YANGON UNIVERSITY OF ECONOMICS

DEPARTMENT OF APPLIED ECONOMICS

MASTER OF PUBLIC ADMINISTRATION PROGRAMME

A STUDY ON AWARENESS OF ACADEMIC STAFF ON QUALITY ASSURANCE IN TECHNOLOGICAL UNIVERSITIES IN MYANMAR

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EMPA – 39 (19th BATCH)

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This thesis submitted as partial fulfillment of the requirements for
the degree of Master of Public Administration (MPA)

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This is to certify that this thesis titled **"A Study on Awareness of Academic Staff on Quality Assurance in Technological Universities in Myanmar"** submitted in partial fulfillment towards the requirements for the degree of Master of Public Administration has been accepted by the Board of Examiners.

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ABSTRACT

This study describes the perceptions of academic staff in technological universities on quality assurance (QA), their level of involvement in implementing QA, and their awareness on QA-related activities. The aims of this study are to analyze the academic staff's awareness on QA and to investigate the ways forward to QA in technological universities. In this study, (7) technological universities across (3) States and (4) Regions in Myanmar are selected. Using Yamane's Formula, 453 academic staff are surveyed through structured questionnaires, with additional secondary data sourced from university records and related websites. Findings reveal that academic staff generally have a positive understanding of QA measures and accreditation criteria set by the Engineering Education and Accreditation Committee (EEAC). However, challenges such as workload management, communication issues, and the need for continuous QA development were identified. Continuous training, improved communication, and proactive measures are needed to address these issues. Additionally, limitations in manpower, infrastructure, and funding constrain the effective implementation of QA systems in technological universities.

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

QA	Quality Assurance
IQA	Internal Quality Assurance
EQA	External Quality Assurance
MOST	Ministry of Science and Technology
DAST	Department of Advanced Science and Technology
QMS	Quality Management Systems
AUN-QA	ASEAN University Network Quality Assurance
EEAC	Engineering Education and Accreditation Committee
MEngC	Myanmar Engineering Council
FEIAP	Federation of Engineering Institutions of Asia Pacific
PEOs	Programme Educational Objectives
GAs	Graduate Attributes
ELOs	Expected Learning Outcomes
CQI	Continual Quality Improvement
HE	Higher Education
HEIs	Higher Education Institutions
TQM	Total Quality Management
YTU	Yangon Technological University
MTU	Mandalay Technological University
WYTU	West Yangon Technological University
MMU	Myanmar Maritime University
ISO	International Organization for Standardization

CHAPTER I

INTRODUCTION

The chapter intends to provide the foundational context for the study, commencing with the rationale for conducting the study. Following this, the study's objectives, scope and limitations are discussed. The final part of this chapter provides the study's organization.

1.1 Rationale of the Study

The Higher Education (HE) system in Myanmar is composed of a diverse range of institutions, universities, and colleges that provide professional and specialized education under different ministries, for instance, Ministry of Education (MOE), Ministry of Science and Technology (MOST), Ministry of Health (MOH), and Ministry of Transport and Communications (MOTC), etc. Due to this diversity, different types of public universities have distinct approaches to quality assurance (QA) practices.

Within these public universities, technological universities under the MOST are crucial in shaping the future workforce by producing highly skilled engineers, making it imperative that their educational quality aligns with international standards. This dedication not only guarantees the creation of skilled professionals but also opens up a world of possibilities for students, including professional licensure, credit transferability, and career development.

Academic staff members at these technological universities must be aware of their accrediting bodies and apply standards and guidelines that are in line with the accreditation requirements. This proactive approach ensures that the educational offerings are not only robust but also meet the stringent standards set by accrediting bodies.

The awareness of academic staff on the accreditation criteria and process becomes imperative not only for the institutions themselves but also for the students who rely on the assurance of quality education and the subsequent benefits it brings.

The alignment with international standards enhances the credit transfer allowing students to navigate educational pathways and facilitating their pursuit of higher studies or career changes. Moreover, the emphasis on professional licensure ensures that

graduates from these technological universities are well-prepared and recognized in their respective fields, fostering confidence among employers and expanding career opportunities. Fundamentally, the mutually beneficial partnership between technological universities and accreditation bodies is crucial to developing a future workforce that is not only academically proficient but also globally competitive and adaptable.

Ensuring and enhancing educational standards through QA is a critical component of any country's academic landscape (Harvey & Williams, 2010). Recognizing the importance of maintaining high standards, technological universities have made significant efforts to implement QA systems to enhance their academic performance. These efforts are aligned with the standards established by their professional accreditation body, the Engineering Education and Accreditation Committee (EEAC), which operates under the Myanmar Engineering Council (MEngC).

