

A Survey on NBA Accreditation Process for Academic Institutions

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Abstract—Accreditation is a crucial mechanism for ensuring that educational institutions provide high-quality teaching and learning experiences to their students. It is a process through which the quality of an educational program is evaluated by defining and assessing program level outcomes. In India, several organizations are responsible for accreditation, with the National Board of Accreditation (NBA) being one of the most prominent. However, maintaining NBA guidelines for institutional accreditation can be challenging, particularly due to the lack of a centralized system for storing the required information. The application is designed using ReactJS, NodeJS, Json and would be designed to assist educational institutions in India with maintaining NBA guidelines for institutional accreditation by providing a centralized system for storing all necessary information. This information would be accessible to administrators and faculty members, making it easier for the institution to keep track of the information required for accreditation and simplifying the process of achieving and maintaining a certain quality level of teaching and learning. The web application would be a game changer for the educational institutions in India as it would allow them to focus on providing quality education to their students instead of getting bogged down by the administrative aspects of accreditation.

Index Terms— Accreditation, NBA, ReactJS, NodeJS, Json.

I. INTRODUCTION

Accreditation is a process by which an independent organization evaluates the quality of an educational institution or program to ensure that it meets certain standards. The process typically involves a comprehensive evaluation of the institution or program's facilities, faculty, curriculum, and student outcomes. Accreditation can be both institutional and programmatic. Institutional accreditation evaluates the overall quality of an educational institution and its ability to provide a comprehensive and high-quality education to its students. Programmatic accreditation evaluates specific programs or departments within an institution. Accreditation is important because it provides a measure of quality assurance for students, employers, and other stakeholders. Accreditation ensures that an institution or program has met certain standards and is providing a quality education. Additionally, students who graduate from an accredited institution or program are more likely to be accepted into graduate programs, and more likely to be accepted for jobs in their field. Accreditation also plays an important role in higher education by ensuring that educational institutions meet established standards in terms of faculty qualifications, facilities, and curriculum. Accreditation serves as a quality assurance mechanism for educational institutions and programs, ensuring that they meet certain standards and that the education they provide is of a

certain quality.

The National Board of Accreditation (NBA) is an autonomous organization in India that is responsible for evaluating the quality of technical education offered by educational institutions. It was established by the All India Council for Technical Education (AICTE) in 1994 with the goal of ensuring that technical education in India meets international standards. The NBA assesses and accredits undergraduate and postgraduate programs in engineering, technology, and management offered by institutions in India. The accreditation process involves a comprehensive evaluation of the institution's facilities, faculty, curriculum, and student outcomes. Institutions that meet the NBA's guidelines are granted accreditation for a period of 3-5 years, after which the accreditation must be renewed through a re-evaluation process. The NBA's accreditation process is based on international best practices, and it is recognized by several international accreditation bodies. Accreditation by the NBA is considered a mark of quality and is highly respected in the Indian technical education sector. It is mandatory for all technical institutions in India to seek accreditation from the NBA for all their programs in order to be eligible for various government grants and student loans. In summary, The National Board of Accreditation (NBA) is an autonomous organization in India that evaluates and accredits undergraduate and postgraduate programs in engineering, technology, and management to ensure that they meet international standards and that educational institutions meet the required guidelines set by NBA.

ReactJS is a JavaScript library for building user interfaces. It was developed and is maintained by Facebook and is now widely used by many organizations and individuals to build web applications. ReactJS allows developers to build reusable UI components that can be easily composed to create complex user interfaces. It uses a virtual DOM (Document Object Model) to efficiently update the view when data changes, which improves the performance of web applications. ReactJS follows a component-based architecture, which means that the user interface is divided into small, self-contained components that can be easily reused and combined. Each component manages its own state and can be rendered independently of the rest of the application. This makes it easy to build large, complex web applications that are easy to maintain and understand. ReactJS also supports a feature called JSX, which allows developers to write components using a syntax that looks similar to HTML. JSX makes it easy to understand the structure of the component and how it is rendered on the page. ReactJS is often used in combination with other libraries and frameworks, such as Redux or Mobx, to manage the state of the application. This allows developers to easily manage the data flow in the application and make it more predictable. Overall, ReactJS is a powerful and flexible JavaScript library that makes it easy to build complex, high-performance web applications. Its component-based architecture and virtual DOM provide a clear separation of concerns, making it easier to develop, test, and maintain large web applications.

Node.js is an open-source, cross-platform JavaScript runtime environment that allows developers to run JavaScript code outside of a web browser. It is built on Chrome's V8 JavaScript engine, and it allows developers to create server-side applications with JavaScript. Node.js provides an event-driven, non-blocking I/O model, which makes it well-suited for real-time, data-intensive applications that run across distributed devices. Node.js provides an easy way to create networked applications, such as web servers, and it has a large and active community of developers who contribute to its development and maintenance. With Node.js, developers can use the same language for both front-end and back-end development, which can simplify the development process and increase productivity. Node.js also has a large ecosystem of modules, known as npm (Node Package Manager), which can be easily installed and used in Node.js applications. These modules provide functionality for a wide range of tasks, such as data storage, authentication, and data processing, which can help developers to build sophisticated and powerful applications quickly.

