INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 15, Issue 11, (2025) E-ISSN: 2222-6990

Academic Management System for Accreditation and Quality Assurance in Higher Education

Mohammad Syuhaimi Ab-Rahman
Department of Electrical, Electronic & System Engineering, Universiti Kebangsaan Malaysia
43650 UKM Bangi Selangor, Malaysia

Iszan Hana Kaharudin
Pusat Pengajian Citra Universiti, Universiti Kebangsaan Malaysia, 43600 UKM Bangi,
Selangor, Malaysia

DOI Link: http://dx.doi.org/10.6007/IJARBSS/v15-i11/26910

Published Date: 26 November 2025

Abstract
Accreditation and quality assurance requirements often create a fragmented documentation process and a heavy workload for academic staff, particularly in engineering programs that adopt Outcomes-Based Education (OBE). This paper proposes a holistic academic management system designed to streamline accreditation compliance and enhance institutional quality assurance. The study reviews existing accreditation frameworks and integrates three main domains program establishment, systematic evaluation, and continuous quality improvement (CQI) into a structured model of academic management. By aligning Program Educational Objectives (PEO) and Program Outcomes (PO) with stakeholder expectations, the model ensures that graduates are equipped with relevant competencies and remain competitive in the industry. The proposed system not only reduces redundancies in accreditation reporting but also optimizes lecturers' workload and promotes sustainable quality improvement. This contribution highlights the importance of a structured management and documentation process in supporting accreditation bodies while strengthening higher education institutions' reputation and graduate employability.
Keywords: Academic Management System, Accreditation, Outcome Based Education (OBE), Continuous Quality Improvement (CQI), Quality Assurance In Higher Education, Graduate Employability

Introduction

Quality assurance has become a central pillar in shaping the credibility, accountability, and competitiveness of higher education institutions worldwide. In an era marked by rapid technological advancement, global mobility, and increasing stakeholder expectations, universities are required to demonstrate not only academic excellence but also the ability to produce graduates with competencies aligned to industry and societal needs (Adewale et al., 2023; Hassan & Tan, 2025). Consequently, accreditation has emerged as a key mechanism to

evaluate institutional performance, ensuring that academic programs meet established standards while supporting continuous improvement and international recognition.

Within engineering education, accreditation frameworks such as the Washington Accord (1989) and the Accreditation Board for Engineering and Technology (ABET) have played a pivotal role in harmonizing global standards. These frameworks promote substantial equivalence, facilitate graduate mobility across member countries, and strengthen institutional accountability (Aung, Z.W et al., 2024; Kumar et al., 2025). In Malaysia, alignment to the Washington Accord and outcomes-based education (OBE) has formed the backbone of engineering program quality, requiring institutions to maintain clear Program Educational Objectives (PEO), measurable Program Outcomes (PO), and structured Continuous Quality Improvement (CQI) cycles.

Despite the perceived benefits, accreditation processes remain administratively demanding. Recent studies highlight persistent challenges, including fragmented documentation systems, inconsistent implementation of OBE, and substantial workload burdens on academic staff and program coordinators (Othman et al., 2024). Documentation requirements, cyclical audits, and repeated evidence gathering often lead to redundancies, inefficiencies, and uneven quality assurance practices across departments. From a theoretical perspective, quality assurance is most effective when institutional processes—planning, assessment, reporting, and improvement—are integrated within a coherent management system. However, existing practices in many higher education institutions tend to operate in silos, resulting in limited alignment between academic operations and accreditation expectations.

A review of contemporary literature reveals a significant research gap. While substantial work has examined accreditation frameworks, OBE implementation, and quality assurance mechanisms, limited studies have proposed an integrated academic management model that consolidates PEO, PO, and CQI within a unified institutional structure (Adewale et al., 2023; Hassan & Tan, 2025). Most existing research focuses on describing accreditation requirements rather than addressing the operational inefficiencies faced by institutions. As a result, there is a pressing need for a holistic system that reduces documentation redundancy, enhances data consistency, and supports strategic decision-making for accreditation readiness.

Addressing this gap, the present study proposes a Holistic Academic Management System that synthesizes accreditation requirements, OBE principles, and CQI practices into a single structured framework. The model aims to streamline academic management, reduce administrative burden, and ensure alignment with both national and international accreditation standards. By providing a systematic approach to planning, documentation, evaluation, and improvement, the proposed framework offers a practical solution for enhancing institutional quality assurance and strengthening overall accreditation performance.

Literature Review

Accreditation and Quality Assurance in Higher Education

Accreditation serves as a critical mechanism for ensuring the credibility, quality, and competitiveness of higher education programs. It provides a structured framework for evaluating institutional performance, aligning academic standards with industry expectations, and fostering continuous improvement (Adewale et al., 2023; Othman et al., 2024). International frameworks such as the Washington Accord (1989) recognize the substantial equivalence of accredited engineering programs across member countries, thereby facilitating graduate mobility and global recognition (Washington Accord, 2007; Memon et al., 2009). Complementary initiatives, including the Dublin Accord and Sydney Accord, extend similar principles to other professional disciplines, further strengthening the international harmonization of accreditation standards.

In parallel, the Accreditation Board for Engineering and Technology (ABET) in the United States has become a benchmark for engineering, computing, and applied sciences programs. Some countries have even adopted ABET standards as a de facto national quality benchmark, underscoring the global influence of international accreditation bodies (Ralph et al., 2013). These developments indicate a global trend toward harmonizing accreditation frameworks and embedding outcomes-based education (OBE) principles as the foundation of modern quality assurance systems (Hassan et al., 2025).

