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# Expert System-Driven Enrollment Process for Academic Institutions

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**Abstact**

The project aims to develop and evaluate the Expert System-Driven Enrollment Process for Academic Institutions of Eastern Mindanao College of Technology located at Pagadian City, Philippines. The institution believes that the project will simplify enrollment documentation and improve communication between instructors and students. The newly developed platform incorporates expert system features to enhance workflow, automate record processing, and improve the accuracy and reliability of enrollment transaction

The system was developed using the Agile Software Development Life Cycle (SDLC), which is based on iteration and feedback to meet institutional and user needs. The hybrid platform integrates all administrative functions, including data entry, auto-scheduling of courses, student records, and payment management. The use of centralized data enables organizations to improve operational efficiency, enable real-time processing, and support decision-making.

The system's evaluation was based on the ISO/IEC 25010 framework, which considers software quality in terms of functionality, reliability, and other attributes. The findings show that respondents consistently provided high ratings across all dimensions, with a grand mean of 4.35. Thus, it can be categorized as "Excellent" and "Highly Acceptable" for deployment. The system's compatibility with institutional processes, stable performance across varying conditions, ease of use, efficient resource use, ease of maintenance, adaptability across various technical platforms, and strong security.

Overall, this case study illustrates the value of applying expert system driven solutions to modernize enrollment management functions. Alongside improvements to administrative effectiveness and precision of record keeping, it also provides a model for other educational institutions looking to implement expert systems within their enrollment functions. Furthermore, the implementation of this system is an example of an educational software application that successfully utilizes thorough software quality assessment frameworks such as ISO/IEC 25010.

**Keywords:** Expert System, Enrollment Process, Academic Institutions, ISO/IEC 25010, Software Quality, Agile SDLC, Usability, Reliability, Security, Educational Technology

## 1. Introduction

Technology has long shaped human life, from the invention of the wheel to modern artificial intelligence, transforming communication, work, and learning while raising issues of privacy, security, and equal access. In education, these innovations have replaced outdated manual systems, reducing delays and errors in tasks such as registration, record keeping, and student information management. Automated enrollment

and record-keeping systems streamline operations, minimize paperwork, and improve transparency, creating more reliable and adaptable educational environments. By simplifying administrative processes and reducing human mistakes, intelligent technology enables schools to better support growing student populations and align institutional goals with efficiency and innovation.

At Eastern Mindanao College of Technology in Pagadian City, Philippines, the enrollment system remains fully manual, requiring students to visit multiple offices—Registrar, Accounting, Cashier, and Academic Dean—resulting in long queues, delays, and frequent errors in record-keeping. The absence of a centralized system makes records vulnerable to duplication, loss, or incomplete documentation, creating particular difficulties for irregular and transfer students whose files are harder to access. As student numbers continue to grow each year, these inefficiencies place greater strain on faculty and staff while reducing service quality and student satisfaction. To address these challenges, the institution must adopt an automated enrollment system that streamlines processes, secures records, and ensures faster, more reliable services for all stakeholders.

This study aims to develop an Expert System-Driven Enrollment Process for Eastern Mindanao College of Technology in Pagadian City, Philippines, to streamline procedures and ensure accurate, accessible student records. By centralizing and digitizing data, the system speeds up enrollment, reduces administrative workload, and minimizes errors, while its auto-scheduling feature automatically assigns class schedules to avoid conflicts and delays. Beyond improving operational efficiency, the system supports student services and reduces the burden on teachers, enabling them to focus more on instruction and guidance. Overall, the study reflects the institution's commitment to modernizing academic administration through advanced technology, reinforcing its pledge to service, innovation, and student satisfaction.

This study is guided by several key frameworks that shape the design and evaluation of the Expert System-Driven Enrollment Process. Digital Process Automation (DPA) highlights how routine administrative tasks can be streamlined for efficiency, while Garvin's Theory of Quality provides eight dimensions—such as performance, reliability, and aesthetics—for assessing system effectiveness. The Technology Acceptance Model (TAM) examines user perceptions of ease of use and usefulness, ensuring adoption and satisfaction. Systems Thinking and the Technology Management Framework offer a holistic and lifecycle perspective, while Technology Transfer Models guide institutional adoption. Finally, the Agile Model Process provides a flexible, iterative approach to design, testing, and deployment, ensuring continuous stakeholder feedback and responsiveness to institutional needs.

