

# Integrated System for Evaluation of Implementation of Internal Quality Audits and ISO 9001; 2015 Case Study: Universitas Pembangunan Nasional "Veteran" Jawa Timur

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## Abstract:

The Internal Quality Assurance System (SPMI) is a system to ensure quality in the process of providing education. All components in the process of providing education support the achievement of aspects of SPMI. An important role in SPMI is the scope of the study program (Prodi), faculties, Institute for Learning Development and Quality Assurance (LP3M), and reviewers. Study program/faculty as SPMI document compiler. LP3M acts as system manager and decision maker at SPMI. Reviewers as assessors who assess the results of the SPMI study program documents. In SPMI activities, study programs / faculties fill out the required form files. Then the reviewer can evaluate the completed file with a score from 1 to 4. However, the evaluation process which is also called Internal Quality Audit (AMI) is still manual. This makes it less easy for LP3M managers to monitor evaluation values and make decisions. From the description above, this proposal proposes a system that can perform an integrated evaluation of AMI online. Not only focusing on AMI, SITEPAMIS can also conduct evaluations to meet ISO 9000;2015. ISO 9000;2015 is a standard for quality management. This research is divided into two years. In the first year, the creation of a web technology-based system with evaluation features of AMI and ISO 9000;2015 values until the implementation process. The output of this stage is a SITEPAMIS web application, reputable national journals, national seminars, and copyrights. In the second year, the mobile version of SITEPAMIS was started. The output of this stage is a SITEPAMIS mobile application, international journals, international seminars, and textbooks, so that at the end of the research results in an Integrated System Application for Evaluation of Internal Quality Audit Implementation and an ISO version of SITEPAMIS which is purely Web-based.

**Keywords:** Audit, ISO 9000;2015, System Evaluation

## 1. Introduction

Ease of access to information is currently an obligation in service. This is made possible by the development of increasingly advanced information technology. Information technology can support the service process to be more effective and efficient. Utilization of information technology is not only in business, private sector, health, but also in the field of education [1].

Utilization of information technology in the field of education can facilitate the academic community in carrying out activities [2] Teaching and learning process activities, research, community service, support, and management of organizational management really need information technology [3]. One process that requires information technology support is the Internal Quality Assurance System (SPMI) process which is the domain of the Learning Development and Quality Assurance Institute (LP3M).

LP3M National Development University "Veteran" East Java is an institution that carries out its duties as implementers, coordinators, monitors, and evaluators of learning development activities and quality assurance. In quality assurance activities there is SPMI which is carried out by study programs / faculties. SPMI has standards that have been set by the Regulation of the National Accreditation Board for Higher Education (PerBAN-PT) number 2 of 2019. PerBAN-PT regulates the Self Evaluation Report (LED) and Study Program Performance Reports (LKPS) to support the study program accreditation process ( Accreditation, 2019) [4]. There are nine criteria that must be considered during the accreditation process.

In the process, LED and LKPS were prepared by the East Java Veterans UPN study program/faculty. Preparation of LED and LKPS based on data that has been collected in accordance with predetermined criteria. After the LED and LKPS documents are formed, the documents are collected to the manager, namely LP3M UPN Veteran Jatim. LP3M is assisted by auditors in evaluating the results of the LED and LKPS documents. The highest score that can be given by the reviewer is four and the lowest is one. Reviewers can provide information when assessing. After the reviewer finishes assessing a document, the reviewer must print the assessment document to be submitted to LP3M.

The obstacle in the entire Internal Quality Audit process at UPN Veteran Jatim is that the process is still manual. As a result, LP3M has difficulty in monitoring the assessment results from reviewers. The application of SITEPAMIS can facilitate the integration of study program value data so that LP3M can view, compare, and make decisions regarding the results obtained. SITEPAMIS can perform document assessments, and see the graphs of each study program that can be integrated. In the first year of research, it is expected that the output will be in the form of Research Reports, Accredited National Journals, Proceedings of the Research Month seminars and Copyright.

