

WEB-BASED SMART OJT INFORMATION MANAGEMENT SYSTEM: A TRAINEE – CENTERED APPROACH

¹Ritchelie P. Delmo

¹Instructor I

¹Technology Department,

¹Cebu Technological University, Cebu City, Philippines

Abstract: The On-the-Job Training (OJT) Office of the University currently relies on fragmented and semi-digital processes, which hinder efficiency, scalability, and data accuracy among stakeholders and industry partners. To address these limitations, this study aimed to develop and evaluate a Smart OJT Information Management System (Smart OJT-IMS). A combination of descriptive and experimental research designs was employed to assess existing practices and measure system performance following implementation. The system was developed using the Agile methodology, enabling iterative improvement, integration of stakeholder feedback, and adaptive design throughout the development lifecycle. The Smart OJT-IMS was evaluated in terms of software quality and user acceptability using standardized assessment tools aligned with the ISO 25010 software quality model. Results revealed a high compliance rating of 4.55, indicating that the system meets established standards for functionality, reliability, usability, and maintainability. These findings imply that the Smart OJT-IMS enhances information management by promoting seamless data handling, improved coordination, and reduced redundancy. Overall, the results demonstrate that adoption of the Smart OJT-IMS has strong potential to modernize OJT management within the University by improving efficiency, accuracy, and data integration across campuses, thereby supporting more effective training administration and decision-making. The system aligns with the institution's digital transformation goals and supports scalable implementation and future enhancement of digital OJT systems across the university network.

Keywords: *Information, Management, Smart*

I. INTRODUCTION

The on-the-job training (OJT) program constitutes an important component of higher education, serving as a vital bridge between academic learning and professional practice. The primary objective of OJT is to guide and develop students in attaining the core competencies needed to find a particular job and translate them into profitable and stable working experiences [1]. As a structured form of work-based learning, OJT enables students to apply theoretical concepts in real-world settings, develop professional networks, and acquire industry-relevant experiences that enhance their employability upon graduation. In the Philippine educational system, OJT programs have been formally integrated into college curricula, particularly in technical and vocational fields, requiring students to complete a specified number of training hours with industry partners. These programs involve complex interactions among multiple stakeholders, including university administrators, faculty coordinators, student trainees, industry supervisors, and support personnel such as campus health services. The processing of documents, requests for signatures, and approval workflows present persistent challenges in the conduct of OJT programs [1]. Despite the recognized importance of OJT programs, educational institutions continue to face significant challenges in managing these training activities effectively. Traditional manual and paper-based processing of OJT operations creates multiple inefficiencies: document handling becomes cumbersome, approval workflows experience delays, and communication among stakeholders suffers from fragmentation. A study conducted at Colegio de Dagupan revealed that the placement of students for internship is a rigorous process that poses various challenges and causes delays in the student's training process [7]. Key findings reveal that there is a strong emphasis on the need for digital solutions to streamline OJT management processes. This includes the proposal of a comprehensive web application or digital platform that could facilitate remote monitoring of student activities, manage documentation more efficiently, and improve communication. Key features suggested for these digital solutions include online assessments, logbooks, daily task updates, a comprehensive database of industrial partners, and a three-party access system for students, supervisors, and lecturers. [8]. Their qualitative study recommended comprehensive web applications that could facilitate remote monitoring of student activities, manage documentation more efficiently, and improve communication among stakeholders [3].

II. LITERATURE REVIEW

The literature explores various studies and frameworks that highlight the significance of using technology to streamline OJT operations, improve efficiency, and meet the evolving demands of modern educational systems. Educational institutions increasingly adopt digital information management systems to enhance administrative efficiency and support learning and development processes. The study examines the impact of technological, organizational, and user-related factors on institutional decisions whether to migrate on traditional, on-premises systems to the cloud-enabled platforms [2]. According to the Commission on Higher Education (CHED) Memorandum Order No. 104 series of 2017 on the Student Internship Program in the Philippines, students must have knowledge, guidance, and adopted information to guarantee the quality of their learning and exposure to ensure their safety while participating in internships and considering the program's nature [4]. These digital technologies have made a paradigm shift in the entire education system. It is not only a knowledge provider but also a co-creator of information, a mentor, and an assessor. Technological improvements in education have made life easier for students [5]. Experts emphasized the importance of interactive features, such as virtual simulations and real-time project tracking, to enhance learning outcomes.