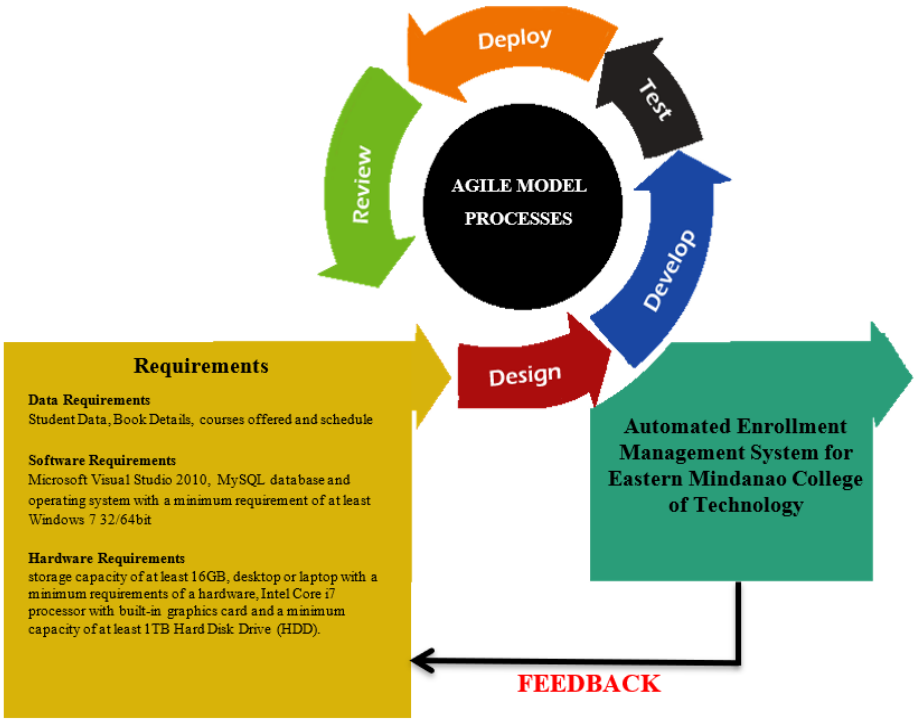


**Figure 1. Schema of the Study**

The study aimed to develop the Expert System-Driven Enrollment Process for Academic Institutions for Eastern Mindanao College of Technology during the Academic Year 2025-2026.

Specifically, it sought answers to the following questions:

1. What is the current status of the enrollment process at Eastern Mindanao College of Technology?
2. What are the processes involved in designing the Expert System-Driven Enrollment Process?
3. What hybrid model of the enrollment process can be developed for the institution?
4. How do respondents rate the developed system in terms:
    - 4.1 Functionality;
    - 4.2 Reliability;
    - 4.3 Usability;
    - 4.4 Efficiency;
    - 4.5 Maintainability;
    - 4.6 Portability; and
    - 4.7 Security

This study is important because it directly addresses the challenges posed by the manual enrollment system at Eastern Mindanao College of Technology in Pagadian City, Philippines. For students, the system provides faster transactions, accurate records, easier access to enrollment services, and auto-scheduling of courses to avoid conflicts and delays, thereby reducing stress and improving their overall academic experience. For faculty and administrative staff, it minimizes repetitive clerical tasks, reduces workload, and enhances efficiency in managing student data. By automating core processes, including scheduling, the institution strengthens its operational capacity, promotes service excellence, and supports innovation in administrative practices. The integration of expert system features ensures that enrollment procedures

are not only streamlined but also guided by reliable data and structured decision-making, thereby contributing to transparency and accountability in academic operations.