In addition, some technological universities have attained associate membership status with the ASEAN University Network Quality Assurance (AUN-QA), thereby adhering to the programme's level criteria adopted by other ASEAN nations. This collective initiative is designed to enhance the quality of HE throughout the ASEAN region.

While global studies have extensively explored the QA landscape, investigating challenges and impacts on various facets such as teaching and learning, student experience, and service quality, there remains a notable research gap regarding the awareness and perspectives of academic personnel regarding the implementation of QA systems within their respective universities. This study seeks to address this void by conducting an in-depth investigation into the current QA practices, shedding light on the awareness of academic staff, and exploring strategies to further enhance QA.

By focusing on this specific aspect, the study aims to contribute valuable QA insights to the academic community, administrators, policymakers, and other stakeholders. The results will be a vital source of guidance for coordinating technological universities with local, national, and worldwide quality standards. Moreover, the study seeks to pave the way for constructive changes in QA practices, ensuring that these institutions remain at the forefront of educational excellence.

Ultimately, the study facilitates positive transformations in technological universities, promoting a culture of continuous improvement and adherence to the highest quality benchmarks.

1.2 Objectives of the Study

This study seeks to assess the extent of knowledge that academic staff possess regarding the implementation and development of QA at the technological universities. Therefore, the objectives of this study are:

- To analyze the awareness level of academic staff on quality assurance in technological universities, and
- To investigate the ways forward to quality assurance in technological universities.

1.3 Method of the Study

The study employed a descriptive method and utilized primary and secondary data sources. Primary data was gathered using a structured questionnaire administered to academic staff from (7) randomly selected technological universities in Myanmar. The aim was to assess the awareness level of academic staff on QA systems and identify potential ways to enhance QA within technological universities. The questionnaire was specifically designed to determine the understanding and familiarity of academic staff with QA processes and requirements.

Secondary data, on the other hand, was obtained from the universities and departments themselves, as well as from various sources such as university journals, magazines, and websites from the ministry, university, and accreditation bodies.

1.4 Scope and Limitations of the Study

The study concentrates on analyzing the awareness of academic staff on QA and investigate the ways to enhance QA in technological universities. There are (34) technological universities within (14) States and Regions in Myanmar. In this study, the States and Regions were chosen first through a simple random selection process. Out of the (34) technological universities under the MOST, (7) of them were also randomly selected as case study universities, chosen to represent the diverse contexts within the larger group.

Recognizing the significance of QA involvement from various stakeholders, including university staff, external entities like employers and alumni, this study remains focused on assessing the QA awareness and participation of academic staff. It aims to evaluate their comprehension of QA principles and their active engagement in QA initiatives.

1.5 Organization of the Study

This study comprises five chapters. Chapter 1 introduces this study, encompassing the rationale, objectives, methods, scope, and structure of the research. Chapter 2 provides a comprehensive literature review that includes an overview of HE, definitions of higher education institutions (HEIs), QA practices within these institutions, guidelines and standards employed to ensure quality, and a review on relevant previous studies. Chapter 3 focuses on providing an overview of technological universities in Myanmar. It details the development of MOST, the evolution of technological universities under MOST, the progression of QA activities within these universities, the establishment of Quality Management Systems (QMS), and the profiles of the selected technological universities. Chapter 4 presents the analysis of academic staff's awareness on QA and discuss ways forwards to QA in technological universities. A summary of key findings and recommendations for QA in technological universities in Myanmar is presented in Chapter 5.

CHAPTER II
LITERATURE REVIEW

This chapter is organized in line with the study objectives and includes a review of relevant literature in order to get the overview of the present condition of knowledge on QA in the context of the study topic.

2.1 Role of Education for Human Resource Development

Education can be considered as one of the most significant concepts in relation to human resource development (HRD). It helps individuals develop their skills and capabilities, providing them with the essential knowledge needed to join the workforce, grow personally, and contribute to societal progress. According to Michael P. Todaro and Stephen C. Smith (2020), education is a critical factor in a developing country's ability to absorb modern technology and develop the capacity for self-sustaining growth and development.

The development of human capital – the abilities, know-how, and skills that people pick up via education and training – requires education on a major scale. Investments in education increase productive abilities so that individuals are able to accomplish things relevant to economic growth as well as social advancement.