II. OBJECTIVE

The objective of the proposed web application is to simplify the process of maintaining information required for institutional accreditation by the National Board of Accreditation (NBA). By creating a centralized system for storing data, the application aims to assist educational institutions in meeting NBA guidelines more efficiently. The application is designed to be user-friendly, allowing for easy input and retrieval of information by college faculty members and administrators. It also allows for the real-time validation of the inputted data to ensure that all the required information is provided and in the correct format. By providing an easy-to-use tool, the application hopes to reduce the burden on institutions and enable them to focus on providing quality education to their students. Furthermore, it will enable the institutions to be compliant with NBA guidelines and be recognized for their quality of education.

III. EXISTING SYSTEM

The existing system for maintaining information required for institutional accreditation by the National Board of Accreditation (NBA) is generally manual. This means that institutions must gather and compile information on their own, without the aid of a centralized system. The process typically involves collecting data from various sources, such as course syllabi, faculty and staff records, and student performance records. This information is then compiled into a document that follows the template of the NBA manual for Tier II institutions. This process can be time-consuming and prone to errors, as it relies on manual data entry and the accuracy of the information provided. Additionally, the process may not be transparent to all the stakeholders, and the data may not be easily accessible or updated in real-time.

IV. LITERATURE SURVEY

[1] ERP System Adoption Traditional ERP Systems vs. Cloud-Based ERP Systems

The proposed idea, presented by Abdullah A. Al-Ghofaili and Majed A. Al-, is to offer organizations three alternative approaches for adopting ERP systems based on their security rate, investment level, and organizational size. The paper presents the use of cloud computing technology as a new, non-traditional approach to ERP systems adoption. The authors also compare and contrast the three approaches presented in the paper to help organizations make an informed decision about which approach best suits their needs. This proposal aims to provide organizations with a range of options to consider when adopting ERP systems, taking into account factors such as security, investment, and organizational size. It is a valuable resource for organizations looking to leverage the benefits of ERP systems while also ensuring that their specific needs are met.

[2] A Web-Based Program Outcome Assessment Tool

Amir A. Khwaja proposed a web-based tool that aims to evaluate the quality of teaching and learning in a specific program. The tool utilizes a mapping system that connects course assessment results with program outcome rubrics. This allows for a clear understanding of which courses may be contributing to a lower quality of education in specific areas. The tool presents the program outcome assessment results in a user-friendly format, including color-coded tables and bar charts for easy interpretation and analysis. Additionally, the tool can also help educators identify areas in need of improvement and make informed decisions about curriculum changes. Furthermore, this web-based tool can also help in evaluating the program's effectiveness by providing insight into student learning outcomes. Thus, it can be a valuable resource for educational institutions to improve the quality of education they provide.

[3] Assessment of Program Outcomes Using Direct and Indirect Methods

Dr. Kiran Bailey, K. Sujatha, Dr. A. Meera and Dr. G. Poornima, provide insights into the evaluation process used in departments to measure the outcomes of educational programs. The focus of the evaluation process is on the Program Outcomes (POs) defined by the National Board of Accreditation (NBA). The authors explain that for each course, the course outcomes (COs) are carefully articulated in alignment with the POs. This ensures that the COs are directly linked to the POs and contribute to the overall assessment of the program's quality. The evaluation process typically includes multiple methods such as assessments, quizzes, exams, projects, and presentations to measure the COs and POs. The paper also highlights the importance of continuous improvement in the evaluation process. The authors suggest that the evaluation process should not be a one-time event but rather an ongoing process that allows for the identification of strengths and weaknesses in the program and the implementation of necessary changes.

[4] Innovative Workflow for Accreditation Process to Ensure Quality Engineering Education in India

Dr. U.P.Kulkarni and Prof. K.C.Shindhe presents a new workflow for accreditation activities aimed at ensuring a quick, transparent, easily accessible, and academic fraud-free accreditation process to ensure the quality of engineering education in India. The proposed workflow incorporates the use of technology to streamline the accreditation process and make it more efficient. The authors propose a system that allows for the participation of local universities in the evaluation process, and also makes it easy for all stakeholders, particularly students and parents, to access the information they need to make informed decisions about which colleges to attend. The use of technology in the accreditation process is also intended to increase transparency and reduce the risk of fraud. The proposed workflow is designed to make the accreditation process more efficient and accessible, thus improving the quality of engineering education in India. It also addresses the need for the participation of local

universities in the evaluation process, and makes it easy for all stakeholders to access the information they need to make informed decisions.