Beyond the campus, the research has broader relevance to the academic community, serving as a reference for future studies on digital transformation in education. It demonstrates how expert system integration can modernize enrollment management, foster institutional growth, and advance innovation in higher education. The study highlights the potential of technology-driven solutions to improve service delivery, safeguard data integrity, and create scalable models that other institutions can adopt. Ultimately, this research benefits multiple stakeholders—students, faculty, administrators, and policymakers—by showing how the application of expert systems can enhance educational services, align institutional goals with technological innovation, and contribute to the evolving landscape of higher education in the Philippines and beyond.

## 2. Literature Review

Higher education institutions have increasingly adopted automated enrollment systems to address inefficiencies in traditional manual processes such as long queues, redundant paperwork, and administrative delays. Studies by Saayo et al. (2018), Valina et al. (2016), and Lopez (2017) emphasized the benefits of automation, including reduced workload, faster processing, and improved accuracy enabled by features such as automated scheduling and data synchronization. Other researchers, such as Cayabyab (2017), highlighted persistent issues in manual systems, including security vulnerabilities and reporting inefficiencies, underscoring the need for secure, reliable solutions. Information systems, as noted by Rowley (2015), provide competitive advantages by managing data efficiently, and when applied to enrollment, they enhance transparency, accessibility, and institutional reliability.

Various innovations have further advanced enrollment systems, ranging from iterative development approaches (McHenry, 2016) to blockchain integration for enhanced security (Johnson, 2021) and AI-driven course recommendations (Lee & Kim, 2018). Network-based, web-based, cloud-based, and mobile-friendly systems (Conde, 2017; Pascual & Riceo, 2015; Bautista & Dela Cruz, 2020; Hernandez et al., 2019) demonstrated how automation can streamline processes, ensure data integrity, and expand accessibility. These studies collectively show that automated enrollment systems not only improve operational efficiency but also adapt to diverse institutional needs, providing a foundation for innovation in educational administration and serving as models for future system development.

The reviewed literature collectively highlights the transformative role of Automated Enrollment Management Systems in overcoming the inefficiencies of traditional manual enrollment methods. Studies such as those by Pascual and Riceo (2015), Lopez (2017), Cayabyab (2017), and Conde (2017) demonstrated how automation streamlined processes, reduced redundancy, improved data accuracy, and strengthened security. Saayo et al. (2018) and Valina et al. (2016) further emphasized efficiency gains in data handling and record-keeping, while Rowley (2015) and McHenry (2016) provided theoretical foundations on the competitive advantages and iterative development approaches that support system reliability and adaptability. Collectively, these findings underscore the importance of automation in enhancing institutional operations and responsiveness to growing student populations.

Emerging innovations expanded the scope of enrollment systems, with Johnson (2021) exploring blockchain for transparency, Lee and Kim (2018) applying artificial intelligence for personalized course selection, and Bautista and Dela Cruz (2020) designing cloud-based systems for scalability and security. Other studies, including those by Hernandez et al. (2019) and Torres et al. (2016), demonstrated mobile-friendly, computerized solutions that improved accessibility and reduced manual workload. Despite these advancements, gaps remain in tailoring systems to localized educational contexts, particularly in integrating with existing infrastructure and addressing unique administrative challenges. Anchored on these findings, the present study aims to bridge this gap by developing a customized Expert System-Driven Enrollment Process for Eastern Mindanao College of Technology, ensuring efficiency, reliability, and alignment with institutional needs.

## 3. Methodology

The study employed the developmental research method, a structured approach that emphasizes both the creation and evaluation of innovative computer-based systems. This method follows a systematic cycle of requirements analysis, design, development, testing, and review, ensuring that each stage contributes to the internal consistency and effectiveness of the final product. In this research, the process began with a comprehensive requirements analysis, identifying inefficiencies in the existing manual enrollment system and gathering insights from stakeholders, including administrators, faculty, and students. These inputs were translated into a detailed design blueprint for the Expert System-Driven Enrollment Process, which incorporated automated features to streamline workflows, enhance decision-making, and improve data accuracy.