It is expected that a better-educated workforce will then be more productive. Education provides people with skills and technical knowledge to deploy themselves in agriculture, manufacturing, services, and technology-related activities. Productivity enhancement realizes higher earnings at the individual level but has positive externalities with respect to economic growth and national competitiveness.

It is also one of the strongest tools for poverty alleviation, since it offers a way for people to obtain marketable skills and access better jobs that will yield better economic returns and improve their economies. Moreover, educated people are better placed in making effective decisions in the sphere of health, family planning, and the quality of life; this contributed to breaking the poverty cycle from generation to generation.

Education enhances innovation by developing creative, critical, and problem-solving skills among people. In this respect, a workforce that is skilled and educated is

likely to spur further technological advancements and innovation in all other sectors of the economy. This would spur economic growth and increase a nation's competitive ability in the global economy.

Apart from the economic gains, education for sustainable development has the virtue of fostering social cohesion and, therefore, more inclusive development. Education helps learners take active participation in civic and political life and enhances an informed citizenry that engages socially and politically. It also has a vital role in reducing gender inequity and generally shrinking the social disparities, building resilient communities that can adapt to social and environmental shocks.

Even though Michael P. Todaro and Stephen C. Smith (2020) acknowledge that the benefits of education go beyond individual outcomes in terms of societal and economic development, they also stress that it must be relevant and be of quality—that is, accessible and pertinent to the continuous needs of the economy and society. This place demands on investment in educational infrastructure, teacher training, and curriculum development, with policies that ensure all equals in access to education.

Furthermore, education is not regarded as a means of knowledge acquisition but serves as the fundamental driver of human resources and development processes. It is through investment in education that nations shall empower their people, drive sustainable development for their prosperous future. The views of Michael P. Todaro and Stephen C. Smith (2020) provide a fairly good conceptual framework toward understanding how education interlinks with human capital formation and achievements of broader development goals, hence making it a critical component for any strategy that aims at stimulating inclusive and sustainable growth.

2.2 Definition of Higher Education Institutions

In the contemporary times, the quality of HE is directly connected to the wealth or poverty of nations. Individuals possessing a diverse skill set and enhanced learning capabilities can anticipate a lifetime of unprecedented economic fulfilment. This section defines the HEIs and describes how their QA systems are implemented in accordance with guidelines and criteria of the local, regional, and worldwide accreditation organization.

Higher Education Institutions (HEIs) represent a cornerstone in the global educational landscape, shaping the socio-economic fabric of nations. According to the U.S Code Chapter 20, Title 28, an HEI is an entity that confers bachelor's degrees,

offers at least a 2-year program culminating in a degree, or offering professional degree programs, contingent upon national regulatory approval. Notably, these institutions may be either public or private, encompassing diverse forms such as universities, conservatories, colleges, and more.

The comprehensive exploration by Harbison F., Myers C. (1967) explains three pivotal components of the HE.

- HEIs: encompassing various types such as public and private institutions, profit and nonprofit organizations, academic and vocational entities, undergraduate and graduate programs, on-site and distance learning modalities, among others. This includes their vision and missions, strategic plans, academic and support staff, students, and physical resources.

- Organizations directly involved in financing, managing, or operating HEIs contribute to the multifaceted landscape. These public and private institutions are essential in maintaining the dynamism of HE.

- A web of formal and informal rules guides the behavior and interactions among institutions and individuals within the HE spheres.

On the global scale, the Great Soviet Encyclopedia (1979) illuminates the multifaceted roles of HEIs. Institutions of this nature train highly qualified specialists and scientific personnel, conduct theoretical and applied scientific research, and offer refresher courses for academic staff and industry specialists. HEIs encompass universities, technical institutes, colleges, and a variety of professional schools offering training in disciplines like law, theology, medicine, business, music, and art.

The diversity of HEIs is further underscored by differences in educational levels, training methodologies, and program durations. Aligning with regional and business needs, these institutions play a crucial role in meeting societal demands. The purposeful alignment of educational levels ensures that graduates are equipped with knowledge, skills, and attitude relevant to their respective fields, contributing to the overarching goal of societal progress.

Higher education's impact extends beyond individual skill acquisition to broader societal contributions. As HEIs produce highly qualified specialists, they serve as mechanisms for innovation and progress.

The intrinsic link between HEIs and economic prosperity is evident in the opportunities they provide for individuals. Higher education opens doors to enhanced

career prospects, better job opportunities, and a higher quality of life. The skills and knowledge acquired in these institutions empower individuals to navigate an evolving global landscape, contributing meaningfully to the workforce and society. As the world continues to evolve, the significance of HE in equipping individuals with the skills and knowledge needed for success remains paramount.