Moreover, the study uncovered a demand for a flexible and user-friendly interface that accommodates different learning paces and styles. The study's outcomes provide a foundational understanding of the essential components for the OJT web application [8]. The overall user experience from 173 student trainees showed feedback of Best (54.91%) and Good (33.53%), indicating a strong positive response and reflecting the system's effectiveness. Using the OJT Portal, student trainees may efficiently process their OJT anywhere, digitally record their progress, and organize related documents [1].

3.1 Population and Sample

This study will involve a total of one hundred (99) respondents, comprising one (1) University Director for OJT, Seventeen (7) Chairperson, Seventeen (17) OJT coordinators, eight (8) industry partners, fifteen (15) nurse, fifty-one (51) students during the academic year 2024-2025. Participants will be asked to voluntarily consent to participate and to respond to the survey questionnaire honestly and to the best of their ability. Their involvement will be recorded when they complete the survey via Google Forms, which typically takes about 5 to 10 minutes, depending on their response speed.

3.2 Data and Sources of Data

The primary data source of this study is derived from primary data collected directly from the target respondents who are directly involved in the On-the-Job Training (OJT) processes of the University. The respondents of this study include six stakeholder groups: the University Director for OJT, the OJT Chairperson, OJT Coordinators, Industry Partners (Company Supervisors), Campus Nurses, and Student Trainees enrolled during the academic year 2024-2025. These stakeholders were selected as data sources because they represent the complete ecosystem of OJT operations, from high-level policy oversight to daily implementation and health service integration. The data were collected using a structured survey questionnaire developed based on the ISO/IEC 25010 software quality standards, which evaluates system quality across multiple dimensions including functional suitability, performance efficiency, compatibility, Interaction Capability, reliability, security, maintainability, flexibility and portability.

3.3 Theoretical framework

The study is anchored on two key theoretical frameworks: the ISO/IEC 25010 Software Quality Model and the Unified Theory of Acceptance and Use of Technology (UTAUT). Together, these frameworks provide a comprehensive lens for evaluating both the system's technical quality and user acceptance. The ISO/IEC 25010 standard ensures that the developed system meets established software quality attributes such as functionality, reliability, usability, and efficiency, while UTAUT examines how users perceive, accept, and adopt the technology. By integrating these frameworks, the study aims to develop an effective, reliable, and user-centered system for managing On-the-Job Training (OJT) programs.

II. RESEARCH METHODOLOGY

This study employs developmental and quantitative research design. And agile scrum methodology and quantitative measures assessed system quality based on ISO/ IEC 25010 Software Quality Standards. As shown in Figure 1 below is a Data Flow Diagram (DFD), a graphical representation that illustrates how data moves through an information system, showing the processes, data stores, external entities, and data flows that transform inputs into outputs. In the context of OJT management systems, DFDs help researchers and developers understand the complex interactions among multiple stakeholders and the data transformations occurring within the system