## 2. Related Works

Previous research on SPMI has been widely carried out. Previous research is the subject of study and comparison in the preparation of the research concept to be developed. One of the studies that became a reference in this study was [5] which carried out the implementation of SPMI at the Sambas State Polytechnic using the Standard Operating Procedure method. From this research, it was found that the cooperation between university environmental components is an important part, SPMI evaluation, and SPMI evaluation results can encourage decision makers to improve the ability of implementers at universities both in terms of human resources and recommendations for the allocation of the required financial.

The next research, namely made an Internal Quality Audit Information System at Sultan Syarif Kasim State Islamic University Riau [6] The system can assist the internal quality audit process, so that it can be facilitated and the process becomes effective for both implementers and assessors. The development of the system can be implemented at UIN Sultan Syarif Kasim Riau.

The design of the Internal Quality Audit Information System Based on Study Program Accreditation Instruments (IAPS 4.0) was carried out by [7]. The method used in this research is Unified

Modeling Language (UML). The output of this research is a conceptual framework to support the Internal Quality Audit process at Universal University.

There is research on the Design of Quality Assurance Information Systems Using the Throw-away Prototyping Development Method [8]. Making throw-away prototyping by formulating design requirements in advance so as to avoid risks if the requirements have not been planned. The implementation of this quality assurance information system can run well and can facilitate the process of accessing information in the implementation of SPMI.

The roadmap for this research can be seen in the fish-bone diagram. This research is an Internal Quality Audit Assessment System with a Web-Based Scoring Method. In the future, this system can be developed using mobile technology and various methods.

In technology-based research starting from Web Technology-Based Information Systems and supported by research on Organizational Memory Information Systems at SPMI, AMI Assessment System with Web-Based Scoring Methods, SPMI Design for Higher Education in HR, Information System Design for Internal Quality Assurance Agency of STMIK Balikpapan Based on Responsive Websites, Design and Implementation of Web-based Internal Academic Quality Audit Information System using Framework, and Implementation of GraphQL and NuJX on AMI Smart System at UPN Veterans East Java. The next stage is a Mobile-Based Information System, supporting research, namely Mobile-Based Information Systems on AMI and ISO [9] Evaluations at UPN Veterans East Java, Design and Build an IPAS 4.0-based AMI Information System, PS Accreditation Information Systems at the Faculty of Computer Science and Information Technology, Mulawarman University, Designing SPMI College Software that Has the Power of Adaptation to Changes in User Needs Quickly and Often. The final target of this research roadmap is the establishment of SITEPAMIS.

**Integrated System** An integrated system can support a company or organization in its activities so that it is able to operate activities and manage data automatically [10]. Data management with an integrated system produces accurate and precise data. With an integrated system, the distribution of information becomes easier so that activities can be controlled and the top level of the organization can make decisions.

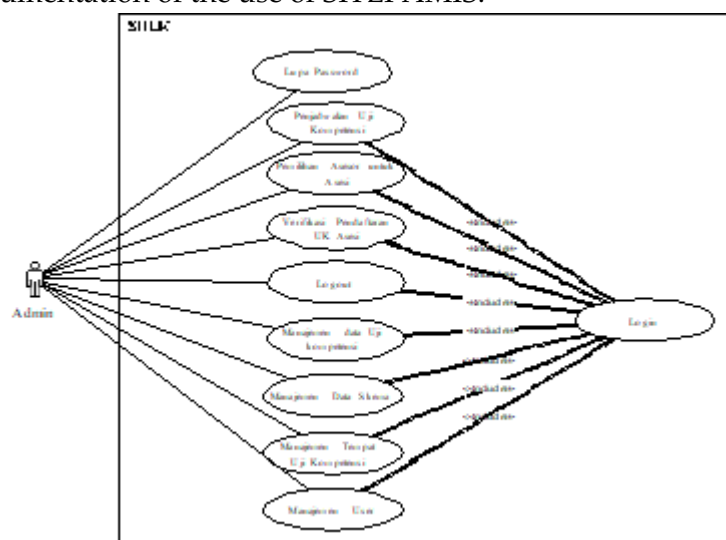
Integration of a system is done by combining similar sub-systems [11]. So that data management on the system can guarantee the accuracy and accuracy of the data. An integrated system is able to accommodate the needs of a data and information. Internal Quality Audit SPMI refers to PerBAN-PT number 2 of 2019 [12]. The preparation of SPMI documents, namely LED and LKPS, is carried out by the Study Program / Faculty. The implementation of SPMI in tertiary institutions is the determination, implementation, evaluation, control, and improvement of higher education standards (Directorate of Quality Assurance, Director General Belmawa, 2014). The criteria set out in the SPMI standard are: Availability of Work Competency Standards.

