Institutional Requirements Submission and Monitoring System

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Abstract— The world is now in digital age and everything was surround by the new technology innovations. Office work and filing are more dependent on the digital aspects. Developing an Institutional Requirements Submission and Monitoring System, a system for safekeeping, properly manage of various documents, issuance, retrieval of documents as well as to monitor the user's log, provide a dashboard for the submission of faculty requirements and have an automated back-up/restore of the system. These requirements are very important since this is need for clearance purposes every end of the school year, promotion, ISO, RQAT, Accreditation and many more.

This study enable users to upload/download/print requirements such as CHED EO, Commitment form, Syllabus, exams, Answer key, Table of Specifications, Transcript of Records, PDS, Seminars and Trainings and many more into the system for safekeeping, properly manage and easy retrieval of documents.

Moreover, this study helps users and administrator to track the requirements submitted by the faculty in every semester to start and about to end for clearance purposes and evaluations. The project was tested and developed using PHP and MY SQL as the backend of the project.

The evaluation of software in terms of its functional suitability, performance efficiency, compatibility, usability, reliability, security, and maintainability was tested. The result proved that an Institutional Requirements Submission and Monitoring System, a system has a Very Useful operations and functions.

Keywords— Institutional, Requirements, Submission, Monitoring, System.

I. INTRODUCTION

Higher education institutions develop a variety of records as they carry out their missions. Community development, education, research, and learning are the main activities of universities. In outlining its goal, the university declares. These activities generate records, which to be used as proof that this University is fulfilling its statutory duties. If these documents are improperly managed or lost, important proof would be permanently lost. Achieving proper management includes implementing methodical controls in line with accepted principles and practices at every stage of the record's life cycle. (*University of KwaZulu-Natal 2015).*

Criteria developed to identify relevant advertisements were based on existing competencies and standards outlining records professionals' skills, knowledge, and attributes. Statistical analysis was used to assess the data [1]. Converting paper documents and attachments into an electronic format, and saving them in the database within indexed records according to the document number or book [2].

Higher educational institutions depend on the effective document management and archiving because they regularly utilize course and teaching materials, publications, theses and dissertations, manuscripts, students' application forms, records, submissions, reports, regulations, and policies, as well as administrative files, video and audio files. The application of an effective digital archiving system allows for easy vertical and horizontal flows of information in an organization [3].

Records archiving, and storage pose a strategic role in managing the university system efficiently and effectively. It also documents the planning and implementation of certain services, allowing proper tracking of work. The researcher utilized a system developmental research approach that consists of two phases, the analysis phase where the needs are being assessed and the design and development phase of the record archiving system [4].

Furthermore, these requirements are very important since this is need for clearance purposes every end of the school year, promotion, ISO, RQAT, Accreditation and many more.

The proposed system aimed and developed a system for safekeeping, properly manage of various documents, issuance, retrieval of documents as well as to monitor the users log and provide a dashboard for the submission of faculty requirements.

II. METHODOLOGY

Figure 1 shows how the Development started; the researcher experienced how to access and process the documents. The researcher interviewed some faculty members about some problems they encounter in operation during the uploading, accessing, and retrieving of documents.
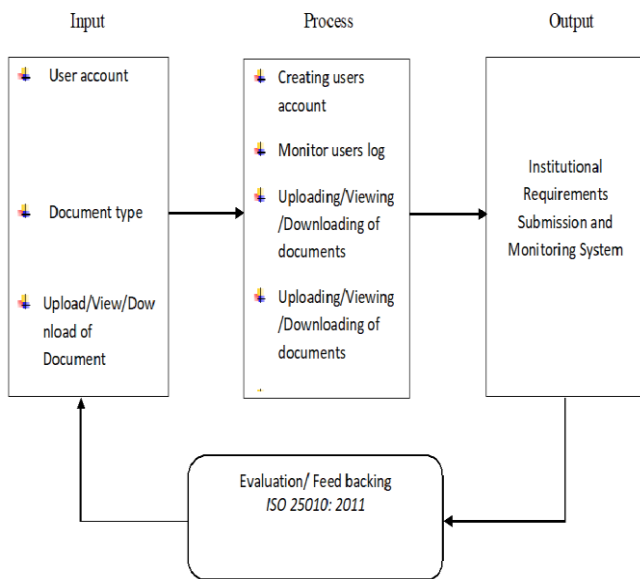
Figure 1. Conceptual Framework of Instructional Requirements Submission and Monitoring System