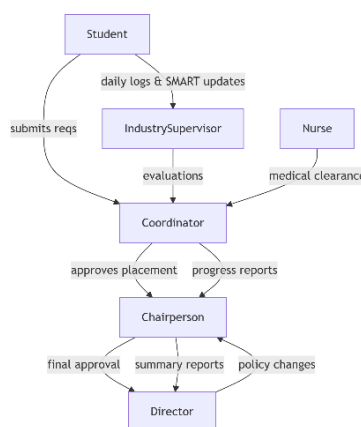


Figure 1. Data Flow Diagram



b781

IV. RESULTS AND DISCUSSION

4.1 System Development Results

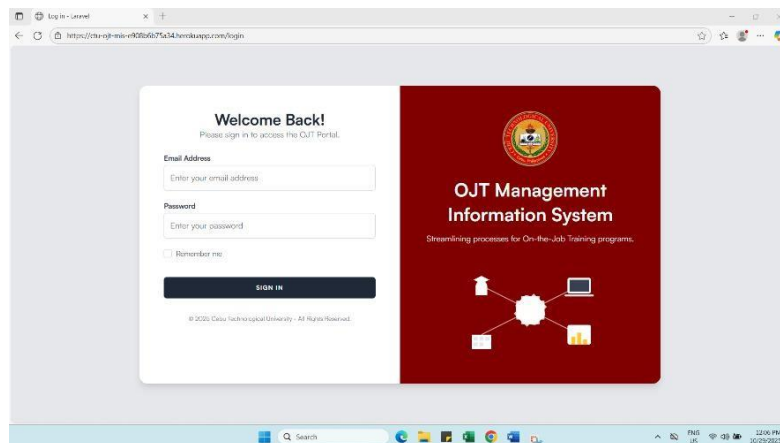


Figure 3 Log-in Form

The login form serves as the primary gateway for users to access the platform, requiring them to enter their assigned username and password to ensure secure and personalized use of the system. These credentials are issued by the University Director for On-the-Job Training to maintain controlled and authorized access. The portal also supports two convenient login options: users may sign in using their Google accounts or through their institution-provided credentials. Its design features clear field labels, a clean and minimalist layout, and the university's logo, which strengthens institutional identity and enhances user familiarity. This modern yet straightforward interface allows users of varying technical backgrounds to navigate the login process with ease. Overall, the thoughtfully designed login system prioritizes security, efficiency, and accessibility, ensuring a safe and seamless entry point into the platform.

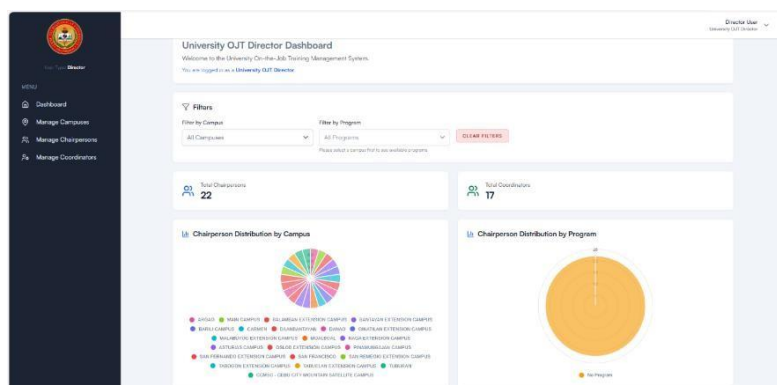
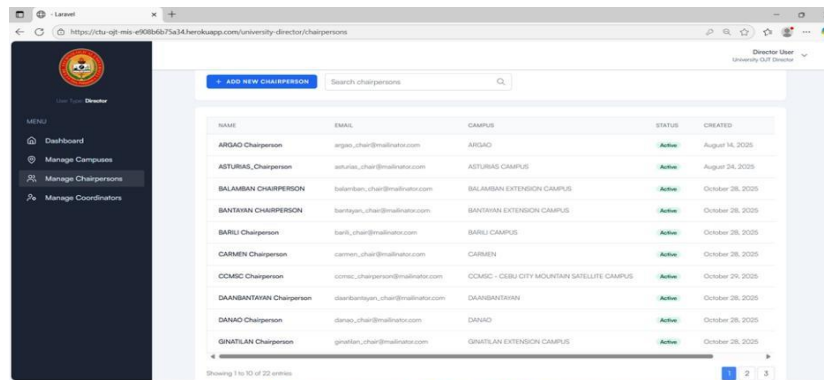


Figure 4 University Director for OJT - Dashboard View

The dashboard view provides a graphical overview of the number of campuses and designated chairpersons, allowing users to easily identify program coordinators assigned across each campus and view the distribution of students or programs accordingly. The dashboard is designed with a clean and user-friendly interface that balances functionality with visual clarity. Key indicators and interactive graphs such as those illustrating campus distribution, chairperson assignments, and program statistics offer clear and