[5] Evolution Of Outcome Based Engineering Education In India – A Case Study

P S Mayurappriyan, N Loganathan, M Shanmugapriya, P Anbarasu, P K Adhi Sakthi presents a case study of assessing the attainment of program outcomes for an Electrical and Electronics Engineering program based on the direct and indirect assessment methods as laid down by the National Board of Accreditation (NBA). The study focuses on the Outcomes-Based Education (OBE) approach, which is a method of measuring student achievement by evaluating the program outcomes in knowledge, skill, and attitude. The authors used both direct and indirect assessment methods to evaluate the attainment of program outcomes. Direct assessment methods include traditional forms of evaluation such as exams, quizzes, and assignments, while indirect assessment methods include surveys, interviews, and observations. The authors found that a combination of both direct and indirect assessment methods provided a more comprehensive evaluation of student achievement. The OBE approach, which is used in the case study, provides a platform for students to learn at their own pace and be evaluated based on their attainment of program outcomes. This approach allows for a more flexible and personalized learning experience, and it is aligned with the NBA guidelines for accreditation.

[6] Role of Accreditation in Engineering Education

Dr. Narendra Kohli explains the need for accreditation in educational institutions. The author emphasizes that accreditation is a process that ensures that an institution or a particular educational program meets certain standards set by accrediting bodies. Accreditation serves as a quality assurance mechanism for educational institutions, and it helps to ensure that the education provided by the institution is of a certain quality. The paper also explains that accreditation is carried out by several organizations in India, with the National Board of Accreditation (NBA) being one of the most prominent. The NBA is an autonomous organization that evaluates and accredits undergraduate and postgraduate programs in engineering, technology, and management to ensure that they meet international standards. Accreditation by the NBA is considered a mark of quality and is highly respected in the Indian technical education sector. The paper highlights that accreditation is important because it provides a measure of quality assurance for students, employers, and other stakeholders. It ensures that an institution or program has met certain standards and is providing a quality education. Additionally, students who graduate from an accredited institution or program are more likely to be accepted into graduate programs, and more likely to be accepted for jobs in their field.

[7] Evolving Accreditation Criteria For Engineering Programs: Indian Experience

B. S. Sonde discussed the evolution of accreditation criteria for engineering programs by the Indian National Board of Accreditation (NBA). The NBA is a body established to enhance the quality, standard, relevance, excellence, and extent of engineering education in India. The paper provides an overview of the NBA's accreditation criteria, including the requirements that institutions must meet in order to be accredited. The paper also highlights how the NBA's accreditation criteria have evolved over time, as the organization has continuously sought to improve the quality of engineering education in India. The author explains that the NBA's criteria have been updated to reflect the changing needs and expectations of the industry and society, as well as advances in technology and pedagogy. The paper also highlights the importance of accreditation for engineering education in India, stating that the quality, standard, relevance, excellence and extent of engineering education in any country are crucial to its economic and industrial progress, as well as its technical leadership in the knowledge-dominated world of today. It also highlights that the NBA's accreditation criteria are aligned with the National Assessment and Accreditation Council (NAAC) which is another accreditation body for Indian universities.

[8] A Successful Experience of ABET Accreditation of an Electrical Engineering Program

Sulaiman A. Al-Yahya and Mohammed A. Abdel-halim explains the procedures and factors that led to the accreditation of the College of Engineering at Qassim University in Buraidah, Saudi Arabia by the Accreditation Board for Engineering and Technology (ABET). The authors take the Electrical Engineering (EE) program as an example to illustrate the steps that were taken to implement a system that ensured a high-quality program and eventually led to ABET accreditation. The paper describes the steps that were taken to meet the ABET accreditation criteria, including the development of a comprehensive curriculum, the implementation of a robust student assessment system, and the establishment of a continuous improvement plan. The authors also discuss the various challenges that were encountered during the accreditation process and the strategies that were used to overcome them. The paper emphasizes the importance of involving all stakeholders in the accreditation process,

including faculty, staff, students, and alumni. It also highlights the importance of clear communication and effective planning to ensure that the accreditation process runs smoothly.