2.3 Importance of Quality Assurance in Higher Education Institutions

QA within the context of the HE has been a topic that has been extensively discussed in academic literature, with various scholars contributing their perspectives on this multifaceted concept. One of the fundamental definitions of QA comes from Vroeijenstijn (1995), who described quality assurance as a systematic, structured, and ongoing focus on maintaining and enhancing quality. This definition highlights the dynamic and ongoing nature of quality assurance, emphasizing its role in perpetually enhancing educational standards.

A more comprehensive definition of QA is provided by Ratcliff, J.L. (2003), who defines it as the set of policies, systems, and processes established to maintain and enhance the quality of a program or institution. In this view, QA encompasses a comprehensive approach that includes institutional systems and practices to uphold and improve the education standard.

QA in HE has long been perceived as an inherent and anticipated aspect of academic responsibility within the traditional educational framework (Harvey & Askling, 2003). However, a notable shift in perspective emerged in the late 1980s, reflecting an escalating interest in QA within higher education systems caused by rapid transformations in the HE landscape influenced by political, economic, and socio-cultural forces of the late 20th century.

Several significant transformations have shaped the modern HE, including the widespread availability of education, variety of increased program offerings and student demographics, the alignment of programmes with labor market demands, resource constraints, and an indirect regulation of HE (Harvey & Newton, 2007). Such transformations have underscored the need for more structured and comprehensive quality assurance frameworks to navigate the evolving educational environment.

Formal QA initiatives in HE originated in a handful of developed countries, with a predominant focus on the United States and Western Europe, during the 1980s and 1990s. Subsequently, this movement swiftly expanded to encompass both

industrialized and emerging nations over the last twenty years (Dill, 1997). Today, various organizations, like UNESCO, the OECD, the World Bank, international networks like INQAAHE, regional entities, and professional associations, are instrumental in introducing and spreading formal quality assurance practices on a global scale. (Singh, 2010).

Accreditation is a process within the QA framework, serving as a mechanism to ensure that educational institutions adhere to and sustain minimum requirements and standards of not only quality but also integrity in academic staff, administrative personnel, and related services (Harvey & Askling, 2003). This voluntary process is grounded involving academic autonomy and carried out by associations comprising institutions and subject-specific academic specialists. These entities establish and enforce membership standards and accreditation procedures, contributing significantly to the overall QA landscape in HE.

In order to guarantee that universities maintain these standards, the ASEAN University Network Quality Assurance (AUN-QA) framework plays a crucial role. Universities within the ASEAN region are encouraged to follow the AUN-QA guidelines to maintain consistency and quality in HE. By following the AUN-QA framework, institutions strengthen academic integrity, enhance regional cooperation and stakeholder assurances about their dedication to quality. This alignment improves educational offerings and raises the global competitiveness of ASEAN education system.

2.4 ASEAN University Network Quality Assurance (AUN-QA)

The inception of AUN-QA in 1998 marked the beginning of the AUN-QA assessment frameworks. From that point onward, the network has been actively advancing, refining, and applying QA methodologies through an empirical approach, which involves testing, assessing, enhancing, and disseminating these practices.

The ASEAN University Network (AUN) acknowledges the significance of quality in HE and advocates for the establishment of a comprehensive QA systems to elevate academic standards and improve educational service including research across its member universities. Its assessment models are designed to be adaptable to the varied universities in ASEAN nations and are structured in accordance with both regional and global QA frameworks.

The assessment framework for the programme level at version 4.0 includes the following eight criteria:

- **Expected Learning Outcomes (ELOs):** ELOs are the specific knowledge, skills, and attitudes that students are expected to acquire upon completion of a programme. ELOs are formulated based on an established learning taxonomy and are aligned with the vision and mission of the university. They should be known to all stakeholders, including students, faculty, and employers. ELOs should be written in a way that learning is translated into observable and measurable results that can be demonstrated and assessed.

- **Programme Structure and Content:** This criterion evaluates the specifications of the programme and its courses, the design of the curriculum, and the contribution of each course to achieving the expected learning outcomes. The assessment of Programme Structure and Content includes evaluating the comprehensiveness of the programme and course specifications, the alignment of the curriculum with the expected learning outcomes, the incorporation of stakeholder feedback, the clarity of each course's contribution to achieving the expected learning outcomes, the logical structure and sequencing of courses, and the appropriateness of teaching, learning strategies, and assessment methods to achieve the expected learning outcomes. The criterion emphasizes the importance of a well-structured and coherent curriculum that effectively supports the achievement of expected learning outcomes and meets the needs of stakeholders.