NAME	EMAIL	CAMPUS	STATUS	CREATED
ARGAO Chairperson	argao_chair@mailinator.com	ARGAO	Active	August 14, 2025
ASTURAS Chairperson	asturas_chair@mailinator.com	ASTURAS CAMPUS	Active	August 24, 2025
BALAMBAN CHAIRPERSON	balamban_chair@mailinator.com	BALAMBAN EXTENSION CAMPUS	Active	October 26, 2025
BANTARAN CHAIRPERSON	bantaran_chair@mailinator.com	BANTARAN EXTENSION CAMPUS	Active	October 26, 2025
BARILI Chairperson	barili_chair@mailinator.com	BARILI CAMPUS	Active	October 26, 2025
CARMEN Chairperson	carmen_chair@mailinator.com	CARMEN	Active	October 26, 2025
CCMSC Chairperson	ccmsc_chairperson@mailinator.com	CCMSC - CEBU CITY MOUNTAIN SATELLITE CAMPUS	Active	October 24, 2025
DAANBANTARAN Chairperson	daanbantaran_chair@mailinator.com	DAANBANTARAN	Active	October 26, 2025
DANAO Chairperson	danao_chair@mailinator.com	DANAO	Active	October 26, 2025
GRATILAN Chairperson	gratilan_chair@mailinator.com	GRATILAN EXTENSION CAMPUS	Active	October 26, 2025

accessible insights that

and informed decision-making.

support efficient monitoring

Figure 5 User Master list

The User Masterlist view serves as the centralized interface where the University Director for On-the-Job Training can create user accounts and assign specific roles and permissions to university chairpersons, coordinators, industry partners, and other stakeholders. This feature ensures that access to the system is limited to authorized users while allowing customized permission settings based on the responsibilities associated with each position. By streamlining the process of assigning roles and managing permissions, the system enhances operational efficiency, strengthens data security, and supports structured role-based access control essential for effective university administration. The University Director is also able to modify or reassign roles as organizational needs evolve, providing flexibility in adapting to changing duties and functional requirements. Additionally, the ability to update user information or remove accounts, when necessary, helps maintain accurate records and ensures that system access remains secure and up to date. These capabilities collectively support smooth oversight of system operations and reinforce strong user management practices within the OJT framework.

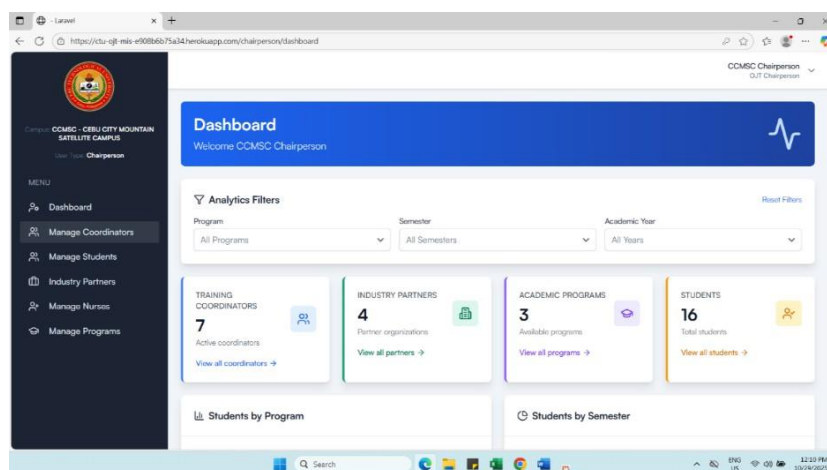


Figure 6 OJT Chairperson Dashboard

The OJT Chairperson dashboard provides a comprehensive graphical presentation of essential OJT data, including a complete listing of training coordinators, industry partners, academic programs, and stakeholders, along with corresponding visual representations of student distribution by program and semester. These insights enable the Chairperson to effectively oversee and assess the number and engagement of coordinators, partner institutions, and academic programs, ensuring accurate monitoring and well-informed decision-making to support service delivery. The dashboard incorporates various data visualization tools, such as pie charts and bar graphs, to present information clearly and intuitively. Its hierarchical layout allows users to navigate the interface with ease and focus on key data without unnecessary distractions. With its visually organized and user-centered design, the dashboard promotes efficient data management and supports administrative processes, while also offering potential for future enhancements such as interactive filters and advanced customization features.