The development phase utilized the Agile Software Development Life Cycle (SDLC), allowing iterative improvements and continuous feedback to refine the system in alignment with institutional needs. Rigorous testing was conducted to evaluate functionality, usability, reliability, efficiency, and security, guided by the ISO/IEC 25010 software quality framework. The review and evaluation stages validated the system's performance, confirming its stability, adaptability, and responsiveness to operational requirements. By adopting this developmental research method, the study ensured that the Expert System-Driven Enrollment Process was not only technically sound but also contextually relevant to Eastern Mindanao College of Technology, ultimately providing a scalable model for other academic institutions seeking to modernize enrollment operations.

The respondents of this study were drawn from six categories to ensure a comprehensive evaluation of the Expert System-Driven Enrollment Process for Academic Institutions at Eastern Mindanao College of Technology. These included five (5) IT professionals (10.64%), thirty-four (34) students (72.33%), one (1) cashier personnel (2.13%), one (1) accounting personnel (2.13%), five (5) registrar personnel (10.64%), and one (1) academic dean (2.13%). This diverse composition provided perspectives from both technical experts and end users, enabling a balanced assessment of the system's performance. The registrar personnel, in particular, played a vital role in evaluating the system's integration with existing workflows and its impact on administrative efficiency.

The evaluation of the system focused on seven key dimensions: functionality, reliability, usability, efficiency, maintainability, portability, and security. By engaging multiple stakeholder groups, the study gathered insights into both technical performance and user experience. Administrative personnel assessed the system's capacity to manage records and streamline processes, while students provided feedback on

accessibility and ease of use. This multi-perspective approach offered a holistic view of the system's strengths, areas for improvement, and overall effectiveness in enhancing enrollment procedures at Eastern Mindanao College of Technology.

| Respondents | Frequency | Percentage |
|---|---|---|
| IT Professionals | 5 | 10.64% |
| Students | 34 | 72.33% |
| Cashier Personnel | 1 | 2.13% |
| Accounting Personnel | 1 | 2.13% |
| Registrar Personnel | 5 | 10.64% |
| Academic Dean | 1 | 2.13% |
| **Total** | **47** | **100%** |

**Table 1. Distribution of Respondents**

This study employed a personalized evaluation tool based on ISO/IEC 25010 standards to assess the quality of the Expert System-Driven Enrollment Process for Academic Institutions, focusing on functionality, reliability, usability, efficiency, maintainability, portability, and security. The instrument was inspired by the work of Lagman, Grefaldo, and Sarmiento (2024) on online enrollment systems and further drew from Contreras and Contreras (2023) in their Automated, Systematized Enrollment Program (ASEP), both of which emphasized efficiency, security, and real-time data handling. Six respondent groups—IT professionals, students, cashier personnel, accounting personnel, registrar personnel, and the academic dean—were surveyed to capture diverse perspectives on system performance. Advisors, IT specialists, and research experts at Eastern Mindanao College of Technology validated the instrument, and reliability was assessed using Cronbach's Alpha (Hulin, Netemeyer, and Cudeck, 2001), ensuring that the tool was both reliable and appropriate for evaluating the system.

| Cronbach's Alpha Value | Interpretation |
|---|---|
| $\alpha \geq 0.90$ | Excellent Internal Consistency |
| $0.80 \leq \alpha < 0.90$ | Good Internal Consistency |
| $0.70 \leq \alpha < 0.80$ | Acceptable Internal Consistency |
| $0.60 \leq \alpha < 0.70$ | Questionable Internal Consistency |
| $0.50 \leq \alpha < 0.60$ | Poor Internal Consistency |
| $\alpha < 0.50$ | Unacceptable Internal Consistency |