### 3. Experiment and Analysis

The research methodology used in this study is the survey results from the Head of Quality Assurance of LP3M UPN Veterans East Java and previous research literature studies. From these two activities, the idea of a state of the art concept was obtained in this study, namely the Online

Integrated System for Evaluation of Internal Quality Audits at UPN Veterans East Java. The next step is system analysis and then system design. In the system design process, namely carrying out case study descriptions, analysis of Quality Assurance System business processes, system architecture, use case diagrams, activity diagrams, sequence diagrams, class diagrams, and making system input outputs (views).

The roadmap in the first year is the development of a web-based SITEPAMIS. Then the first stage of SITEPAMIS trial with implementation on AMI and ISO at LP3M UPN Veterans East Java. In the second year, the creation of a mobile-based SITEPAMIS was carried out. Furthermore, the second stage of the SITEPAMIS trial was carried out. The final activity is the implementation of SITEPAMIS and documentation of the use of SITEPAMIS.



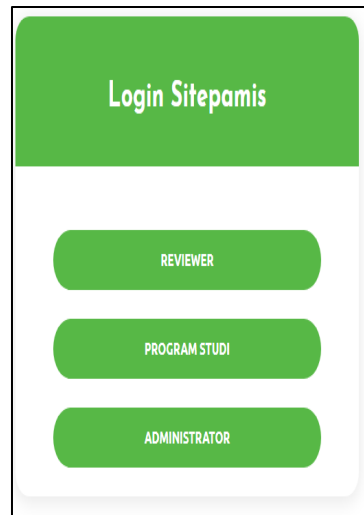
**Figure 1.** Use Case Diagram Admin

Use Case diagram is a diagram that describes the functional model of each user by using actors and use cases. In the system analysis described previously there are 3 actors involved, namely Asesi, Assessor and Admin, as shown in the picture 2.

### Use of SITEPAMIS Application

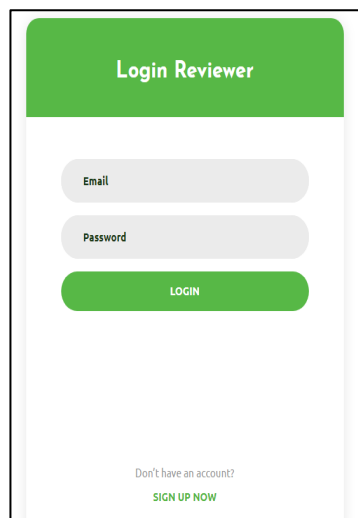
SITEPAMIS Login Page, Figure 2 Is a login page of a sitepamis with various levels contained in the system. On this page there are several login sections, including:

1. Login for Reviewers, serves to enter users with reviewer level and conduct assessments.
2. Login for the Study Program, serves to enter the user with the level of the study program and enter the data questionnaire.
3. Login for Administrator, serves to enter data input in password format.

