Conclusions

The new curriculum management system meets its objectives by improving efficiency and data management in academic settings. The system supports various user needs and enhances the overall educational experience.

References

THE CASE study MTAC

Marketing director MTAC 0752623878

Appendices

Appendix I: Questionnaires

Questionnaire: Evaluating Needs for Online Study Applications

Objective: To understand the needs and preferences of primary school teachers for an online study system, ensuring the system supports their requirements effectively.

For Teachers Applying to Study Online:

- 1. How interested are you in enrolling in online study programs to enhance your skills?**

Very interested

Somewhat interested

- Neutral
- Somewhat uninterested
- Not interested

2. What types of online courses would you be most interested in?

- Educational technology and tools
- Classroom management techniques
- Curriculum development and design
- Subject-specific teaching strategies
- Professional development and leadership

3 What are your preferred formats for online courses?

- Self-paced modules with videos and readings
- Live webinars with interactive sessions
- Blended learning (combination of online and face-to-face)
- Interactive workshops and group discussions
- Others (please specify): _____

How important is it for the online study system to offer flexible scheduling options?

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not important

What challenges do you foresee in participating in online study programs?

- Time management and balancing with work
- Technical issues (e.g., internet access, software)
- Lack of motivation or accountability
- Difficulty accessing course materials
- Others (please specify): _____

3. What support features would you find helpful in an online study system?

- Technical support and troubleshooting
- Clear instructions and user guides
- Regular feedback from instructors
- Peer support and discussion forums
- Access to additional resources and materials

4. How should the online study system facilitate communication with instructors and peers?

- Direct messaging within the system
- Email notifications and updates
- Discussion forums and group chats
- Scheduled live Q&A sessions
- Others (please specify): _____

5. What kind of progress tracking and reporting would you like in the online study system?

- Regular progress reports and grades
- Detailed analytics on participation and performance
- Feedback on assignments and assessments

Certificates of completion and achievements

Others (please specify): _____

How important is it for the online study system to be mobile-friendly and accessible on various devices?

Extremely important

Very important

Moderately important

Slightly important

Not important

6. What types of learning materials and resources do you prefer in online courses?

Video lectures and tutorials

Interactive exercises and quizzes

Reading materials and articles

Case studies and real-world examples

Others (please specify): _____

7. How would you like to receive notifications and updates about your online courses?

Email

SMS

In-system notifications

Mobile app alerts

Others (please specify): _____

8. What additional features or improvements would make the online study system more effective for you?

- Enhanced user interface and ease of navigation
- More interactive and engaging content
- Better integration with existing teaching tools
- Improved feedback mechanisms

Questionnaire: Evaluating Needs for Students Joining Online Study Programs

Objective: To understand the needs and preferences of students applying to online study programs, ensuring the system supports their learning requirements effectively.

For Students Applying to Study Online:

1. **How interested are you in participating in online courses to further your education?**

- Very interested
- Somewhat interested
- Neutral

Somewhat uninterested

Not interested

2. Which types of online courses are you most interested in?

Skill development and certifications

Academic subjects and coursework

Career development and job-related skills

Personal interest and hobbies

Others (please specify): _____

3. What format do you prefer for online learning?

Self-paced modules with recorded lectures

Live online classes with real-time interaction

A combination of both (blended learning)

Interactive and hands-on workshops

Others (please specify): _____

4. How important is flexibility in scheduling for online courses?

Extremely important

Very important

Moderately important

Slightly important

Not important

5. What challenges do you anticipate in participating in online study programs?

Managing time effectively

- Technical issues (e.g., internet access, software)
- Staying motivated and engaged
- Understanding course material
- Others (please specify): _____

6. What support features would you find most helpful in an online learning system?

- Technical support and troubleshooting
- Clear and easy-to-follow course instructions
- Access to additional learning resources
- Regular feedback from instructors
- Peer support and discussion forums

7. How would you like to communicate with instructors and fellow students?

- Direct messaging within the system
- Email notifications
- Discussion forums and group chats
- Live chat or video conferencing
- Others (please specify): _____

8. What kind of progress tracking and reporting would you prefer in an online learning system?

- Regular updates on your progress and grades
- Detailed reports on participation and performance
- Feedback on assignments and quizzes
- Certificates of completion and achievements

Others (please specify): _____

9. How important is it for the online learning system to be accessible on mobile devices?

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not important

10. What types of learning materials and resources do you prefer?

- Video lectures and tutorials
- Interactive exercises and quizzes
- Reading materials and articles
- Case studies and real-world examples
- Others (please specify): _____

11. How would you prefer to receive notifications and updates about your courses?

- Email
- SMS
- In-system notifications
- Mobile app alerts
- Others (please specify): _____

What additional features or improvements would make the online learning system more effective for you?