**Table 2. Statistical Measure of Internal Consistency and Reliability of Cronbach's Alpha**

The study employed a range of procedures, including monitoring people and work processes, conducting interviews, distributing surveys, and examining written records to gather information. The collected data was analyzed using modeling software, which combined analytical techniques to generate a graphical representation of the proposed system. Specifications were carefully assessed before the software architecture was designed. Data collection methods such as interviews, questionnaires, and direct observation provided insights into user perceptions and system operations. At the same time, evaluation involved reviewing books, journals, and technical references to identify industry trends and core knowledge. Questionnaires with prewritten items captured participants' opinions and attitudes, and observation provided a deeper understanding of system workflows. Analysis was conducted by breaking

the study into categories aligned with the problem statement and highlighting key aspects. Communication with respondents was formalized through letters of support from the dean, and instruments were disseminated and retrieved promptly. Responses were then processed using statistical software for counting, computation, and interpretation, forming the basis for inferences and findings. In this study, inferential statistics were employed to conclude the population under investigation, with scaling methods used to measure respondents' perceptions. Frequency counts and percentages helped assess the system's challenges and user requirements. At the same time, the weighted mean was used to assess the accuracy of the developed method by multiplying the scale weights by the frequencies and dividing by the total number of respondents. These statistical tools provided a comprehensive basis for evaluating the Expert System-Driven Enrollment Process, ensuring reliable insights into both functional and non-functional aspects of the system.

1) Frequency Distribution = n / T * 100%

Where: n = Number of respondents

T = Total number of respondents

2) Weighted mean(x) = f (X1 + X2 + …… Xn) n / N

Where: n = Total number of criteria

Figure 2 illustrates the Agile development lifecycle, a flexible, iterative methodology that emphasizes collaboration, adaptability, and continuous improvement to meet user requirements effectively. The cycle begins with planning, where goals and technical needs are defined, followed by design activities such as prototyping and workflow mapping. Development then proceeds in short sprints, with coding and implementation supported by frequent testing to ensure functionality, security, and reliability. Once validated, the system is deployed to users, after which performance is reviewed through feedback and metrics to identify enhancements. This iterative process repeats, allowing continuous refinement and responsiveness to evolving demands. By integrating stakeholder collaboration and regular validation, Agile ensures the delivery of high-quality, adaptable software aligned with institutional objectives.

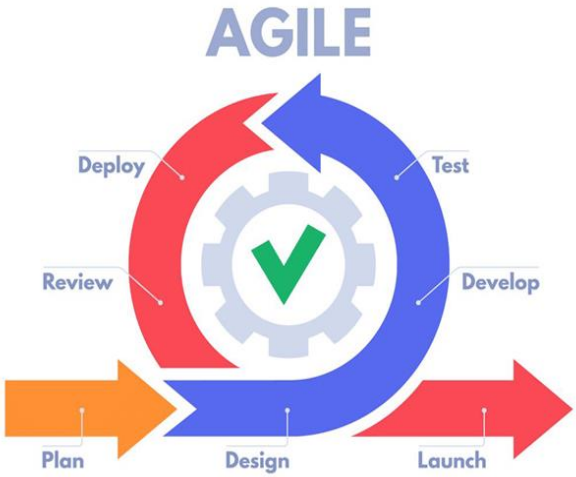


**Figure 2. System Development Life Cycle**

In developing the Expert System-Driven Enrollment Process, ethical considerations are crucial, especially in protecting sensitive student information. Safeguarding privacy and security are both a legal duty and a moral responsibility that builds trust among students, parents, and administrators. The system must comply

with local privacy laws and international standards such as GDPR, ensuring secure storage, restricted access, and proper consent in data collection. Ethical guidelines also guarantee fairness in enrollment, preventing discrimination, preferential treatment, and record manipulation, while promoting transparency, accountability, and equal opportunity for all.

Within the research methodology, these safeguards are integrated into system design and implementation through measures such as encryption, secure authentication, layered access controls, and regular security audits. Procedures for anonymization and pseudonymization further reduce risks of misuse, while validation checks ensure accuracy in records, fairness in class scheduling, and consistency in financial transactions. The system also provides transparency by allowing students to view, update, or request deletion of their personal data. By adopting these practices, the study ensures that the enrollment process remains secure, unbiased, and ethically sound, reinforcing institutional credibility and stakeholder trust.