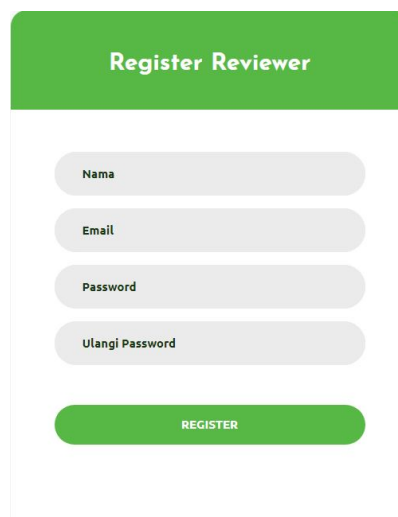


**Figure 1** SITEPAMIS Login

The Login page of SITEPAMIS, the user will select the level that the system has created for the next process. If the user has selected one of these levels, it will be redirected to the level page



**Figure 32** Login level Reviewer



**Figure3.** Register page view

After the registration process is complete, the user will get an account activation link sent to the email that has been registered. Then the user will be redirected to the account activation page.

### Account Activation page

This page serves to activate accounts that have received activation links from the system, Figure 3.6. Before the account is activated the user cannot log into the system. On this page there are several sections, including:

1. ActivationLink, to send an account activation form.



**Figure 4** Account Activation page view

After the user receives the notification in the email, then the user will verify the account so that it can be active to make an assessment.

### Home Page

After the reviewer successfully registers and logs in, then the reviewer will be directed to the main page on this Application, in this application there are various menus in it, Figure 5. Here is the menu on the home page:

1. On the home page at the top of the navbar of the application there is a Home menu, the Profile menu will go to the Home page of this Application.
2. There is an account name of reviewers who have logged in on the system service menu.
3. There is a start button, in the menu field of the system service will direct the reviewer to start filling the form.
4. Logout menu, will direct reviewers outwards using this application.



**Figure 5.** Home page view

In this home view, if the reviewer has not determined what program by admin, then the menu in the home page will only appear 2 menus namely Home and Logout. If the reviewer has been determined to assess what program by the admin, then the menu in the home page will appear 3 menus namely Home, System Services, and Logout

### Form page

On this form page will display the form that will be filled out by the reviewer before filling out the form to be received by the reviewer, Figure 3.8.

Figure 5 Form page view

The features available in the form page are already designed automatically by the system, such as being able to directly select all the menus in this form page.

### Form Filling Page

After the reviewer fills out the form that has been available, the user will be directed to the boring filling page, on this boring filling page there is a purpose that the reviewer is required to conduct a quality assurance evaluation, then the reviewer will evaluate up to 69 indicators, Figure 7.

The figure displays three sequential screenshots of a web-based evaluation form titled "Matriks Penilaian Laporan Evaluasi Diri dan Laporan Kinerja Program Studi" for a Sarjana Program. The interface includes a header with "SITEPAMIS", "Home", "Layanan Sistem", and "Logout" buttons.

The first screenshot shows the top of the form with the title and a table header. The table has two columns: "1 Elemen" and "A". The "Indikator" row is partially visible, describing external conditions and consistency with SWOT analysis.

The second screenshot shows the middle section of the form, detailing four levels of program management capability (Unit Pengelola Program Studi/UPPS) ranging from "mampu" (4) to "tidak mampu" (0). Each level includes specific tasks like identifying relevant environmental and industrial conditions and setting relative positions. Radio buttons are provided for each level.

The third screenshot shows the bottom section of the form, including a "Deskripsi Penilaian" text area, a "Skor" (Score) input field, and a "Nilai" (Value) button.

**Figure 7.** Form fill page view

reviewers will select directly and randomly the selection to be selected, then automatically the value will appear on the score input

### View Results page

After the reviewer evaluates as many as 69 indicators, then the reviewer will continue to see the results that have been filled by the reviewer, the evaluation results can be viewed table or graphically. Figure 3.10. And reviewers can see the weight that has been filled, Figure 8.