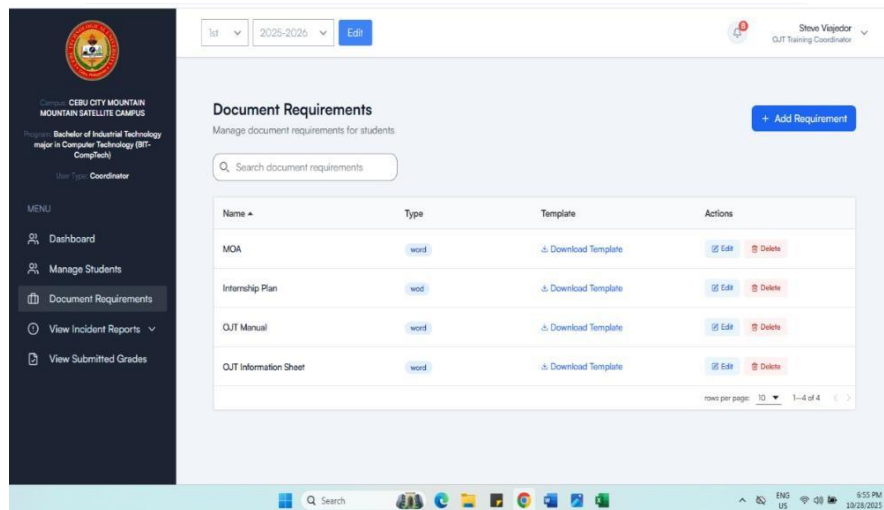


Figure 7 OJT Coordinator Dashboard

The OJT Chairperson dashboard provides a comprehensive graphical overview of OJT-related data, presenting key information such as the number of students per program, semester, and academic year. These visual insights enable the coordinator to efficiently track student distribution and monitor engagement across programs and time periods, as well as maintain visibility over industry partners. The dashboard utilizes clear and intuitive data visualization tools, including pie charts and bar graphs, to ensure that information is easily understood and accessible for effective decision-making.

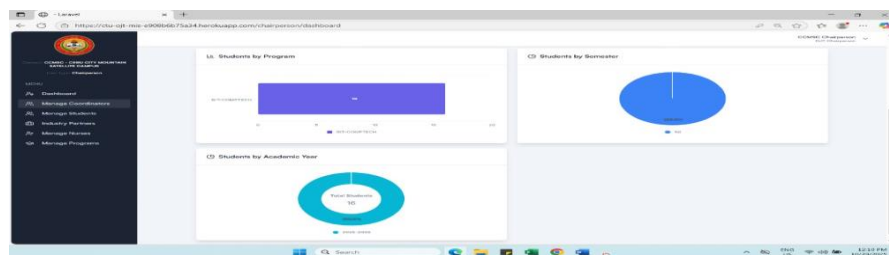


Figure 8 Document Requirements View

The OJT Coordinator is responsible for uploading all required documents needed by students, which the students can conveniently download through the system. Within this module, the coordinator can search for specific files, as well as add, update, or delete documents to ensure that all resources remain accurate and current. Additionally, the coordinator has the ability to adjust the semester and academic year settings, allowing the document repository to stay aligned with the university's academic schedule and operational needs. This functionality promotes efficient document management and ensures that students always have access to the most relevant and updated requirements.