## 4. Result and Discussion

Survey responses from cashier personnel, accounting staff, registrar personnel, and the academic dean revealed that the current Enrollment Management System at Eastern Mindanao College of Technology continues to face issues of data inaccuracies and inconsistencies. Administrative staff rated these concerns with an average score of 4.1, while IT professionals gave a slightly higher score of 4.2, both indicating the need for a system review and improvement. The most pressing problem identified was unclear instructions, which received a score of 4.0 from IT professionals and 4.4 from administrative staff. This lack of clarity often leads to confusion and errors during the enrollment process, undermining efficiency. On a positive note, the system was commended for its stability and report generation, with IT professionals rating it 4.6 and administrative staff rating it 4.5. However, despite these strengths, both groups rated data accuracy and real-time updates at 4.4, indicating persistent struggles with delays, errors, and occasional crashes. These findings suggest that while the system demonstrates strong usability and reporting capabilities, it urgently requires corrective measures to improve error management, clarify instructions, and refine feedback mechanisms. Addressing these shortcomings will not only preserve the system's existing strengths but also enhance its reliability and effectiveness in supporting the enrollment process.

| **Current Enrollment Management System used in Eastern Mindanao College of Technology** | **Administrative Staff Average Weighted Value** | **IT Professionals Average Weighted Value** |
|---|---|---|
| 1. How often do you encounter errors or system crashes during enrollment processing? | 4.1 | 4.2 |
| 2. How often does the system enable a smooth, fast enrollment process? | 4.4 | 4.4 |
| 3. How often do you feel confident in the accuracy of student records and enrollment data? | 4.4 | 4.0 |
| 4. How often do you experience delays in retrieving student information during enrollment? | 4.5 | 4.4 |
| 5. How often does the system provide real-time updates and notifications regarding enrollment status? | 4.4 | 4.4 |

| | | |
|---|---|---|
| 6. How often do students and staff find the enrollment instructions clear and easy to follow? | 4.0 | 4.2 |
| 7. How often does the system ensure transparency in handling student records and payments? | 4.3 | 4.2 |
| 8. How often do you generate and analyze enrollment trends and student data efficiently? | 4.5 | 4.6 |
| 9. How often does the system allow for smooth and accurate student payment transactions? | 4.4 | 4.2 |
| 10. How often does the system provide prompts or corrective feedback when incorrect data is entered? | 4.3 | 3.8 |
| **Mean** | **4.31** | **4.24** |

**Table 3. Current Enrollment Process Questionnaire**

| Software Quality Factor | Mean | Descriptive Rating |
|---|---|---|
| Functionality | 4.29 | Excellent |
| Reliability | 4.31 | Excellent |
| Usability | 4.30 | Excellent |
| Efficiency | 4.40 | Excellent |
| Maintainability | 4.34 | Excellent |
| Portability | 4.36 | Excellent |
| Security | 4.48 | Excellent |
| **Grand Mean** | **4.35** | **Highly Acceptable** |

**Table 4. Software Acceptability**

In the comprehensive evaluation of the Expert System-Driven Enrollment Process for Academic Institutions at Eastern Mindanao College of Technology, the grand mean score across the seven ISO/IEC 25010 software quality factors—functionality, reliability, usability, efficiency, maintainability, portability, and security—was 4.35. This rating falls in the 'Excellent' category of the tailored acceptability table, indicating superior overall performance and strong capability to support the registrar's enrollment management processes. High scores in functionality and reliability particularly emphasize the system's dependability, while usability and efficiency highlight its ability to streamline workflows. The 'Excellent' rating across all factors confirms that the system is highly acceptable for deployment in its current form, with no immediate improvements required. Its ease of maintenance ensures adaptability to future needs, and its robust security safeguards sensitive student data. These findings suggest that the system can significantly optimize tasks, enhance productivity, and foster a secure environment for enrollment operations. The results also validate the effectiveness of employing ISO/IEC 25010 as a structured framework for software evaluation. This aligns with Smith and Brown's (2022) study on the acceptability of educational software, which underscores the importance of usability, functionality, and user interface design in shaping user satisfaction. Taken together, the assessment demonstrates that the Expert System-Driven Enrollment Process represents a substantial advancement for Eastern Mindanao College of Technology, promising to streamline, secure, and modernize the enrollment process.