- **Teaching and Learning:** The assessment of Teaching-Learning approach includes evaluating the articulation and communication of the educational philosophy to all stakeholders, how effectively teaching-learning activities encourage students to engage responsibly in the learning process, how much student participation in learning activities involves active engagement, how effectively teaching-learning activities foster learning, cultivate skills in self-directed learning, and encourage students to embrace lifelong learning, creative thinking, innovation, and an entrepreneurial attitude, and how effectively the teaching-learning processes are enhanced over time to maintain their relevance to industry needs and are in line with anticipated learning achievements. The criterion emphasizes the significance of an instructional method that aligns with educational principles and effectively facilitates the attainment of anticipated learning results.

- **Student Assessment:** This criterion focuses on evaluating the assessment methods used within the programme. The assessment includes the use of a variety of assessment methods that are constructively designed to support the intended learning outcomes and teaching objectives. Additionally, the criterion evaluates the explicit communication and consistent application of assessment and assessment-appeal policies to students. The assessment methods must be tailored to measure the attainment of the anticipated learning outcomes and be appropriate for their intended use, whether for diagnostic, formative, or summative purposes. Furthermore, the assessment should include transparent and publicly available criteria for grading and marking. It should be conducted by individuals who understand the significance of assessment in guiding students towards attaining the knowledge and skills required for their intended qualification. The assessment should also take into account all possible consequences of examination regulations and be conducted securely following the university's stated procedures.

- **Academic Staff:** This criterion focuses on evaluating the staff's competences, workload, qualifications, and professional development of the academic staff involved in delivering the programme. The assessment includes determining, evaluating, and communicating the competences of the academic staff, measuring and monitoring staff workload to enhance education, research, and service quality, and ensuring that the academic staff responsibilities are appropriate to their qualifications, experience, and abilities. Additionally, the criterion involves promoting academic staff through a merit-based system that considers teaching, research, and service contributions. It also focuses on defining and clarifying the rights, privileges, benefits, roles, and relationships of academic staff members. Additionally, it includes the systematic assessment of training and developmental requirements for academic personnel. This criterion also emphasizes that the academic staff possess the necessary competences, are appropriately qualified, and are supported in their professional development to deliver high-quality education and research.

- **Student Support Services:** This criterion focuses on evaluating the policies, procedures, and planning related to student intake, admission, and the provision of academic and non-academic support services. The assessment includes that the policies for student enrollment, admission criteria, and intake procedures are well-

defined, effectively communicated, publicly available, and regularly updated. It also assesses the organization of academic and non-academic support services to guarantee adequacy and excellence in support of teaching, research, and community engagement. Additionally, the criterion assesses the availability of extra and co-curricular activities, student competitions, and additional services aimed at enhancing student learning outcomes and employability. Furthermore, the the support staff's competences providing student services are assessed during recruitment and deployment, while the support services undergo evaluation, benchmarking, and improvement processes.

- **Facilities and Infrastructure:** This criterion focuses on evaluating the physical resources and technological support available to deliver the curriculum effectively. The assessment includes ensuring that the physical resources, including sufficient and updated equipment, materials, and IT resources. It also evaluates the availability and accessibility of laboratories, equipment, and digital library facilities, as well as the adequacy of information technology systems to fulfill the requirements of faculty and students. Additionally, the criterion assesses the provision of an easily accessible computer and network setup that facilitates the active participation of the campus community in educational, learning, and research endeavors. Furthermore, the assessment includes the maintenance and upkeep of facilities and infrastructure, as well as budget allocation and planning for new facilities and upgrades.

- **Output and Outcomes:** The assessment includes establishing, monitoring, and benchmarking the percentage of students passing, dropping out, and the average duration until graduation, alongside the employment outcomes, self-employment opportunities, entrepreneurial ventures, and progression to higher education among graduates of the program. In addition, the criterion assesses the research and creative output generated by the academic personnel and students along with the establishment and monitoring of the outcomes. Furthermore, the assessment process includes providing data that directly demonstrates the attainment of the program objectives, which are set and supervised.

These guidelines offer a robust and comprehensive framework for assessing and ensuring the programme quality of HE. By addressing key criteria and each sub-

criterion, this assessment model provides a thorough and systematic approach to QA in higher education.

2.5 Washington Accord (WA)

The Washington Accord, founded in 1989, is a global agreement among accreditation bodies that aims to facilitate the mobility and recognition of engineering graduates across borders. The accord sets standards for accrediting engineering degree programmes, ensuring that graduates possess the essential competencies and knowledge for professional practice.