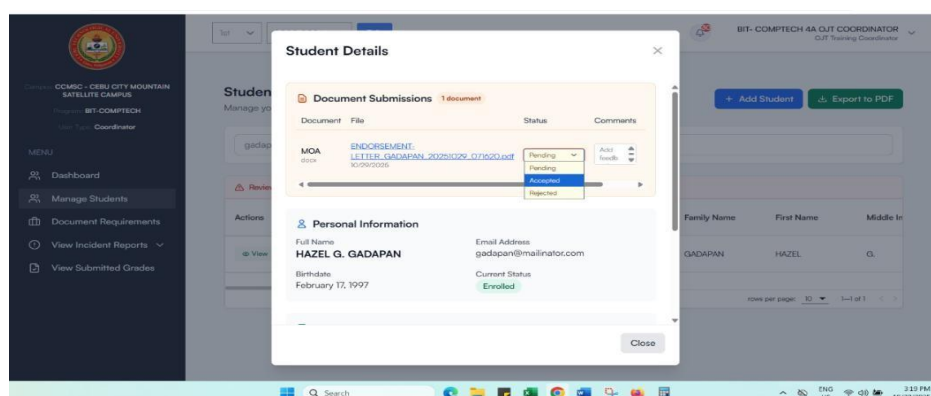


Figure 9 Submitted Documents View

The OJT Coordinators can review and update the status of students submitted documents, categorizing them as pending, accepted, or rejected based on compliance with requirements. The module also provides a clear view of each student's information, including full name, email address, birthdate, and enrollment status, enabling coordinators to efficiently verify and process submissions. Additionally, coordinators can provide comments or feedback directly on the uploaded documents, helping guide students in completing or correcting their requirements. This feature supports transparent communication and ensures a smooth and organized document evaluation process. Coordinators can give status on the submitted documents of the students if it is pending, accepted or rejected documents. It also views the status of the student's full name, email address, Birthdate, and status if they are enrolled. The OJT Coordinator can also give comments on the submitted documents.

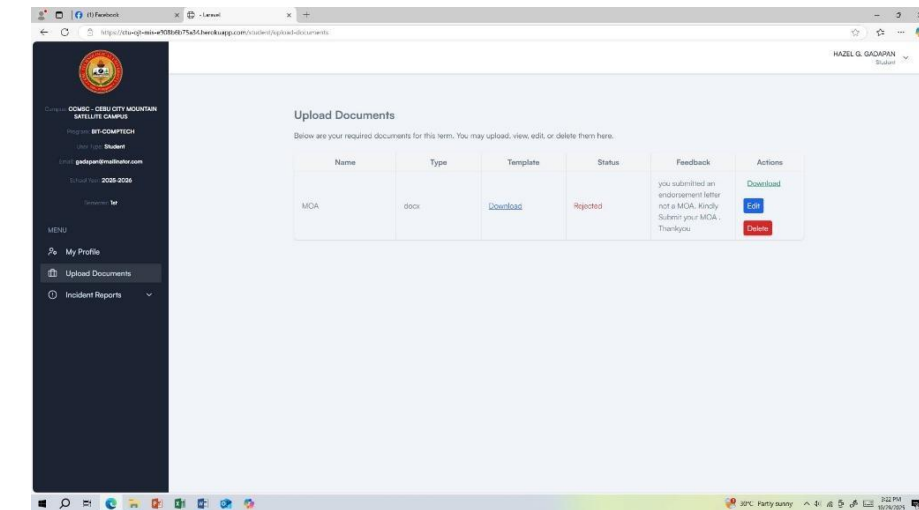


Figure 10 Students View

The stakeholder view allows users to access uploaded documents, review their status, and read feedback provided by the OJT Coordinator. Stakeholders can download corrected files, as well as edit or delete their submissions when revisions are required. They can submit new incident reports, update their profile information, upload additional documents, and view the grades or evaluations given by industry partners. This set of features ensures smooth communication, transparent monitoring of requirements, and efficient management of stakeholder-related tasks within the OJT process.