V. PROPOSED SYSTEM

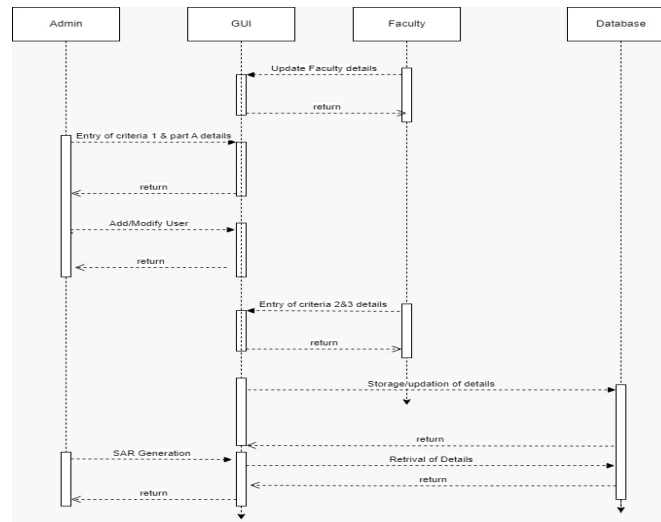


Fig. 1. Workflow Diagram

To overcome the issues of the existing system, an improvised system is proposed with the additional features which includes a web application that provides a centralized system for storing data, allowing for easy input and retrieval of information by college faculty members and administrators. This will ensure that the data is accurate and up-to-date and it will also simplify the process of generating NBA report. The application will be designed to be user-friendly, with clear instructions and fields for users to input the required information. This will make it easy for faculty members and administrators to input data, reducing the burden on them. The application will allow for the easy conversion of stored data into a document that follows the template of the NBA manual for Tier II institutions, thus reducing the time and effort required to generate a report.

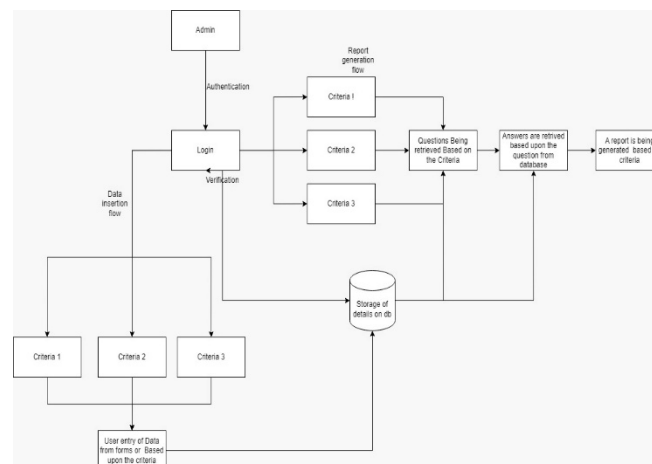


Fig. 2. System Flow Diagram

VI. CONCLUSION

The proposed web application aims to simplify the process of maintaining information required for institutional accreditation by the National Board of Accreditation (NBA). The portal is designed to store information based on the first three criteria provided by NBA guidelines, which include Curriculum and syllabus, Faculty and infrastructure, and Student performance and achievements. The information stored in the portal can be easily converted into a document that follows the template of the NBA manual for Tier II institutions. This eliminates

the need for faculty members to manually gather and compile information, saving them time and effort. The application is intended for use by college faculty members and administrators. Faculty members can input information related to their courses, while administrators can input information related to the overall functioning of the institution. This allows for a collaborative effort in generating the NBA report and ensures that all relevant information is included.

REFERENCES

- [1] Abdullah A. Al-Ghofaili and Majed A. Al-Mashari (2014) "ERP System Adoption Traditional ERP Systems vs. Cloud-Based ERP Systems", 2014 Fourth edition of the International Conference on the Innovative Computing Technology.
- [2] Amir A. Khwaja (2018) "A Web-Based Program Outcome Assessment Tool" 2018 21st Saudi Computer Society National Computer Conference.
- [3] Dr. Kiran Bailey, K. Sujatha, Dr. A. Meera and Dr. G. Poornima (2017) "Assessment of Program Outcomes Using Direct and Indirect Methods," 2014 IEEE International Conference on MOOC, Innovation and Technology in Education (MITE).
- [4] Dr. U.P.Kulkarni and Prof. K.C.Shindhe (2013) "Innovative Workflow for Accreditation Process to Ensure Quality Engineering Education in India.," Proceedings of 2013 IEEE International Conference on Teaching, Assessment and Learning for Engineering (TALE).
- [5] P S Mayurappriyan, N Loganathan , M Shanmugapriya, P Anbarasu , P K Adhi Sakthi (2021) "Evolution Of Outcome Based Engineering Education In India – A Case Study", 2021 7th International Conference on Advanced Computing and Communication Systems (ICACCS).
- [6] Dr. Narendra Kohli (2014) "Role of Accreditation in Engineering Education," 2014 IEEE International Conference on MOOC, Innovation and Technology in Education (MITE).
- [7] B. S. Sonde (2011) "Evolving Accreditation Criteria For Engineering Programs: Indian Experience" 2011 International Workshop on Institutional and Programme Accreditation: Connections and Opportunities.
- [8] Sulaiman A. Al-Yahya and Mohammed A. Abdel-halim (2013) "A Successful Experience of ABET Accreditation of an Electrical Engineering Program" IEEE Transactions on Education.