- User-friendly interface and easy navigation
- More interactive and engaging content
- Better integration with other educational tools
- Enhanced feedback and support mechanisms

Others (please specify): _____

Questionnaire: Evaluating Needs for Lecturers Using the Online Study System

Objective: To gather insights from lecturers on their needs and preferences for an online study system to ensure it supports their teaching, course management, and evaluation processes effectively.

For Lecturers Using the Online Study System:

1. **How interested are you in using an online system for managing and delivering your courses?**
 - Very interested
 - Somewhat interested
 - Neutral
 - Somewhat uninterested
 - Not interested
2. **Which features are most important to you in an online teaching system?**
 - Course content management (e.g., uploading materials, structuring modules)
 - Tools for creating and grading assignments and quizzes
 - Communication tools (e.g., messaging, forums, video conferencing)
 - Performance tracking and analytics
 - Integration with other educational tools and systems
3. **What types of course materials do you need to upload and manage online?**
 - Lecture notes and presentations

- Videos and multimedia content
- Assignments and quizzes
- Reading materials and resources
- Others (please specify): _____

4. How would you like to handle assignment submissions and grading?

- Through an integrated assignment submission portal
- Using online grading tools with automated feedback
- Manually uploading and grading assignments
- Providing feedback directly on submitted work
- Others (please specify): _____

5. What challenges do you foresee in using an online system for course management?

- Technical issues (e.g., system reliability, access)
- Lack of training or support
- Integration with existing tools and processes
- Managing and tracking student progress
- Others (please specify): _____

How important is it for the online system to include collaborative features?

- Extremely important (e.g., team projects, group discussions)
- Very important
- Moderately important
- Slightly important
- Not important

6. **What types of communication tools would you find most effective for interacting with students?**

- In-system messaging and email
- Discussion forums and group chats
- Video conferencing and live sessions
- Announcements and notifications
- Others (please specify): _____

7. **How should the system support your course delivery and student engagement?**

- Interactive and engaging course content
- Regular updates and feedback on student progress
- Tools for tracking and analyzing student performance
- Integration with multimedia and interactive tools
- Others (please specify): _____

8. **How would you like to track and analyze student performance and course effectiveness?**

- Detailed reports and analytics
- Dashboards with key performance indicators
- Customizable data filters and queries
- Regular progress summaries and feedback
- Others (please specify): _____

9. **How important is it for the online system to be accessible from mobile devices?**

- Extremely important
- Very important

Moderately important

Slightly important

Not important

10. What additional features or improvements would enhance your experience with the online teaching system?

More user-friendly interface and navigation

Better integration with existing educational tools

Enhanced support and training resources

Improved tools for student interaction and engagement

Others (please specify): _____

11. How do you prefer to receive support and training for using the online system?

Online tutorials and documentation

Live training sessions and webinars

One-on-one support and troubleshooting

Peer support and community forums

Questionnaire: Evaluating Needs for Administrators Managing the Online Study System

Objective: To gather insights from administrators on their needs and preferences for managing the online study system, ensuring it supports administrative tasks, system management, and user oversight effectively.

For Administrators Managing the Online Study System:

1. How important is it for you to have a comprehensive management system for overseeing online courses and users?

Extremely important

Very important

Moderately important

Slightly important

Not important

2. What key administrative features do you need in the online study system?

User management (e.g., creating and managing accounts for students and lecturers)

Course management (e.g., creating, updating, and monitoring courses)

Financial management (e.g., tracking payments and managing fees)

Reporting and analytics (e.g., performance reports, user activity)

System settings and configurations (e.g., managing system preferences and settings)

3. How should the system support your role in monitoring and evaluating system usage?

Detailed user activity logs and reports

Performance analytics and dashboards

Notifications and alerts for system issues or updates

Regular summaries of system usage and feedback

Others (please specify): _____

4. What types of data and reports are most valuable for you as an administrator?

Enrollment and registration statistics

Course completion rates and performance metrics

Financial reports and payment summaries

User feedback and satisfaction surveys

Others (please specify): _____

5. What challenges do you anticipate in managing the online study system?

- Technical issues and system reliability
- Integrating with other systems and tools
- Ensuring data security and privacy
- Handling user support and troubleshooting
- Others (please specify): _____