To use the system, first the user log-in using the account provided by the administrator. The administrator has the overall access within the system. The administrator has the responsibility to view the dashboard who submitted or didn't submitted those documents mentioned below. The user can change password only. But account changes are not permitted. The user can upload the requirements such as Syllabus, Ched e-0, Commitment form, TOS, Exam, PDS, Teachers Schedule, Class Schedule, Service Record, Transcript and many more in a word, excel and jpg format only. Aside from uploading only the user can download also the documents being uploaded and ready for printing. Only the user can view the documents owned and they are not allowed to view the documents of another user.

Development Process

SDLC (Systems Development Life Cycle) is defined as developing a system or software to meet specific requirements. In this study, the Agile model was used because it combines with iterative and incremental process models focusing on process adaptability and customer satisfaction by rapid delivery of working software products. Agile Methods break the product into small incremental builds.

Requirement Analysis

Considering the functionalities of the system, the researchers met with the Job hire and Faculty of different schools/departments, who are the user of the system. Gather requirements needed to build the system, ask some IT experts and research on the internet for some related studies about the Institutional Requirements Submission and Monitoring System, read books, and other materials deemed helpful to this study.

Plan Phase

The researchers, analyzed and planned how to give solutions to the objectives being presented as well as identified the user requirements, needed features and ask opinion/ideas of my colleagues, friends, different directors of the school and most of all the faculty who are the users of this study regarding the proposed project.

Design Phase.

After all the planning phase was met, the Institutional Requirements Submission and Monitoring System design will take place. The researcher make sure that the overall design and User Interface (UI) as prescribed by the end-user are met.

Development Phase

The proposed Institutional Requirements Submission and Monitoring System was created during this phase. The researchers make sure that the project met all the criteria as stated in the objectives of the study. The researchers used the PHP programming language which is a server-side scripting language embedded in HTML in its simplest form. It allows web developers to create a dynamic and interact with databases and MYSQL to store faculty files and other documents as my databases.

Test Phase

*I*n this test phase, the researchers examines the system to ensure that it meets the demand of the proponents/clients and assure that it meets the specific objectives. The system goes through trial and testing to assure that the desired result is achieved. The tests are done considerable number of times to ensure that the system satisfies the end-user

Release Phase / Deployment

It is the final stage of the project. The end-user is satisfied with the designed solution, which functioned as expected. After the final system has been thoroughly tested for production, the implementation step begins. System maintenance is performed to ensure that the capability continues to achieve its functions.

Feedback Phase

The researcher reviewed and reworks the system based on feedback from end-users during the evaluation of the system using the IS0 25010 software standards. Adjustments were made, some aspects are improved, while others are removed.

III. RESULTS AND DISCUSSION

As to the results of the study the following are presented and interpreted:

The system is operating well in terms of appropriateness, performance effectiveness, usability, reliability, security, and maintainability were all tested in order to satisfy the requirements of the software quality standards. Respondent's

evaluator are (12) faculty members and three (3) IT experts of the West Visayas State University - Pototan Campus specifically at the Office of Information and Communications Technology.

Table 1. The Functional Suitability Evaluation Result of the Respondents

Functionality Suitability	Faculty		IT Experts		Grand Total Mean	
	Mean	Interpretation	Mean	Interpretation	Mean	Interpretation
Functional Completeness • The system covers all the specified tasks and user objectives.	4.67	Very Useful	4.33	Very Useful	4.50	Very Useful
Functional Correctness • The system provides the correct results with the needed degree or precision	4.50	Very Useful	4.33	Very Useful	4.42	Very Useful
Functional Appropriateness • It facilitates the accomplishment of specified tasks and objectives.	4.83	Very Useful	5.00	Extremely Useful	4.92	Very Useful
Grand Mean	4.67	Very Useful	4.55	Very Useful	4.62	Very Useful

Table 1 shows the functional suitability of the Institutional Requirements Submission and Monitoring System. Based on the evaluation of the faculty and IT experts, a system has a "Very Useful" functional suitability.