Outcomes-Based Education (OBE)

Most accreditation frameworks emphasize Outcomes-Based Education (OBE), which shifts the focus from teaching inputs to measurable learning outcomes. OBE requires universities to ensure that graduates achieve specific competencies aligned with industry and societal needs (UNESCO, 2007). In Malaysia, OBE has been institutionalized as the foundation of engineering education, where curricula must be systematically designed to meet industrial requirements and supported by continuous assessment to ensure graduate readiness (Chowdhury et al., 2013).

Accreditation of engineering programs is therefore evaluated based on clearly defined educational objectives and outcomes. Programs must establish outcomes that reflect the skills and abilities demanded by stakeholders, supported by assessment mechanisms for continuous improvement and properly documented results. By emphasizing outcomes rather than processes, OBE strengthens engineering education by integrating academic knowledge with employability skills, lifelong learning, and professional attributes. A systematically planned curriculum, aligned with both industrial and academic needs, is thus regarded as one of the most critical components of OBE implementation in Malaysia.

Global Accreditation Frameworks

Malaysia's admission as a full signatory of the Washington Accord (WA) in 2009 marked a significant milestone in the international recognition of its engineering education. As a permanent member, undergraduate engineering programs offered by local institutions are recognized as equivalent to those in established higher education systems such as the United States, United Kingdom, Australia, Japan, and Singapore. This recognition benefits thousands of students across more than a hundred accredited engineering programs in the country (Memon et al., 2009).

The advantages of WA membership are multifaceted. From a quality perspective, Malaysian engineering programs are benchmarked against international standards, which enhances competitiveness among local universities. The Accord also strengthens graduate mobility, enabling Malaysian engineers to seek employment abroad while simultaneously attracting foreign students to local institutions. In addition, membership expands study and career opportunities, as it facilitates faculty exchanges, joint research initiatives, and broader international collaborations. The Accord also reinforces standardization, ensuring that Malaysia's four-year engineering degree is recognized as substantially equivalent to similar qualifications in other member countries. Finally, WA membership contributes to the visibility and marketability of Malaysian engineering programs, thereby improving student enrolment and positioning local institutions more prominently in the global education landscape.

Challenges in Accreditation Implementation

Despite its benefits, accreditation is often perceived as burdensome due to its documentation-heavy and review-intensive processes. Academic staff frequently face increased workloads, redundant reporting, and multiple committee reviews, which can detract from their teaching and research responsibilities (Hidalgo et al., 2011; Ralph et al., 2013).

Moreover, while accreditation bodies clearly outline what outcomes must be achieved, they provide less guidance on how institutions should design internal systems to effectively manage documentation, assessment, and continuous improvement (Adamu, 2012). This gap creates inefficiencies, where accreditation becomes a compliance exercise rather than a driver of meaningful quality enhancement.

Research Gap

Existing studies have extensively discussed accreditation frameworks, OBE practices, and quality assurance requirements (Gray et al., 2009; Abdullah et al., 2016; Yusoff et al., 2017; Duarte et al.,2023). However, limited research has focused on developing a holistic academic management system that consolidates Program Educational Objectives (PEO), Program Outcomes (PO), and Continuous Quality Improvement (CQI) into a unified framework.

Moreover, the current accreditation process itself presents significant operational challenges. It is resource-intensive, involving repetitive reviews, extensive documentation, and multiple committee meetings, which increase the administrative workload of academic staff. Accreditation is also a continuous cycle rather than a one-time exercise, requiring structured planning and coordinated management at various institutional levels. Without a clear and efficient platform to support these processes, institutions risk treating accreditation as a compliance exercise rather than a mechanism for genuine quality enhancement.

Addressing this gap, the present study proposes a holistic academic management system designed to streamline documentation, reduce redundancy, optimize lecturers' workload, and enhance institutional quality assurance and continuous improvement efforts.

Methodology

This study adopts a conceptual framework approach to develop a holistic academic management system that integrates accreditation requirements, outcomes-based education

(OBE) principles, and continuous quality improvement (CQI) practices. Rather than collecting primary data, the research focuses on synthesizing existing frameworks, standards, and best practices into a structured model that can guide institutions in managing accreditation more efficiently. The methodology involves three main stages:

Document Analysis
Relevant accreditation frameworks and quality assurance guidelines were reviewed, including international standards such as the Washington Accord, ABET criteria, and national accreditation guidelines from the Board of Engineers Malaysia (BEM). These documents provided insights into key requirements for program accreditation, particularly those related to Program Educational Objectives (PEO), Program Outcomes (PO), and CQI processes.

Benchmarking Best Practices
A comparative analysis of international accreditation practices was conducted to identify common components and gaps in current institutional approaches. Benchmarking focused on how leading institutions structure their academic management systems to ensure compliance, efficiency, and continuous improvement.

Framework Development
Based on the findings from the first two stages, a holistic academic management system framework was developed. The framework integrates three core domains PEO, PO, and CQI into a single structured model. The primary objective is to streamline accreditation documentation, reduce redundancies, and support systematic quality enhancement.

This conceptual approach allows for the development of a scalable and adaptable model that can be implemented across different programs and institutions, aligning with both national and international accreditation standards.