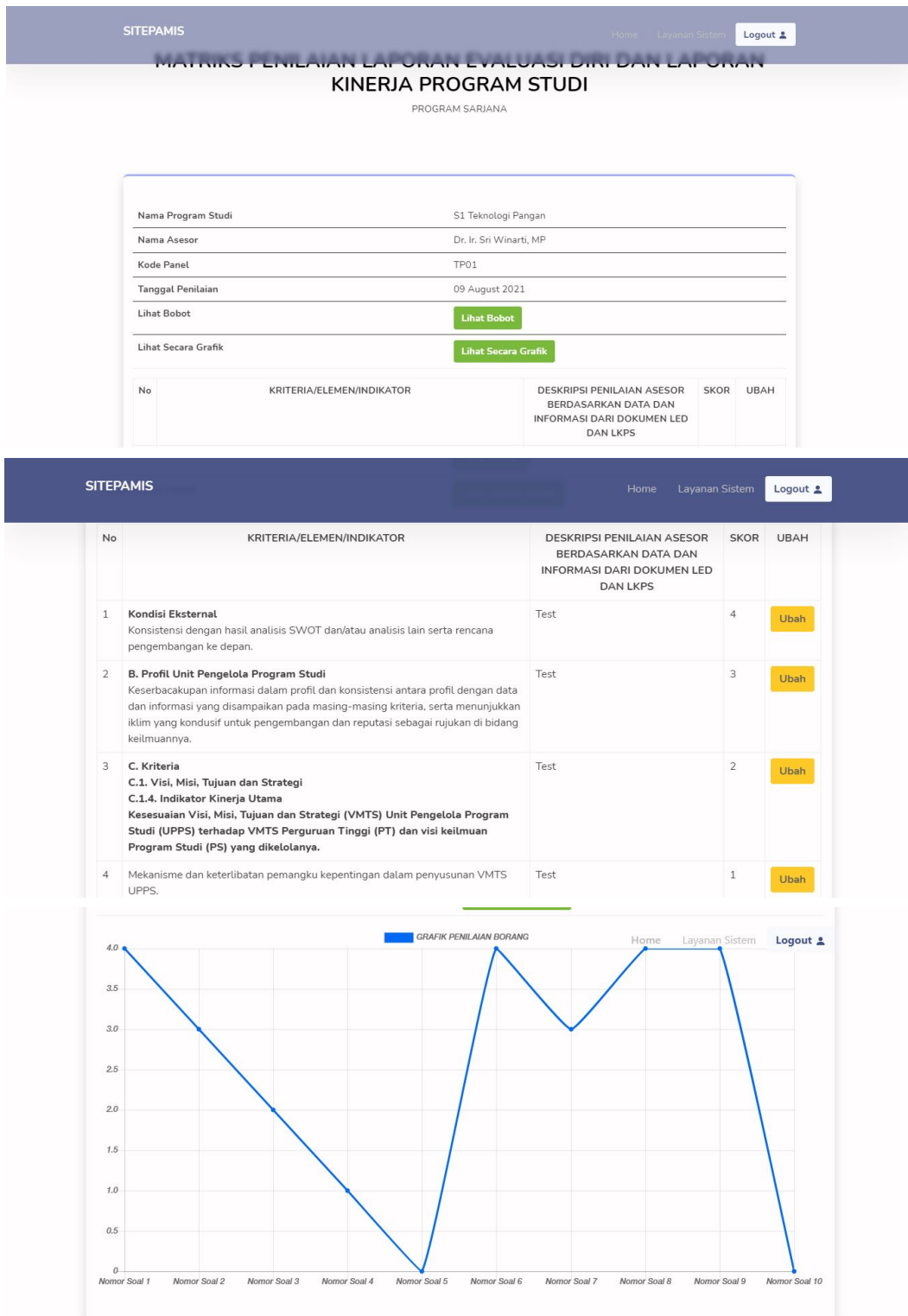


Figure 6 Page views view results in tables and graphs

No	SKOR	Bobot	SKOR x BOBOT	SYARAT PERLU TERAKREDITASI	SYARAT PERLU PERINGKAT UNGGUL	SYARAT PERLU PERINGKAT BAIK SEKALI
1	4	1.00	4			
2	3	1.00	3			
3	2	0.51	1.02			
4	1	1.02	1.02			
5	0	1.53	0			
6		0.34	0			
7		0.34	0			
8		0.68	0			
9		0.34	0			

Figure 9. Page view sees evaluation weight results

The results of the above value are obtained from the reviewer's results by filling in as many as 69 items.