6. How would you like to manage and oversee the system's content and updates?

- Through a content management interface
- Via automated content update tools
- Using integrated content approval workflows
- Regularly scheduled content review and updates
- Others (please specify): _____

7. What communication tools would be most effective for interacting with system users (students and lecturers)?

- In-system messaging and notifications
- Email and SMS alerts
- Announcements and updates within the system
- Live chat or support tickets
- Others (please specify): _____

8. How should the system handle user support and help requests?

- Integrated support ticket system
- Live chat support

- Knowledge base and FAQs
- Email and phone support
- Others (please specify): _____

9. How important is it for the online system to be customizable to meet specific institutional needs?

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not important

10. What security features are essential for you in the online study system?

- User authentication and access control
- Data encryption and privacy protection
- Regular security audits and updates
- Backup and recovery options
- Others (please specify): _____

11. How would you prefer to receive training and support for using the online system?

- Comprehensive online training modules
- Live training sessions and webinars
- Detailed user manuals and documentation
- One-on-one training and support
- Others (please specify): _____

12. What additional features or improvements would make the system more effective for your administrative tasks?

- Enhanced reporting and analytics tools
- More user-friendly administrative interfaces
- Better integration with other institutional systems
- Improved user management capabilities
- Others (please specify): _____

Questionnaire: Evaluating Needs for Parents of Students in Online Study Programs

Objective: To understand the needs and preferences of parents regarding an online study system, ensuring it supports their involvement in their child's education effectively.

This questionnaire is designed to capture the perspectives of parents and ensure that the online study system meets their needs for monitoring and supporting their child's education. Adjust the questions as needed to fit the specific context and goals of your system.

For Parents of Students in Online Study Programs:

1. How interested are you in having access to an online system to monitor and support your child's education?

- Very interested

- Somewhat interested
- Neutral
- Somewhat uninterested
- Not interested

2. **Which features would be most useful for you in an online education system for your child?**

- Access to academic progress and performance reports
- Notifications about important dates and deadlines
- Communication tools to interact with teachers and administrators
- Updates on assignments and course materials
- Access to financial information (e.g., fees, payments)

3. **How important is it for you to have real-time access to your child's educational progress?**

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not important

4. **What type of communication with the school or educators would you find most beneficial?**

- Direct messaging through the system
- Email notifications and updates
- Phone calls and scheduled meetings

- Regular newsletters and announcements
- Others (please specify): _____

5. What challenges do you foresee in supporting your child's online education?

- Understanding the online learning platform
- Ensuring your child stays motivated and engaged
- Managing technical issues (e.g., internet access)
- Balancing your child's online education with other responsibilities
- Others (please specify): _____

6. What types of reports or updates would you like to receive regarding your child's progress?

- Grades and assignment scores
- Attendance records and participation levels
- Feedback from teachers and instructors
- Overall academic performance summaries
- Others (please specify): _____

7. How should the online system support you in understanding and assisting with your child's coursework?

- Providing detailed course information and requirements
- Offering resources or guides on how to help with assignments
- Access to teacher feedback and recommendations
- Regular updates on upcoming tasks and deadlines
- Others (please specify): _____

8. How important is it for the online system to provide support for parental involvement?

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not important

9. What additional features would you like to see in the online system to better support your role as a parent?

- Parental access to a dedicated support line or helpdesk
- Tools for setting reminders and tracking academic deadlines
- Information on educational resources and tools available for students
- Options to provide feedback or raise concerns about the online program
- Others (please specify): _____

10. How would you prefer to receive important updates and notifications related to your child's online education?

- Email
- SMS or text messages
- In-system notifications
- Mobile app alerts
- Others (please specify): _____

11. What level of training or support would you require to effectively use the online education system?

- Online tutorials and user guides
- Live training sessions or webinars

- One-on-one assistance or support
- Written documentation and FAQs
- Others (please specify): _____

12. What additional suggestions or improvements would make the online system more effective for you as a parent?

- Improved user interface and ease of navigation
- More detailed and accessible progress reports
- Better integration with other educational tools
- Enhanced communication options with educators
- Others (please specify): _____