Findings And Discussion
Overview of the Holistic Academic Management System
Three main domains that should be included in any engineering program are the development on the IHL direction (establishment), evaluation process (assessment) and continuous quality improvement (CQI) efforts (Yusof et al. 2017). Two targets are set: first being the current target and secondly the future target. The current target is to achieve necessary competency by students at the end of each semester. The future target is deliberately required of alumni to achieve specific competency after the completion of their studies. Both of these targets Program Educational Objectives (PEO) and Program Outcomes (PO) complement each other and are related to fulfill the stakeholders' requirements. PEO is distributed to graduates after they have completed at least 4 years in their respective work field. PO is distributed to current students at the end of each semester during their studies. PO incorporates the knowledge, skills and awareness that need to be attained by students who are graduating with a set of standard criteria to equip them to become successful engineers. Both PEO and PO should be measured and analyzed to find out the achievement level of each program. Any weakness must be improved in stages with proper CQI planning. The measurement processes should be carried out by two different committees. These committees should be formed at the department or faculty level that focuses on developing communication and database, assessment instruments on data analysis and finally the program design improvements. Some

of the activities include monitoring performances, reviewing examiners' comments, and digesting valuable inputs and feedback from alumni, stakeholders and industrial advisory panels (Kahveci et al., 2012).

Program Educational Objectives (PEO)

PEOs are broad and flexible statements that describe what graduates are expected to attain within a few years after graduation (normally 4 years and above) during their personal career. The establishment of PEO is based on the needs of program's constituencies / stakeholders' expectations and interest. PEO is sometimes defined as extraordinary features that differentiate an institution graduate from other graduates' attainment. The domains that are usually used in the PEO statements are sustainability, leadership, ethics, lifelong learning (L3), Malaysian aspiration, economic development, competency, entrepreneurship etc. In fact, ABET has not fixed the domain in the university PEOs' statement, rather it was determined by the university itself through a systematic and structured process. PEO needs to be documented, published and made known to all interested parties with clearly defined university's mission and vision.

The process of setting PEO will involve three processes which are establishment, assessment and quality improvement. Two methods of assessment can be applied to measure the attainments of alumni which are indirect and direct measurement methods. Direct measurement defines the actual attainment of alumni, and this can be achieved by conducting survey. The question must be devised strategically and indirectly to reflect the actual attainment of the alumni (Rahman et al. 2017).

Meanwhile, the indirect method can be implemented by mapping the PO attainment with PEO. The analysis is done by mapping the PO attainment with respect to PEO. The indirect assessment is important to predict the PEO attainment before the students enter the actual work field before graduation. However, the direct and indirect methods used have to be correlated. ABET has not defined the method of assessment rather than letting the university determine the suitable method to assess the alumni attainment level. A clear linkage between PEO and PO attainment should exist throughout the establishment process and be properly documented.

While mission and vision of a university is permanently fixed for a certain period, PEO is more flexible and requires revision in the range of 3 to 5 years with the consultation of alumni and the stakeholders. The domains in the PEO statement must be revised for its relevancy and consistency with the mission and vision. The most important document needs to be prepared is the minute of meeting with stakeholders (normally every 3 years). The deliberation of this meeting and discussion should be recorded as minutes of meetings. Having more and various stakeholder is better in order to have significant demanded domain expressing interest among different groups. In every PEO, domain statement is very important because it determines the direction and the future roadmap of the program. The domain must be congruent with existing PO (proposed by EAC) but not limited to the given framework. The domains of PEO must be specific, measurable, attainable, realistic, and timely. PEO evaluation is done by means of assessment and examining findings based on objective evidence.

In order to strategize the process, a new platform of EAC preparation is highly recommended. PEO needs to be synchronous for every department in the faculty that is handled by a specific committee under the supervision of Vice Dean (Student and Alumni). Alumni liaison committee is also responsible on devising the survey questions, analyzing survey forms and proposing improvement effort in solving and minimizing any discrepancies. Objective development program will involve in the following areas of domain formulation process: Involvement of Stakeholders as strategic partnership, Assessment Process and Tools for achieving PEO, Performance Analysis of PEO and Management Academic CQI. The involvement in establishing, assessment and continuous improvement is important for meeting the targets and stakeholders' interest.

Program Outcomes (PO)

Formulation of the program output must be made clear as per that required in the EAC manual of 12 performance indicators. The program outcomes are very specific to attain certain program outcomes leading to specified program objectives (Yusof and Rahman 2016). The graduates should be empowered with the fundamental engineering knowledge. In their early careers, they are likely to engage in technical functions. But as they get more experienced, they often take other responsibilities, which require managerial and social skills. Therefore, engineering education should empower graduates with certain predefined abilities irrespective of their discipline (Abdullah et al. 2016).

PO is the domain that should be included in prospective/graduate engineers. Domains are standard and set by the Washington Accord. In Malaysia, the body in charge of coordinating all accredited engineering program is Board of Engineers Malaysia (BEM) and supported by Accreditation Engineer Department (EAD). There are 12 suggested POs outlined in the manual and disclosure for guidelines. EAC has three major domains of Affective, Cognitive and Psychomotor. All domains must be achieved by the graduates. The institution is responsible for revealing and teaching each of these domains, measuring students' performance, measuring the achievement of PO and exercising for improvement. Every department must have a coordinator who helps the head of the program in managing the evaluation and analysis of PO. In ABC case, the UP3 coordinator is set in each department under the supervision of the Deputy Dean. All PO results should be reported to the Deputy Dean and discussed in the departmental meeting. PPA has developed a system named *i*-CGPA to measure the results of the program and is used throughout the evaluation.

Results of the development program will involve all 12 domains as shown in the EAC Manual 2012. This includes the process of drafting / revision, involvement of stakeholders, PO assessment process and tools used, PO performance analysis, CQI, affective, cognitive and psychomotor domains measurement.

Academic Curriculum

An academic curriculum is monitored by the program coordinator. Coordinator works to ensure that the curriculum offered is up to date and meets the needs of stakeholders. Thus, each engineering program must have a benchmark with the programs offered in order to offer better education services. Apart from that, each taught syllabus should also get the attention of stakeholders. The department should conduct an assessment on the course by the industry needs and at least run benchmarks with its programs from leading universities. Department

course assessment report should be included as a mandatory document. CBC party updates file management and provides the Department with specific file 111 Code Regarding Accreditation materials to accommodate all minutes of meetings related to the CQI program.