Table 2. The Performance Efficiency Evaluation Result of the Respondents

Performance Efficiency	Faculty		IT Experts		Grand Total Mean	
	Mean	Interpretation	Mean	Interpretation	Mean	Interpretation
Time Behaviour • The system response and processing times and throughput rates when performing its functions, meet requirements.	4.50	Very Useful	5.00	Extremely Useful	4.75	Very Useful
Resource Utilization • The system amounts and types of resources used when performing its functions, meet requirements.	4.67	Very Useful	4.67	Very Useful	4.67	Very Useful
Capacity • The system maximum limits of parameter meet requirements.	4.58	Very Useful	4.00	Very Useful	4.29	Very Useful
Grand Mean	4.58	Very Useful	4.56	Very Useful	4.57	Very Useful

Table 2 shows that based on the evaluation of the faculty and IT experts, Institutional Requirements Submission and Monitoring System has a "Very Useful" performance efficiency.

Table 3. The Compatibility Evaluation Result of the Respondents

Compatibility	Faculty		IT Experts		Grand Total Mean	
	Mean	Interpretation	Mean	Interpretation	Mean	Interpretation
Co-existence • The system can perform its required functions efficiently while sharing a common environment and resources with other products, without detrimental impact on any other product.	4.67	Very Useful	5.00	Extremely Useful	4.84	Very Useful
Interoperability • The system can exchange information and use the information that has been exchanged.	4.50	Very Useful	4.67	Very Useful	4.59	Very Useful
Grand Mean	4.59	Very Useful	4.84	Very Useful	4.72	Very Useful

Based on the result shown in table 3, the Institutional Requirements Submission and Monitoring System was confirmed by the faculty as evaluators who "Strongly Agree" with the "Co-existence" (M= 4.67) and "Interoperability" (M= 4.50) with a total count of 4.59. The result means that the system has met its compatibility standard. It runs properly.

Table 4. The Usability Evaluation Result of the Respondents

Usability	Faculty		IT Experts		Grand Total Mean	
	Mean	Interpretation	Mean	Interpretation	Mean	Interpretation
Appropriateness Recognizability • The system allows users to recognize if it is appropriate for their needs	4.50	Very Useful	4.67	Extremely Useful	4.59	Very Useful
Learnability • The system can be used by specified users to achieve specified goals of learning to use the application with effectiveness, efficiency, freedom from risk and satisfaction in a specified context of use	4.67	Very Useful	4.33	Very Useful	4.50	Very Useful
Operability • The system has attributes that make it easy to operate and control.	4.58	Very Useful	4.67	Very Useful	4.63	Very Useful
User Error Protection • The system protects user against making errors	4.50	Very Useful	4.00	Very Useful	4.25	Very Useful
User Interaction Aesthetics • The user interface enables pleasing and satisfying interaction for the user	4.92	Very Useful	4.67	Very Useful	4.67	Very Useful
Accessibility • It can be used by people with the widest range of characteristics and capabilities to achieve a specified goal in a specified context of use.	4.92	Very Useful	5.00	Extremely Useful	4.96	Very Useful
Grand Mean	4.72	Very Useful	4.56	Very Useful	4.60	Very Useful

Based on the evaluation shown in table 4, Institutional Requirements Submission and Monitoring System has a "Very Useful" usability characteristics.

Table 5. The Reliability Evaluation Result of the Respondents

Reliability	Faculty		IT Experts		Grand Total Mean	
	Mean	Interpretation	Mean	Interpretation	Mean	Interpretation
Maturity						
• The system meets the needs for reliability under normal operation	4.42	Very Useful	4.67	Extremely Useful	4.55	Very Useful
Availability						
• It is operational and accessible when required for use.	4.75	Very Useful	5.00	Extremely Useful	4.88	Very Useful
Fault Tolerance						
• It operates as intended despite the presence of hardware or software faults.	4.50	Very Useful	4.33	Very Useful	4.42	Very Useful
Recoverability						
• The system can recover the data directly affected and re-establish the desired state.	4.42	Very Useful	4.67	Very Useful	4.55	Very Useful
Grand Mean	**4.52**	**Very Useful**	**4.68**	**Very Useful**	**4.60**	**Very Useful**

Table 5 shows that on the evaluation of the faculty and IT experts, Institutional Requirements Submission and Monitoring System has a "Very Useful" reliability characteristics.