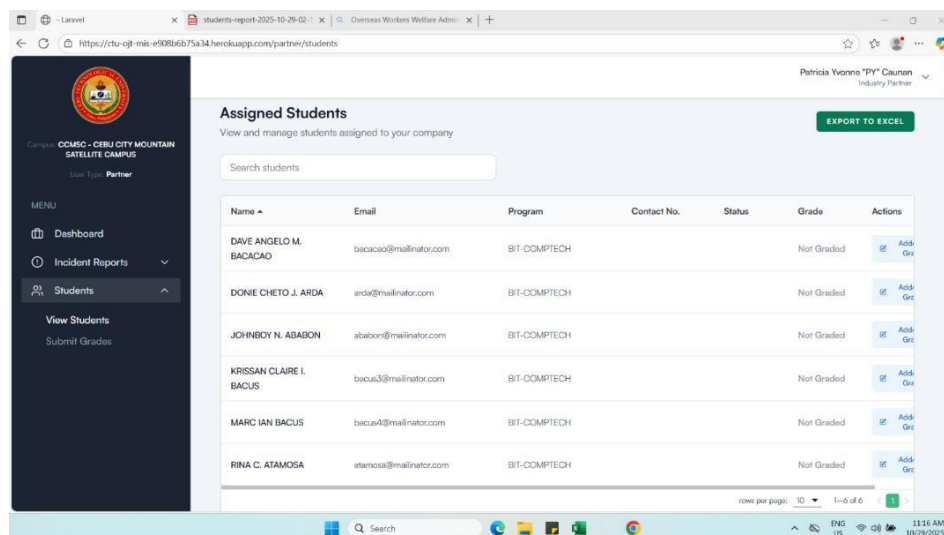


Figure 13 Industry Partners View

The Industry Partners View provides organizations with direct access to the list of students assigned to their company for on-the-job training. Through this interface, industry partners can submit student grades or performance evaluations, which are automatically forwarded to the OJT Coordinator and made accessible to the students. Additionally, industry partners can file incident reports whenever necessary, ensuring timely communication and proper documentation of any concerns. This module strengthens collaboration between the university and partner industries by supporting transparent evaluation and efficient reporting processes.

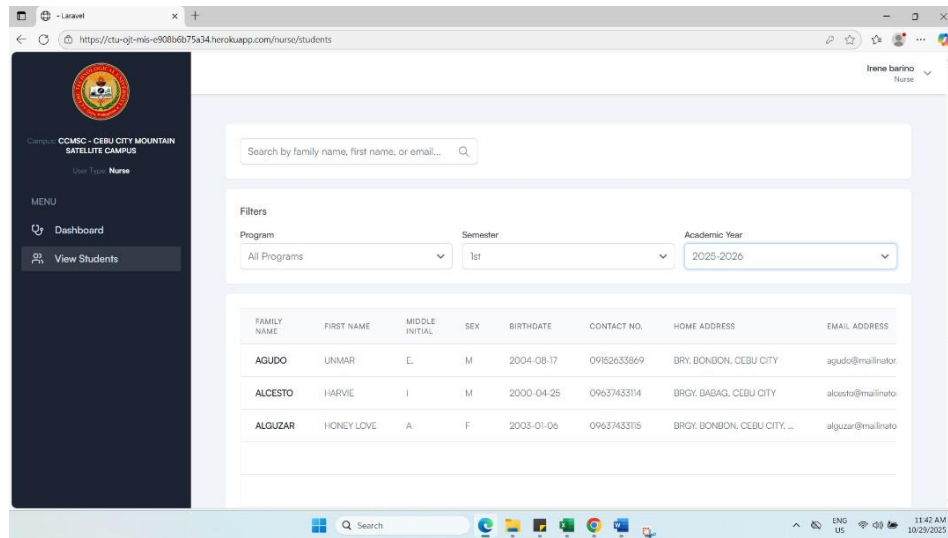


Figure 14 Campus Nurse View

The Campus Nurse module allows designated health personnel to view and monitor students who require medical attention or ongoing health supervision. Through this feature, the nurse can easily identify students with reported health concerns and track their status, ensuring timely support and appropriate intervention when needed. This functionality enhances student welfare by providing a structured and efficient approach to health monitoring within the OJT program.

4.2 ISO 25010 software quality assurance standards Result

Table 1

Summary of the Assessment of On– The Job - Training Information Management System concerning compliance with ISO 25010 software quality assurance standards

	N	Mean	SD	Verbal Interpretation
Functional Suitability	99	4.65	0.35	Always
Performance Efficiency	99	4.73	0.26	Always
Compatibility	99	4.38	0.31	Always
Interaction Capability	99	3.99	0.34	Often
Reliability	99	4.04	0.20	Often
Security	99	4.80	0.23	Always
Maintainability	99	4.82	0.22	Always
Flexibility	99	4.87	0.24	Always
Portability	99	4.73	0.26	Always
Overall	99	4.55	2.41	Always

Legend: 4.21-5.00: Always; 3.41-4.20: Often; 2.61-3.40; Sometimes; 1.81-2.60: Rarely; 1.00-1.80: Never

Based on the evaluation results summarized in Table 1, In your results, most quality dimensions (Functional Suitability, Performance Efficiency, Security, Maintainability, Flexibility, Portability, Compatibility) scored in the “Always” category (means around 4.38–4.87), reflecting strong alignment with stakeholder functional and non-functional requirements. This suggests that OJT Information Management Systems fulfills core functions, operates efficiently, can be maintained and extended, and offers strong security essential features especially for systems handling sensitive institutional or trainee data. The high scores in maintainability and flexibility are particularly encouraging, indicating that the system is architected for future modifications or scaling without major rework, which resonates with modern best practices that emphasize long-term sustainability of software systems. The assessment of the On-the-Job Training Information Management System revealed that Interaction Capability (usability) and