Academic curriculum development involves the following matters namely credit hours, engineering courses and course number, social and community activities, generic skills assessment - rubric, instructional innovation and assessment, PO evaluation system structure, final year project, industrial training, exposure to career and technology engineering, benchmarking and industry review, by mapping out the outcomes to related curriculum activities and course syllabi coverage of the program scope intended.

Student

One of the main accreditation objectives is to equip students with necessary skills that will be crucially needed for their employability. International student mobility in tertiary education has been growing rapidly which stresses the need for quality assurance to be implemented (Hou, 2012). Mutual recognition is important because this provides a standard quality of degree programs. Their abilities can be measured and demonstrated through discussions, technical evaluation, presentation and Q & A conducted during EAC visits (Domingo et al., 2013). There are three groups of students who were evaluated as good, average and poor. During the interviews, the students for any given input are the main source for evaluating the programs and services provided. Focusing on learning outcomes assessment program is to evaluate the programs offered instead of students' performance alone. However, academic achievement can be used to assess student learning outcomes of programs. The basic thing that will determine the maturity of a program is a system of students' development. The Department of Student Development is developed to manage students' progress through classifying, monitoring, organizing activities to enhance students' progress. EAC will see a list of organized activities carried out and its effectiveness. Although it is not part it, it needs to complement the well-established academic system. Student Division includes the following areas of Admission, Student Development Program, Student Classification of credit transfer/exemption, schedule workload, and Process and Impact of Student Development Process (e.g. students' organization, activities, social, etc)

Academic & Supportive Staff

Although the implementation of the accreditation system creates necessary burden to both academic and support staffs, the benefit it serves is worth a lot more than the hardship endured. According to Hidalgo et al. (2011), teachers, students and graduates agree to allow the initiation of accreditation system at their university which has not implemented any equivalent system yet. Different accreditation programs have quite similar structures because they are usually based on a single quality assurance system. For Washington Accord, academic qualifications and competency of lecturers are fixed with minimum of 8 lecturers per program. OBE program approach is development towards increasing number of professional engineers, motivational lectures, and promotional criteria are found imperative in meeting the criteria for accreditation bodies. Apart from the number of technicians required to work in each laboratory, staff career development programs, appraisal system and employee welfare, workload are highly praised. This is important in ensuring the academic management system runs properly and to create conducive environment in producing future caliber engineers. Sufficient support on the educational program in technical and administrative staff

is necessary. Academic and support staff will see opportunity of development in the following: academic and professional qualifications, experience and development, research, publishing and consulting, industrial attachment, load instruction/clock respect, motivation, visiting lecturer from industry and awareness of OBE.

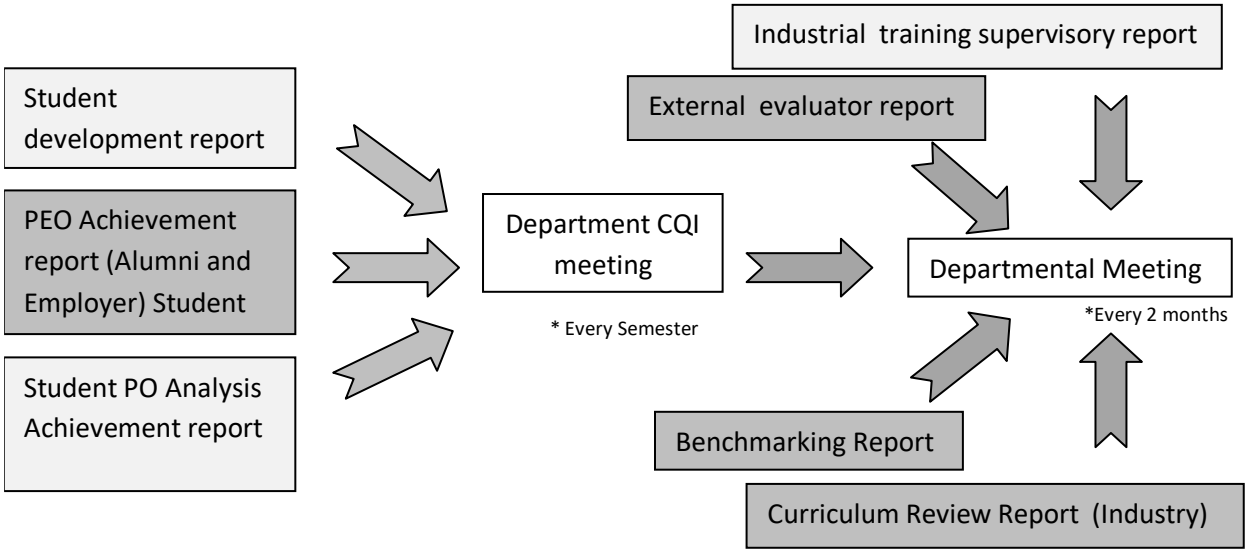
Academic Management System Design

Management system is an important aspect in practicing accreditation and making sure it is effective in achieving its objectives. A systematic and orderly system will ensure the load is minimized and streamlined (Rhoades and Sporn, 2002). The organizational structure needs to be structured in a systematic way for smooth management flow (Moldovan, 2012). This will eventually increase the competition with other institutions, creating a vast improvement in the degree programs offered. Table 1 shows the tasks to be performed with the appointed person; the monitoring and reporting should be provided. Figure 1 depicted the report for each developing unit to facilitate monitoring purposes. Several committees have been developed and staffed by members of the department to achieve the objectives set. This includes program planning, curriculum development and reviews, inputs and feedback from relevant stakeholders. The watchmen group is set in ensuring that the work done is correct and in line with the requirements of WA. The program must also engage the IAP, relevant industries and alumni to support and get input in order to improve the program.