**Assessor page**

On this assessor page will display evaluation data that has been filled out by reviewers. Assessors here aim so that the assessor can see, assess, and assess the results of the evaluation. Figure 9. In addition, this page also displays the results of the evaluation in a table, Figure 9.

**Asesor**

No	Email	Semester	Tahun	Action
1	rozahmad2@gmail.com	2019/2020	Ganjil	[Action]
2	rhezariqi@gmail.com	2020/2021	Ganjil	[Action]
3	163401006@student.upjtm.ac.id	2020/2021	Ganjil	[Action]
4	rhezariqi2@gmail.com	2020/2021	Genap	[Action]

Showing 1 to 4 of 4 entries

**Detail Form Asesor**

No	Program Studi	Asesor	Action
1	S1 Hukum	Dr. H. Suharno, S.H., M.Hum	[Action]
2	S1 Teknologi Pangan	Dr. Ir. Sri Winarti, MP	[Action]
3	S1 Teknologi Pangan	Dr. Ir. Sri Winarti, MP	[Action]
4	S1 Teknologi Pangan	Dr. Ir. Sri Winarti, MP	[Action]
5	S1 Teknologi Pangan	Dr. Ir. Sri Winarti, MP	[Action]

**MATRIKS PENILAIAN LAPORAN EVALUASI DIRI DAN LAPORAN KINERJA PROGRAM STUDI - PROGRAM SARJANA**

Nama Program Studi: S1 Sistem Informasi  
 Nama Asesor: Nur Cahyo Wibowo, S.Kom, M.Kom  
 Kode Panel: S101  
 Tanggal Penilaian: 23 November 2021

No	KRITERIA/ELEMEN/INDIKATOR	DESKRIPSI PENILAIAN ASESOR BERDASARKAN DATA DAN INFORMASI DARI DOKUMEN LED DAN LKPS	SKOR
1	Kondisi Eksternal Konsolidasi dengan hasil analisis SWOT dan/atau analisis lain serta rencana pengembangan ke depan.	Terpenuhi	4
2	B. Profil Unit Pengelola Program Studi Kerangka dasar informasi dalam profil dan bertanggung jawab profil dosen	Terpenuhi	2

Figure 7 Assessor page view

**MATRIKS PENILAIAN LAPORAN EVALUASI DIRI DAN LAPORAN KINERJA PROGRAM STUDI - PROGRAM SARJANA**

Nama Program Studi: S1 Teknologi Pangan  
 Nama Asesor: Dr. H. Sri Winandari, M.P.  
 Kode Post: 5912  
 Tanggal Penilaian: 08 Agustus 2023

No	KRITERIA/INDIKATOR	DESKRIPSI PENILAIAN ASesor BERKUALIFIKASI BAKU DAN INFORMASI DARI FORMULIR LEMBAR KERJA	SKOR
1	Kondisi Program	Penyusunan dengan hasil analisis SWOT dan/atau analisis lain serta rencana pengembangan ke depan.	4
2	B. Profil Unit Pengelola Program Studi	Keberhasilan referensi dalam profil dan kemampuan analisis profil dengan data dan informasi yang dikumpulkan untuk keperluan analisis, serta pengembangan dan yang bersifat untuk pengembangan dan indikator kinerja output di tingkat Universitas.	3
3	C. Kinerja	C.1. Indikator: Rujukan dan Strategi C.1.1. Indikator: Kinerja Utama Kecapaian 50, 50%, 50% dan Strategi (MKS) Unit Pengelola Program Studi (UPPS) terhadap WAKU Berperan Tiga (PT) dan Unit Induk Program Studi (UIS) yang dilaksanakan.	2
4	Melaksanakan dan melaksanakan program kepengabdian dalam perspektif WAKU LPPS.		4
5	Strategi pencapaian target dalam bentuk analisis yang sistematis, serta pada pelaksanaan/kegiatan pencapaian dan indikator yang ditunjukkan.		3