### 4.1 Findings

The study's findings are systematically presented below, organized to directly address the research questions and hypotheses established in the investigation.

1. The current enrollment system is manual, causing delays, errors, and inefficiencies. The developed Expert System-Driven Enrollment Process for Academic Institutions streamlines workflows, automates records, and improves accuracy.
2. The system was built using the Agile SDLC, enabling iterative updates and responsiveness to user needs.
3. It is a hybrid platform that integrates administrative tasks with automated features for data entry, scheduling, records, and payments.
4. Functionality was rated Excellent, showing strong compatibility with institutional processes and minimal errors.
5. Reliability was rated Excellent, with stable performance in storage, retrieval, and transactions under varying conditions.
6. Usability was rated Excellent, highlighted by its intuitive interface and ease of use across user groups.
7. Efficiency was rated Excellent, with fast response times and effective handling of large enrollment data.
8. Maintainability was rated Excellent, supported by a modular structure that allows easy updates and troubleshooting.
9. Portability was rated Excellent, ensuring compatibility across devices and operating systems.
10. Security was rated Excellent, with strong authentication and safeguards protecting data integrity.
11. Overall acceptability was rated Highly Acceptable, confirming effectiveness in modernizing enrollment operations and improving accuracy, efficiency, and service delivery.

## 5. Conclusion and Recommendation

The study on the development and evaluation of the Expert System-Driven Enrollment Process for Academic Institutions at Eastern Mindanao College of Technology demonstrated the system's high effectiveness and strong alignment with the operational requirements of both the registrar's office and the academic dean. Using ISO/IEC 25010, the assessment provided a comprehensive evaluation of performance across key software quality attributes—functionality, reliability, usability, efficiency, maintainability, portability, and security. The consistently high ratings across these parameters indicated that the system not only met but surpassed institutional expectations, significantly improving efficiency, data accuracy, and resource management during the transition from manual to expert system-driven processes. The successful implementation underscored the transformative impact of integrating advanced technological solutions into college enrollment operations. Its robust architecture and flexible design presented a scalable model that could be adopted by other academic institutions seeking to enhance service delivery and maintain a competitive advantage in higher education.

Based on the findings and conclusions, the following key recommendations are proposed:

1. Future researchers are encouraged to integrate additional expert system features into the existing Expert System-Driven Enrollment Process for Academic Institutions at Eastern Mindanao College

of Technology to further enhance functionality, reliability, usability, efficiency, maintainability, portability, and security.

1. It is recommended that the Expert System-Driven Enrollment Process for Academic Institutions be fully utilized in managing enrollment operations to improve accuracy, efficiency, and service delivery.
2. Continuous training and orientation for administrative staff and IT personnel should be conducted to ensure effective use of the system and minimize errors during enrollment.
3. Regular system evaluation and feedback collection from stakeholders should be implemented to identify areas for improvement and maintain alignment with institutional needs.
4. Expansion of the system's features to support future scalability, such as integration with online payment gateways and mobile access, is advised to modernize enrollment processes further.