Table 1
List of tasks in accordance with the EAC plans

Task	Related parties	Remark	Report
PEO Assessment (Alumni and Employer)	Alumni Liaison Committee	Under Deputy Dean and P&A monitoring	PEO Achievement Report (Alumni and Employer)
PEO Achievement analysis	Alumni Liaison Committee	Representative from each Department	
PO Assessment (Direct)	i-CGPA	PPA	Report Analysis
PO Achievement Report (Direct)	UP3 Committee	Under Department Head and Deputy Dean P&A	PO Achievement (Direct and Indirect)
PO Assessment (Indirect)	SPPP	PJK	
PO Achievement analysis (Indirect)	UP3 Committee	Under Department Head and Deputy Dean P&A monitoring	
Optimization, PO Mapping and Determination of Performance Indicators	Program Coordinator	Collaboration with UP3	External assessor report, Meeting with industrial panel report, Benchmarking report
Co-curriculum development	Program Coordinator	Under monitoring of Department head	
IAP relations, industry, alumni, external assessor	Program Coordinator	Under monitoring of Department head	

Student Performance Improvement (Organizing programs and Data Analysis)	Student Development Committee	Under monitoring of department head	Student Development report
Department CQI Meeting	Head of Department, Program coordinator, UP3, JPPel	Special Meeting after grade adjustment	CQI Minutes meeting
Coordination of training file and ISO	Head of Quality Assurance		Internal audit report
Capstone Project	FYP Coordinator	Final Year Project	Implementation
Cornerstone project	EIP Coordinator	System Design	Working Papers
Industrial Training	Industrial training coordinator	Industrial training	Supervisors Report of Industrial Training
Laboratory Facilities	Laboratory Coordinator Science Officer	All Laboratories Teaching room	
Rubrics & Formative Assessment Coordination	UP3 Committee	Members in UP3 Committee	
Summative Assessment Coordination	Chief Coordinator of Examination	Revised Bloom's taxonomy	
Department Courses files	Head of Quality Assurance		Course Assessment Report
CQI Monitoring CQI Platform (Reporting)	Head Department Department Meeting		Meeting Minutes



Note: Need to be monitored and supervised by Department Head and supported by Program Coordinator

Figure 1 Report for each developing unit to facilitate monitoring purposes

Documentation System

The documents related to the practice and procedure needs to be kept in a safe and easily accessible storage (Ab-Rahman et al. 2015). The report and etc. will be the evidence for efforts

have been made by the program. It requires a mechanism to collect and arrange these documents in certain categories, where they have to be available at every department and monitored by the Head of Quality Assurance Unit, Head of Department and Program Coordinator. Table 2 shows the reports to be prepared at each level and the responsible parties. Table 3 shows the list of files containing documents related to the management of department, learning and teaching. The files are named ABC to preserve the anonymity of the sample institution.

Table 2
Report to be prepared at each level and the responsible parties

Course			
Course assessment report	Course files	Every semester	Lecturer
Teaching and Learning Improvement Report (B1)	Department CQI files	Every semester	Lecturer
Student			
Student Monitoring Report (CGPA <2.5)	Department CQI files	Every semester	Student Development Committee
Program Outcomes (PO)			
PO Analysis Achievement Report (Direct and Indirect))	Department CQI files	Every Semester	PO analysis & CQI committee
External Assessor Report	Dept CQI files	Every 2-3 years	Program Coordinator
Supervisory panel report on industrial training (LI)	Dept CQI files	Every year	LI Coordinator
Curriculum review report (Industrial)	Dept CQI files	Every 3 years	Program Coordinator
Benchmarking report	Dept CQI files	Every 3 years	Program Coordinator
Program Educational Objectives (PEO)			
Alumni Achievement Report	Dept CQI files	Every 3 years	Alumni Relations Committee
Stakeholders Assessment Report	Dept CQI files	Every 3 years	Alumni Relations Committee

Note: Documents related to Industrial training and Final Year Project will be managed and kept by Program Coordinator Committee.

Table 3
List of files containing administration documents

No	File Reference No.	File Name
Audit - 13		
1.	ABC 1.18.4/13/x	Audit
Postgraduate - 105 (*By Course*)		
1.	ABC 1.18.4/105/x	Examination
2.	ABC 1.18.4/105/x	Examiner Committee Meeting (viva)
3.	ABC 1.18.4/105/x	Masters of Engineering Program
Committee Meeting - 111		
1.	ABC 1.18.4/111/x	FKAB Curriculum Commitee Meeting (Faculty Course Review Workshop; PEO & PO)