Table 6. The Security Evaluation Result of the Respondents

Security	Faculty		IT Experts		Grand Total Mean	
	Mean	Interpretation	Mean	Interpretation	Mean	Interpretation
Confidentiality						
• The system ensures that data are accessible only to those authorized to have access.	4.58	Very Useful	5.00	Extremely Useful	4.79	Very Useful
Integrity						
• The system prevents unauthorized access to, or modification of, computer programs or data.	4.83	Very Useful	5.00	Extremely Useful	4.92	Very Useful
Non-repudiation						
• It can be proven to have taken place, so that the events or actions cannot be repudiated later.	4.67	Very Useful	5.00	Extremely Useful	4.84	Very Useful
Grand Mean	**4.69**	**Very Useful**	**5.00**	**Extremely Useful**	**4.85**	**Very Useful**

The result shows in table 6 proved that Institutional Requirements Submission and Monitoring System had conformed to the security requirement. It ensures that the data or information collected during the processes are accessible only to the authorized person.

Table 7. The Maintainability Evaluation Result of the Respondents

Maintainability	Faculty		IT Experts		Grand Total Mean	
	Mean	Interpretation	Mean	Interpretation	Mean	Interpretation
Analyzability						
• Faults be easily diagnosed.	4.92	Very Useful	4.67	Very Useful	4.80	Very Useful
Changeability						
• The system can be easily modified.	4.92	Very Useful	5.00	Extremely Useful	4.96	Very Useful
Stability						
• It can continue functioning if changes are made.	4.83	Very Useful	5.00	Extremely Useful	4.92	Very Useful
Testability						
• The system can be easily tested	4.92	Very Useful	4.67	Very Useful	4.80	Very Useful
Grand Mean	**4.90**	**Very Useful**	**4.84**	**Very Useful**	**4.87**	**Very Useful**

Table 7 shows that based on the evaluation, it shows that the maintainability of the Institutional Requirements Submission and Monitoring System was evaluated as "Very Useful" confirmed by the faculty evaluators. The results proved that the system can continue functioning even if there are changes and can be easily tested.

Table 8. Summary Evaluation Results by Faculty

ISO 25010 Criteria	Mean	Interpretation
Functional Suitability	4.67	Very Useful
Performance Efficiency	4.58	Very Useful
Compatibility	4.59	Very Useful
Usability	4.72	Very Useful
Reliability	4.52	Very Useful
Security	4.69	Very Useful
Maintainability	4.90	Very Useful
Over-all Mean	**4.67**	**Very Useful**

As shown in Table 8, the results established that the Institutional Requirements Submission and Monitoring System had "Very Useful" quality based on ISO 25010 standards. Definitely, it has "Very Useful" functional suitability (M=4.67), performance efficiency (M=4.58), compatibility (M=4.59), usability (M=4.72), reliability (M=4.52), security (M=4.69), and maintainability (M=4.90).

The over-all mean of 4.67 means that the system met the specific functions and operations as a "Very Useful" level.

IV. CONCLUSION AND RECOMMENDATION

Conclusions

1. The Institutional Requirements Submission and Monitoring System was designed, developed, and tested.

2. The project was successfully completed in terms of its intended objectives of providing a database of faculty requirements, providing a dashboard to monitor the submission of faculty requirements and provide an automatic and restore back up of files in preparation for ISO, RQAT, Accreditation.

3. Promotion and Clearance purposes. It allows faculty for easy accessing, safekeeping and retrieval of documents.

4. The Institutional Requirements Submission and Monitoring System based on Functionality, performance effectiveness, compatibility, usability, dependability, security, and maintainability all meet ISO criteria.. As expected, the Institutional Requirements Submission and Monitoring System is suitable for its specific functions and operations.

5. Institutional Requirements Submission and Monitoring System has a Very useful quality that can bring about fulfillment to its users as well as to the whole WVSU community.

Recommendations

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

1. It is recommended to create a link in the dashboard indicating the name of faculty.

2. It is recommended to add filter button in the dashboard using the keyboard

3. Recommended to add actions that can add new folder in the dashboard.

4. It recommended that database must change to repository and removed number (3) three objectives.

5. It recommended to use icons to easily identify the folder content.

6. It is recommended to change the title into Institutional Requirements Submission and Monitoring System.

V. ACKNOWLEDGEMENT

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