As with the other accords the signatories are committed to development and recognition of good practice in engineering education. The activities of the Accord signatories—for example in developing exemplars of the graduates' profiles from certain types of qualification—are intended to assist growing globalization of mutual recognition of engineering qualifications. The Washington Accord is specifically focused on academic programmes which deal with the practice of engineering at the professional level.

It recognizes that accreditation of engineering academic programs at the professional level is one of the essential foundations for the practice of engineering in each country or territory that the Accord covers.

The Accord enunciates mutual recognition, between the participating bodies, of accredited engineering degree programs. It also lays down and benchmarks the standard of professional engineering education across those bodies.

This accord has 23 full members, representing countries with well-established and mature accreditation systems. These members include influential players in engineering education, like the USA, the UK, Australia, Canada, Japan, and other ASEAN countries like Malaysia and Indonesia.

Any engineering accreditation body seeking to become a signatory to the Accord must first apply for provisional status. A body is required to demonstrate an accreditation system that at least meets the basic requirements. To proceed to signatory status, the body must demonstrate its standards and processes have substantial equivalency through a review by a team drawn from the signatories and be approved by unanimous agreement of the signatories. At present, there are seven provisional members, one of which is Myanmar Engineering Council (MEngC).

MEngC has become as a provisional member in the Washington Accord since 2019, reflecting its commitment to enhancing the standard and global acknowledgment of engineering education. Reacting to this milestone, the EEAC was established under the MEngC. This committee is entrusted with the responsibility of aligning engineering education programmes in Myanmar with the Washington Accord's standards, ensuring that graduates meet global expectations for professional competence and mobility.

2.6 Quality Assurance Approaches

Dill (1992) categorized three distinct types of methods for QA in education: the reputation, the student achievements, and the total quality management. This was one of the first categorization of various QA methodologies. Peer review is used in the reputational method to evaluate the caliber of programs or HEIs. The accomplishments of students are assessed during and after their time at HEIs. The four main pillars of the comprehensive quality management method are coordination, customer focus, involvement, and organizational learning. The two main strands on QA methodologies are internal and external QA.

Internal Quality Assurance (IQA): IQA in HE is a significant focus, reflecting a growing interest in effective quality management systems. Despite enthusiasm, educational managers encounter challenges in developing robust IQA mechanisms, given the diverse perspectives and definitions proposed by various authors. Martin and Stella (2007) define IQA as policies and mechanisms ensuring fulfillment of institutional purposes and adherence to higher education or professional standards. IQA involves the management of systems, resources, and information aimed at ensuring and enhancing the teaching quality, scholarship, research, and community service. González (2008) views IQA as mechanisms enabling to oversee and regulate their fundamental quality operations. In essence, IQA serves as a comprehensive management system within universities, ensuring adherence to external standards while fostering continuous improvement through the establishment of mechanisms that manage and enhance quality-related core activities. The emphasis is on fulfilling the university's intended purpose, executing the quality policy, and utilizing institutional resources for effective quality management.

External Quality Assurance (EQA): EQA has become a focal point in HE, shaping national systems for evaluating institutions and programs (Stensaker, B. 2008). Over the past two decades, external systems, led by quality assurance agencies, have

become integral to the higher education landscape. EQA involves external bodies assessing institutions or programs against agreed-upon standards, with accreditation, assessment, and audit being key components (Neave, 2004). Billing (2004) outlines EQA goals, including enhancing quality, providing public information about standards, obtaining accreditation for legitimacy, holding the public accountable, and participating in higher education sector planning.

Common elements in European quality frameworks include independent national agencies, self-evaluation, external peer reviews, and public reporting. According to Van Vught and Westerheijden (1993), there is no explicit connection between EQA outcomes and financial support for institutions of HE. Procedural components shared by European quality assurance systems include public reporting, external assessment, expert review panels, internal self-evaluation, and external evaluation. EQA methods encompass research assessment, standards monitoring, program accreditation, internal audits, and evaluating/accrediting institutions or specific programs.

Accreditation is a key aspect, publicly acknowledging institutions meeting specific quality standards, emphasizing inputs like resources, curriculum, and staffing (Harvey & Askling, 2003). Quality audits verify established practices within institutions, contributing to internal quality monitoring. Quality assessment evaluates overall quality across dimensions like inputs, processes, and outputs, using diverse evidence. Standards monitoring assesses academic standards and professional competence, ensuring comparability and transparency. Customer surveys gauge satisfaction from students, graduates, and employers.