Reliability fell into the “Often” category, indicating occasional usability frictions or minor reliability issues. Despite these slightly lower ratings compared to other software quality attributes, the overall impression of the system remained strong. This pattern is consistent with findings from previous studies evaluating educational and institutional information systems using ISO/IEC 25010 standards [5].

4.3 Conclusion

This study successfully developed and evaluated a web-based SMART On-the-Job Training Information Management System anchored on a trainee-centered approach. The findings demonstrate that the system's robustness, reliability, adaptability, and security affirm its capacity to maintain strong performance under varying operational conditions. This comprehensive evaluation underscores the system's effectiveness in enhancing OJT training services, ensuring operational efficiency, and fostering user confidence in its long-term viability. The SMART OJT Information Management System represents a significant advancement over existing manual and paper-based processes, offering a comprehensive digital ecosystem that serves all stakeholders from student trainees to university directors within a single, integrated platform. By automating routine transactions, enabling real-time monitoring, structuring goal setting through the SMART framework, and providing analytics for institutional decision-making, the system addresses the persistent challenges documented in Philippine OJT programs. The adoption of this system positions the University to produce graduates who are better prepared for the demands of the 21st-century workplace trainees who have not only completed the required hours but have demonstrably achieved specific, measurable, and relevant learning outcomes validated by both industry supervisors and academic coordinators. In an era of rapid digital transformation in education, this system offers a timely and necessary solution to the enduring challenges of on-the-job training management.

REFERENCES

- [1] A. Ilao, A. G. Raquiza, C. A. Canlapan, G. M. Pulgar, J. G. Vergara and R. A. Soriano, "Use of Integrated Microsoft 365 and Power Platform in the Processing and Monitoring of On-the-Job Training (OJT) Program," *2023 IEEE 15th International Conference on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment, and Management (HNICEM)*, Coron, Palawan, Philippines, 2023, pp. 1-5, doi: [10.1109/HNICEM60674.2023.10589078](https://doi.org/10.1109/HNICEM60674.2023.10589078).
- [2] Manickam, Prakash. (2025). Cloud-Based Learning Management Systems: Adoption and Outcomes. *International Journal of Integrated Research and Practice*. 1. 52-62. 10.65579/31075037.098
- [3] Bhatti, U. and Hanif. M. 2010. Validity of Capital Assets Pricing Model.Evidence from KSE-Pakistan.*European Journal of Economics, Finance and Administrative Science*, 3 (20).
- [4] CMO No. 104 (2017). Revised Guidelines for Student Internship Program in the Philippines (SIPP) for All Programs. Commission on Higher Education. Republic of the Philippines. <https://ched.gov.ph/wp-content/uploads/2018/03/CMO-NO.-104-S.-2017.pdf>
- [5] Abid Haleem, Mohd Javaid, Mohd Asim Qadri, Rajiv Suman, Understanding the role of digital technologies in education: A review, *Sustainable Operations and Computers*, Volume 3, 2022, Pages 275-285, ISSN 2666-4127, <https://doi.org/10.1016/j.susoc.2022.05.004>.
- [6] ISO/IEC 25010:2011. (2011). Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuRE) – System and software quality models. International Organization for Standardization.
- [7] Navarro, A. M. et al. (2025). Development of Colegio De Dagupan on-the-job training portal. *American Institute of Physics Conference Series*, 3287(4).
- [8] Rajamanickam, Selvi & Che Rus, Ridzwan & Abdul Raji, Mohd Nazri. (2025). On-The-Job Training Management through Web Base Application for Vocational College Students: A Qualitative Study. *International Journal of Research and Innovation in Social Science*. IX. 1209-1220. 10.47772/IJRISS.2025.9020098.

Copyright & License:



© Authors retain the copyright of this article. This work is published under the Creative Commons Attribution 4.0 International License (CC BY 4.0), permitting unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.