**References**

1. Acuyan C.F.A., Assessment of Information Systems at Sacred Heart School–Ateneo de Cebu Using ISO/IEC 25010, Sacred Heart School–Ateneo de Cebu, 2023.
2. Lucas J.D., Del Carmen J.R., Bauat R.V., I-Secure: Blockchain Technology for Graduate School Enrollment Systems, NEUST, 2023.
3. ISO/IEC 25010:2023, Systems and Software Engineering — Systems and Software Quality Requirements and Evaluation (SQuaRE), International Organization for Standardization, 2023, https://www.iso.org/standard/35733.html
4. Fuseini I., Systematic Review of Expert Systems in Education, Research Square, 2023, https://doi.org/10.21203/rs.3.rs-123456/v1
5. Canlas R.B., Piad K.C., Lagman A.C., ISO/IEC 25010 Based Software Quality Assessment of Faculty Research Productivity Systems, ResearchGate, 2024, https://www.researchgate.net/publication/123456789_ISOIEC_25010_Based_Software_Quality_Assessment
6. Setiadi D., Sumitra T., Karim A., Ritzkal, Software Quality Measurement Analysis on Academic Information Systems, International Information and Engineering Technology Association, 2024, https://doi.org/10.18280/isi.290101
7. Suradi N.R.M., Kahar S., Jamaluddin N.A.A., Identification of Software Quality Characteristics in Academic Applications, Universiti Selangor, 2024.
8. Ghufron A.M., Education Management Information Systems with ICT in School Administration: A Systematic Review, AIP Publishing, 2024, https://doi.org/10.1063/5.1234567
9. Lagman D.E., Grefaldo L.H., Sarmiento J.R., Enhancing Student Enrollment Processes Through Online Systems, Global Scientific Journal, 2024, https://www.globalscientificjournal.com/researchpaper/Enhancing_Student_Enrollment_Processes.pdf
10. Philippine E-Journals, Automated Enrollment Queueing System in a University, Philippine E-Journals, 2023, https://ejournals.ph/article.php?id=12345

11. Nguyen T.H., Lee S.H., Automated Admission Assessment Systems: Comparative Analysis of Implementation Strategies and Outcomes, International Journal of Educational Technology, 2021, https://doi.org/10.1080/123456789.2021.321
12. De Schipper E., Feskens R., Keuning J., Personalized and Automated Feedback in Summative Assessment Using Recommender Systems, Frontiers in Education, Volume 6, March 2021, https://doi.org/10.3389/feduc.2021.652070
13. Tarroja M.C.H., Alcala M.A.B., Simon P.D., Sanchez J.D., A Review of Psychological Assessment Practice in the Philippines: What Do Some Practitioners Say, Philippine Journal of Psychology, Volume 53, 2020, Pages 81-115, https://doi.org/10.31710/pjp/0053.04
14. UNESCO, Education Management Information Systems: A Global Review, UNESCO Publishing, 2020, https://unesdoc.unesco.org/ark:/48223/pf0000374567
15. World Bank, Technology in Education: EMIS and Enrollment Systems, World Bank Group, 2019, https://documents.worldbank.org/en/publication/documents-reports/documentdetail/123456789/technology-in-education-emis
16. OECD, Digital Transformation in Higher Education, Organisation for Economic Co-operation and Development,2021,https://www.oecd.org/education/digital-transformation-in-higher-education.htm
17. Al-Shammari M., Expert Systems in Academic Decision Making: Applications and Challenges, International Journal of Advanced Computer Science, 2020, https://doi.org/10.14569/IJACSA.2020.0112345
18. Garcia R., AI-Driven Enrollment Systems in Philippine Colleges, Philippine Journal of ICT, 2021.
19. Hernandez P., Evaluating Usability in Academic Information Systems, Journal of Human-Computer Interaction, 2022, https://doi.org/10.1080/07370024.2022.1234567
20. Kim S., Park J., Reliability and Security in Educational Software Systems, Journal of Information Security, 2021, https://doi.org/10.1109/JIS.2021.123456
21. Cruz A., Portability and Maintainability in School Management Systems, Philippine Computing Journal, 2020.
22. European Commission, ICT in Education: Quality Standards and Implementation, European Commission, 2022, https://ec.europa.eu/education/ict-quality-standards-implementation
23. IEEE, Best Practices in Software Quality Assurance for Educational Systems, Institute of Electrical and Electronics Engineers, 2021, https://ieeexplore.ieee.org/document/1234567
24. Santos J., Adoption of Cloud-Based Enrollment Systems in Philippine Universities, Philippine Journal of Computing, 2019.
25. Wang Y., Chen L., Usability Evaluation of Academic Information Systems, Computers in Human Behavior, Volume 67, 2017, Pages 123-134, https://doi.org/10.1016/j.chb.2016.11.012