2.	ABC 1.18.4/111/x	Departmental Curriculum Commitee Meeting (Curriculum Review Workshop)
3.	ABC 1.18.4/111/x	Accreditation Commitee Meeting (Alumni Relations Commitee; Benchmarking Commitee; Curriculum Review Commitee; Organizing Commitee with Industry Commitee)
4.	ABC 1.18.4/111/x	Materials related to Accreditation (Meeting with IAP, Industry and Alumni; External examiner report; Benchmarking report, etc)
5.	ABC 1.18.4/111/x	Quality Assurance Division Commitee Meeting (QAD)
6.	ABC 1.18.4/111/x	UP3 (Teaching, Improvement and Learning Units) (PO Analysis Achievement; PEO AnalysisAchievement)
7.	ABC 1.18.4/111/x	CQI (Continuous Quality Improvement) (Course and program improvement level, Form B1)
Recognitions / Awards (Quality) - 158		
1.	ABC 1.18.4/158/x	Recognitions / Awards (Quality) (Student and Staff e.g Student Awards Nominees, Competition prizes)
Meeting - 204		
1.	ABC 1.18.4/204/x	Department Meeting
2.	ABC 1.18.4/204/x	Departmental (Undergraduate) Grade Moderation Meeting
3.	ABC 1.18.4/204/x	Departmental (Postgraduate) Grade Moderation Meeting
4.	ABC 1.18.4/204/x	FKAB (Undergraduates) Examiner Meeting
5.	ABC 1.18.4/204/x	FKAB (Post Grads) Examiner Meeting
Students (Undergraduate) – 207		
1.	ABC 1.18.4/207/x	Course / Subject – Credit transfer
2.	ABC 1.18.4/207/x	Course / Subject - Teaching files
3.	ABC 1.18.4/207/x	Examination
4.	ABC 1.18.4/207/x	Examination (Marks / Grade) – Work Instruction (Combined)
5.	ABC 1.18.4/207/x	Bachelor of Engineering Program
6.	ABC 1.18.4/207/x	Dual-Degree Program
7.	ABC 1.18.4/207/x	Student Development (Student Development matters e.g Meeting with Student Representative, Reminder Letters)
8.	ABC 1.18.4/207/x	Visiting / Activities (Technical Visit)
Circulations - 224		
1.	ABC 1.18.4/224/x	Vice Chancellor circulations
2.	ABC 1.18.4/224/x	Registrar (Academic) circulations
3.	ABC 1.18.4/224/x	Gen. circulations-JPM
4.	ABC 1.18.4/224/x	Vice Chancellor circulations
5.	ABC 1.18.4/224/x	Deputy Vice Chancellor circulations
6.	ABC 1.18.4/224/x	General staff circulations
7.	ABC 1.18.4/224/x	Treasury circulations
8.	ABC 1.18.4/224/x	Academic Division circulations
9.	ABC 1.18.4/224/x	Library circulations
10.	ABC 1.18.4/224/x	Public circulations

Courses - 159		
1.	ABC1.18.3/159/x	General (ISO; Stress Management; Workplace motivation)
2.	ABC1.18.3/159/x	Academic Staff
3.	ABC1.18.3/159/x	Supporting staff
4.	ABC1.18.3/159/x	Graduates (Technical Talk, Motivation Talk, Career Talk)
Board -179		
1.	ABC1.183/179/x	Board Members of School/ Department (Biography/CV, IAP; Appointment letter)

CQI Cycles of the QEP

This matter can be understood easier by looking at a sample institution. A selected Faculty of Engineering and Built Environment has established a quality enhancement plan (QEP) which involves procedures for the assessment and evaluation of PEOs, POs and COs. The plan is in accordance with the university's educational quality assurance processes and procedures which were approved by the University Senate in April 2011. The assessments are scheduled at different cycles in view of continually improving the quality of the programs. Figure 2 shows the CQI cycles of the QEP for PEOs, POs and COs assessment to be implemented by each program. For each cycle, inputs from various parties are analysed by the relevant committees in the department to assess the achievement of the PEOs, POs and COs. Outputs from each assessment at each cycle are utilised by the department in identifying any issue that needs rectifications or improvement. The department will then outline the necessary plan of actions and table them to the faculty management meeting for their endorsement. Stakeholders that include the industries, alumni, students are involved in the assessment exercises to ensure their views are given due consideration when implementing improvements to the programs.

In general, the current process for evaluation and assessment of the program is composed of three loops; a PEO loop (time-scale of approximately 3 -5 years), a PO loop (time-scale of approximately 1 year) and CO loop (time-scale of approximately six months). Each of the loops involves specific, independent and periodic assessment methods which interact to form the overall program evaluation process.

The assessment methods are scheduled at three different assessment cycles; six month cycle, one year cycle and three to five years, as described below:

- Six month cycle – Course assessment
- One year cycle – Program assessment
- Three to five years cycle – Performance assessment of the program