While acknowledging their advantages, there are reservations regarding how quality assurance mechanisms affect academic professionalism. This underscores the difficulty of reconciling accountability with the preservation of academic autonomy. EQA introduces self-regulation and management but may risk promoting uniformity over diversity and innovation. Striking a balance between ensuring and enhancing quality while preserving diversity and innovation is crucial as institutions navigate the complex landscape of EQA. Maintaining academic autonomy and professionalism remains imperative in meeting evolving quality standards.

2.7 Difficulties in carrying out Quality Assurance

QA constitutes a fundamental element within HEIs, as it ensures that the educational programs and services provided meet the required standards. However, carrying out QA can be challenging, and several difficulties can hinder its effective implementation. Chaweewan Boonkoum (2004) conducted research on quality assurance (QA) implementation within Rajabhat Institutes in Thailand. The study highlighted various challenges encountered, such as limited awareness and understanding of QA principles, inadequate staff cooperation, and deficiencies in institutional systems. This paper aims to present an analysis of QA challenges in higher education institutions, specifically drawing insights from Boonkoum's investigation at Rajabhat Institutes in Thailand.

- **Lack of understanding and knowledge on QA among staff and administrators:** Due to the fact that the staff and administrators lacked sufficient knowledge and understanding of QA, this often results in inconsistent implementation of QA protocols, leading to compromised educational standards and student outcomes.

- **Insufficient cooperation from staff:** Insufficient cooperation from staff exacerbates the challenges surrounding QA in HEIs. When staff members are not fully engaged or committed to QA processes, it hampers effective implementation and adherence to quality standards. This lack of cooperation can impede progress towards enhancing educational quality and institutional reputation.

- **A lack of an appropriate QA system or framework:** The absence of a suitable system or framework for QA causes a significant obstacle in HEIs. Without a well-defined QA framework in place, institutions struggle to maintain consistency in evaluating and improving educational standards. This deficiency undermines efforts to ensure accountability and enhance the overall quality of education provided.

- **Inadequate working procedures:** Inadequate working procedures hinder successful integration of QA practices within HEIs. When procedures are lacking or poorly defined, it creates ambiguity and inefficiency in assessing and maintaining educational quality. This inadequacy compromises the institution's ability to meet standards and achieve desired educational outcomes, ultimately impacting student success and institutional reputation.

- **Lack of readiness**: A lack of readiness presents a significant challenge to implementing QA in HEIs. When faculty, academic staff, and administrative members are not adequately prepared or equipped with the necessary resources and training, it hinders the successful execution of QA processes.

- **Ambiguous vision and mission statement on QA:** Unclear vision and mission statement on QA in Higher Education Institutions creates confusion and ambiguity regarding institutional goals and priorities. Without a defined direction, all stakeholders may have divergent interpretations of QA objectives, leading to inconsistent implementation and assessment practices.

- **A lack of strong leadership:** A lack of strong leadership in HEIs significantly impedes the effective implementation of QA processes. Without decisive guidance and support from leaders, there's a dearth of direction and accountability in enforcing QA standards. A strong leadership on QA is important to ensure that all staff are aware of the importance of QA and they are committed to its implementation.

  - **Insufficient funding for QA:** Insufficient budget allocation poses a substantial barrier to upholding QA standards in HEIs. Without adequate financial resources, institutions struggle to invest in essential infrastructure, training programs, and assessment tools necessary for effective QA implementation. Adequate funding is important to ensure the availability of essential resources for the efficient execution of QA processes, ultimately resulting in enhanced educational outcomes.

These difficulties were highlighted through questionnaires, interviews with members of the QA Committee, Rajabhat Institute administrators, and faculty members, providing a comprehensive understanding of the challenges faced in implementing QA in the educational context. Addressing these difficulties is essential to ensure that QA processes are effective and lead to improved educational outcomes.

2.8 Reviews on Previous Studies

Boonkoum, C. (2004) studied QA practices at Rajabhat Institutes in Thailand, employing a diverse range of strategies to gather comprehensive insights. The primary objectives of the study were to thoroughly conduct a comprehensive examination on the QA practices within Rajabhat Institutes, and identify areas for its enhancement