08 Agustus 2023

QR Code

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**PENILAIAN ASESMEN LAPANGAN AKREDITASI PROGRAM STUDI - PROGRAM SARJANA**

Nama Program Studi: UPPS 'Teknik' Jember Timur  
 Fakultas: Fakultas Teknik (FT)  
 Program Studi: S1 Teknologi Pangan  
 Matrik Asesmen Keahliasan: 0/0  
 Skor Asesmen Keahliasan: Tidak Terpenuhi  
 Skor Asesmen Keahliasan: Tidak Terpenuhi  
 Skor Asesmen Keahliasan: Tidak Terpenuhi

No	SKOR	BALAI	SKOR x RESPON	SIKAT PERLU PERAWAHDAN	SIKAT PERLU PERINGKAT LAMBAKA	SIKAT PERLU PERINGKAT BAKU (SKOR)
1	4	1,00	4			
2	3	1,00	3			
3	2	0,50	1,00			
4	3	1,00	3,00			
5	3	1,00	3			
6	3	0,34	0			
7	3	0,34	0			
8	3	0,34	0			
9	3	0,34	0			
10	3	0,34	0			
11	3	0,34	0			
12	3	0,34	0			
13	3	0,34	0			
14	3	0,34	0			
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62	3	0,34	0			
63	3	0,34	0			
64	3	0,34	0			
65	3	0,34	0			
66	3	0,34	0			
67	3	0,34	0			
68	3	0,34	0			
69	3	0,34	0			

Print sidebar: Destination: Save as PDF, Pages: All, Pages per sheet: 1, Margins: Default, Options: Background graphics checked.

Figure 11. Assessor Print View

This page, assessors can see all the value results of reviewers who have filled all forms as many as 69 items, the feature here can also print out the results of the assessment.

3.3.1 Study Program page

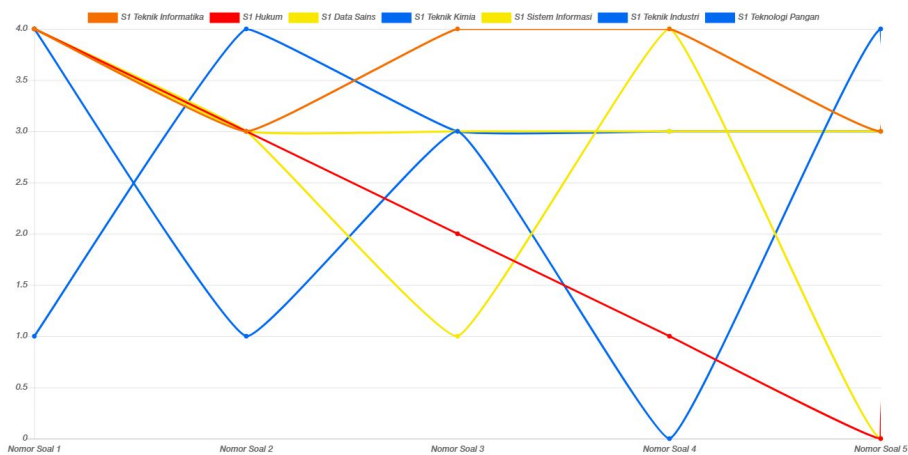


Figure 8 Study Program page view

On the page of the Study Program conducted by this Manager will display all the results of reviewer evaluation in the form of graphs, each study program and faculty has a different color, such as Seen in Figure 12.

#### 4. Conclusions

This research has completed the design and manufacture of an Integrated System for Evaluation of the Implementation of Internal Quality Audits and user-side ISO using several frameworks. Based on the results of the research that has been done, it can be concluded that the design and manufacture of SITEPAMIS through several processes, namely:

The preliminary study process is carried out by interviewing the Institute for Development and Quality Assurance (LP3M) and literature studies from studies related to SITEPAMIS and combining programming languages and other features.

The evaluation process for internal quality audits and ISO using SITEPAMIS is designed to make it easier for LP3M who have difficulty monitoring the results of the assessment from reviewers which were previously manual and web-based, now they can be used with mobile (android)

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