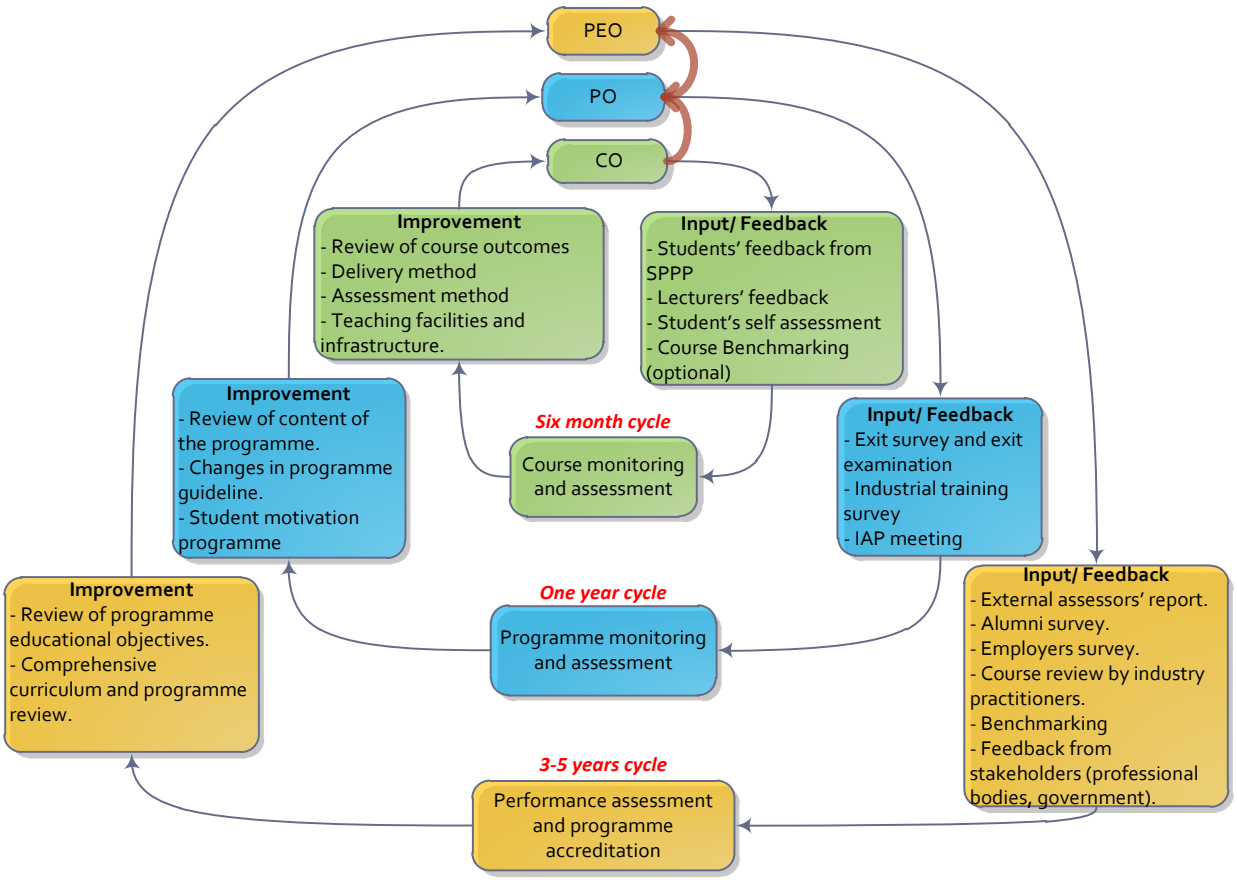


Figure 2 CQI cycles of the Quality Enhancement Plan (QEP)

Conclusion

The study has presented a Holistic Academic Management as a comprehensive framework that integrates accreditation requirements, outcomes-based education (OBE) principles, and continuous quality improvement (CQI) practices. The model consolidates three key domains—Program Educational Objectives (PEO), Program Outcomes (PO), and CQI—into a structured system that ensures alignment between institutional goals, stakeholder expectations, and accreditation standards.

Through document analysis and benchmarking of international accreditation frameworks such as the Washington Accord and ABET, this conceptual study identifies persistent challenges in higher education, particularly the fragmentation of documentation, redundant processes, and heavy administrative workload associated with accreditation preparation. The proposed framework addresses these issues by promoting systematic documentation, data-driven evaluation, and integrated decision-making across all academic levels.

In practical terms, three main criteria are emphasized to strengthen accreditation readiness and institutional quality assurance: 'A Strategic Planning of Academic Management System'; A systematic & fully utilized documentation system and OBE awareness & practices among lecturers. These elements align with the Engineering Accreditation Council (EAC) requirements and are currently being adopted by the institution's Quality Management Office through the development of a new academic management system. This initiative aims

to reduce lecturers' workload while simultaneously improving the educational quality management process within Institutions of Higher Learning (IHLs).

In addition, Table 4 simplifies the significant and crucial process that needs to be highlighted for accreditation. The process comes to compensate and simplify the loop towards improving the system.

Table 4
Crucial processes in accreditation

EAC Component	The important Criteria
PEO	Establishment
PO	Assessment and CQI
Academic Curriculum	Courses-PO Mapping and Reflective Assessment (Formative and Summative Assessment)
Student	Attributes and Advancement Program
Academic Staff	OBE implementation
Facilities	Sufficiency and Conducive
QMS	Sustainable and Monitoring

The proposed HAMS model offers a scalable and adaptable structure that can streamline accreditation processes, enhance documentation efficiency, and strengthen internal quality assurance mechanisms. It contributes theoretically by reframing accreditation not merely as a compliance process but as an integrated academic management approach that supports continuous improvement. Future research should focus on empirically validating this framework in various institutional contexts and exploring the integration of digital technologies, such as artificial intelligence (AI) and automated analytics, to further enhance the efficiency and sustainability of accreditation and quality assurance systems.

References

Abdullah, S., Yaacob, M., Abdullah, S.R.S., Rahman, M.S.A., Aziz, M.J.A., Hamzah N., Osman, K., Sidek, R.M., Zaharim, A., Rahmat. R.A.A.OK. (2016). *A Holistic Engineering Education Model for Producing Engineers with Integrated Islamic Attributes*. FEIIC International Journal of Engineering and Technology. Vol. 13. Pp. 98-104.

Ab-Rahman, M.S., Mustaffa, M.A.M., Abdul, N.A., Yusoff, A.R.M., & Hipni, A. (2016), *Teaching Folder Management System for the Enhancement of Engineering and Built Environment Faculty Program*. International Education Studies; Vol. 8, No. 7. Pp. 204-217.

Adamu, A. Y., & Addamu, A. M. (2012). Quality assurance in Ethiopian higher education: Procedures and practices. *Procedia – Social and Behavioral Sciences,* 69, 838-846.

Adewale, O., Rahman, S., & Singh, P. (2023). *Literature Review of Accreditation Systems in Higher Education*. *Education Sciences*, 13(6), 582.

Aung, Z. M., & Latt, T. (2024). Quality engineering education through accreditation. *Engineering Education Review*. Vol. 2, No. 1. Pp. 7-13.

Chodhury, H., Alam, F., Biswas, S.K., Islam, M.T. & Sadrul Islam, A.K.M. (2013). Quality assurance and accreditation of engineering education in Bangladesh. *Procedia – Engineering,* 56, 864-869.

Duarte, N., & Vardasca, R. (2023). Literature Review of Accreditation Systems in Higher Education. *Education Sciences*, *13*(6), 582

Engineering Program Accreditation Manual, *Engineering Accreditation Council.* Retrieved September 17, 2013, from www.eac.org.my/web/document/EACManual2012.pdf, 2012.

Gray, P. J., Patil, A., & Codner, G. (2009). The background of quality assurance in higher education and engineering education. *Engineering Education Quality Assurance: A Global Perspective*.

Grossman, G. M., Sands, M. K., & Brittingham, B. (2010). Teacher education accreditation in Turkey: The creation of a culture of quality. *International Journal of Education Development,* 30, 102-109.

Hassan, M., & Tan, W. (2025). *Global Trends of Outcome-Based Education in Higher Education: A Sustainable Development Perspective*. *Discover Education*, 5(3), 211–227.

Hidalgo, E., Villoria, J. & Romero-Cerezo, C. (2011). The necessity and challenge of setting up a quality assurance system in the higher education system in Andalusia (Spain). *Procedia - Social and Behavioral Sciences,* 15, 2972-2976.

Hou, A.Y-C. (2012). Mutual recognition of quality assurance decisions on higher education institutions in three regions: a lesson for Asia. *Higher Education,* 64, 911-926.

Jianfeng, B., Hu, L., Li, Y., Tian, Z., Xie, L., Wang, L., Zhou, M., Guan, J. & Xie, H. (2013). The progress of CDIO engineering education reform in several China universities: A review. *Procedia - Social and Behavioral Sciences,* 93, 381-385.

Kahveci, T. C., Uygun, Ö., Yurtsever, U., & İlyas, S. (2012). Quality assurance in higher education institutions using strategic information systems. *Procedia – Social and Behavioral Sciences,* 55, 161-167.

Khan, Z. (2013). A strategy for incorporation of ISO 14001 in accreditation process of engineering degree programs. *Procedia – Social and Behavioral Sciences,* 102, 543-547.

Kumar, R., Hassan, M., & Lee, J. (2025). *A systematic review of outcome-based education in engineering: Global trends and challenges*. *Springer Higher Education Review*, 44(2), 101–123.

Lee, S., Wong, K., & Ahmad, Z. (2022). *Administrative challenges in accreditation documentation: A Malaysian case study. Journal of Higher Education Policy and Leadership*, 8(4), 55–70.

Li, W. (2012). The status and developing strategy of China's continuing engineering education. *Procedia Engineering,* 29, 3815-3819.

Lope Domingo, M. A., Albajez, J. A., & Santolaria, J. (2013). The accreditation of industrial engineering in Spain: Teaching and learning the skills of Manufacturing Engineering. *Procedia Engineering,* 63, 786-795.

Memon, J. A., Demirdöğen, E., & Chowdry, B. S. (2009). Achievements, outcomes and proposal for global accreditation of engineering education in developing countries. *Procedia - Social & Behavorial Sciences,* 1, 2557-2561.

Moldova, L. (2012). Integration of strategic management and quality assurance in the Romanian higher education. *Procedia - Social and Behavioral Sciences,* 58, 1458-1465.

Othman, N., Hamzah, N., & Aziz, S. (2024). *Towards a High Standard of Excellence in Malaysia's Higher Education Institutions: Obstacles and Enablers*. *Journal of Administrative Science,* 21(2), 75–90

Rahman, J. A., Ab-Rahman, M. S., Yusoff, A. R. M. (2017). A case study of programme educational objectives (PEOs) assessment requirements for the electrical and electronic engineering programme in Malaysian public universities. *Pertanika Journal of Social Sciences and Humanities*. Volume 24. April. Pp. 251-268.

Ralph, N., Birks, M., Chapman, Y. (2013). The accreditation of nursing education in Australia. *Collegian,* Pp 1-5.

Rashid, M. H. (2012). The Process of Outcomes-Based Education-Implementation, Assessment and Evaluation. Penerbit UITM Press.

Rhodes, G., & Sporn, B. (2002). Quality assurance in Europe and the U.S.: Professional and political economic framing of higher education policy. *Higher Education,* 43, 355-390.

Sthapak, B. K. (2010). Globalisation of Indian engineering education through the Washington Accord. *Journal of Engineering, Science & Management Education,* 5(2), 464-466.

Thobega, M. (2010). Enhancing quality of tertiary education through program accreditation: A case of Botswana. *Procedia - Social & Behavioral Sciences,* 2, 2637-2641.

UNESCO (1993). Strategies for change and development in higher education. Policy paper in higher education.

UNESCO (2017). Quality assurance and accreditation: A glossary of basic terms and definitions. Bucharest.

Yusoff, A. R. M., Rahman, J. A., Ab-Rahman, M. S. (2017). Designing a reliable academic quality management system in nurturing future engineering professionals - a case study. *Pertanika Journal of Social Sciences and Humanities*. Volume 24. April. Pp. 167-184, 2017.

Yusoff, A. R. M., and Ab-Rahman, M. S. (2016). Deployment Right Assessment for Programme Outcomes (PO) in Enhancing Curriculum Structure Development. Assessment for Learning within and Beyond the Classroom. *Springer*. Pp. 185- 198. 2016.

Ralph, N., Birks, M., & Chapman, Y. (2013). The accreditation of nursing education in Australia. *Collegian*, 21(1), 53–61.

Hidalgo, E., Villoria, J., & Romero-Cerezo, C. (2011). The necessity and challenge of setting up a quality assurance system in the higher education system in Andalusia (Spain). *Procedia - Social and Behavioral Sciences*, 15, 2972–2976.