within these educational institutions. Boonkoum employed a mixed-methods research design, utilizing questionnaires and interviews to gather required data from diverse stakeholders. (91) faculty members participated in the survey, while interviews were conducted with QA Committee members, administrators, students, and employers associated with Rajabhat Institutes. The researcher also engaged in interviews that are partially structured with key personnel from their ministry and other relevant governmental bodies responsible for overseeing QA in higher education. The research variables include personal and institutional information, QA systems, impact, obstacles, and strategies for enhancement of QA in Rajabhat Institutes. Through a triangulation technique incorporating questionnaires, interviews, and document analysis, Boonkoum explained that Rajabhat Institutes follow a QA framework established by ORIC, incorporating three main elements: quality control, quality audit, and quality assessment. Notably, obstacles to implementation were highlighted, including the incomplete external quality assessment process. The findings revealed divergent perspectives among various groups. Teaching staff predominantly identified Total Quality Management (TQM) as the primary system, while QA Committee members, Rajabhat Institute administrators, and ministry administrators favored the ORIC system. These differing viewpoints suggest a lack of consensus on the preferred approach to quality assurance within the educational institutions and administrative bodies involved.

Nguyen, H. T. L. (2016) studied the integration of formal QA in HE in Vietnam. The primary aim is to examine the QA systems and processes in Vietnamese HE. This study will specifically focus on a case study of a consortium of (6) member universities, each known for its unique academic disciplines. Employing primarily qualitative methods, the study utilizes a conceptual framework grounded in existing literature on QA, incorporating components such as leadership, quality culture, stakeholder involvement, operational procedures, and collaborative efforts. Data was gathered through extensive interviews encompassing three tiers of senior management: national policymakers, university administrators responsible for policy, and university staff involved in policy implementation. Additionally, QA documents at both national and institutional levels provided supplementary data. The study's primary findings are the establishment process and frameworks of QA systems in a case institution and its member universities. Initially driven by external factors, such as legislation, the institutions uniformly adhered to the accreditation plan imposed by the ministry for

EQA. Subsequently, they displayed a growing awareness and voluntarily strengthened their capacities through internal quality assurance practices.

Li, Y. (2012) conducted a study on QA in HE system in China. The aims of this research are to investigate Chinese universities' QA approaches, examine the incorporation of educational experiences of students in the present QA system, assess perceptions on quality, the existing system of QA implemented in it, and learning experiences among students and staff, and propose strategies for incorporating student learning encounters within the quality assurance framework to promote ongoing enhancements in Chinese HEIs. Li employed a qualitative case study methodology utilizing document analysis, focus groups, and in-depth interviews to explore student learning experiences and quality assurance practices in Chinese HEIs. The study reveals that while universities rely on regulations, teaching evaluations, and student feedback for QA, there is a tendency to overlook students' actual learning activities in favor of institutional and instructional management. This highlights a mismatch between the student learning quality and the effectiveness of QA mechanisms of HE in China. The findings also highlight limitations in the current top-down QA approach, prompting Li to propose a learning-focused QA that incorporates student learning within the QA process, offering insights for the continuous improvement of HE quality. The research contributes valuable perspectives on reshaping QA systems to better address the crucial aspects of student learning within the Chinese higher education context.

Okello, J. A. (2018) studied the awareness and engagement of faculty and students in the IQA mechanisms at Marist International University College (MIUC). The study intends to determine their awareness and involvement in the IQA mechanisms, assessing how the participation of both staff and students influences the educational quality, and to find the factors affecting the effective deployment of IQA mechanisms. The study employed a survey as the research design, allowing for the collection of data from a large population by studying samples drawn from that population. Data was gathered using a survey that included questions of varying formats, both open-ended and closed-ended. The study used several variables to assess the awareness and their engagement in the IQA mechanisms. These variables include staff members' category, students' level of study, and staff members' and students' awareness of the IQA mechanisms. The findings of the research show that more awareness is required to fully participate in the IQA mechanisms at MIUC because 68.1% of staff members and 46.7% of students were aware of the IQA mechanisms

available at MIUC. The study also emphasizes the crucial role of both faculty and students in enhancing the institution's quality standards. Additionally, the research emphasizes the significance of IQA becoming inherent to the institutional culture to ensure successful implementation of IQA mechanisms. These findings underscore the importance of their active participation and awareness in ensuring the delivery of educational quality at HEIs.

Htun Htun (2018) studies focusing on assessing the quality of educational services in (3) Universities of Economics in Myanmar by integrating the AUN-QA at the program level criteria and Parasuraman's SERVQUAL dimensions. The study aims to analyze gaps of service quality between perceptions and expectations of teachers, professors and students and to find out most significant dimensions and items that contributes to learning outcomes and future intentions of students. The research utilized both primary and secondary data, drawing insights from academic staff and students. Three types of questionnaires were used: questionnaire investigated perceptions and expectations of students, questionnaire investigated the perceptions of professors on service quality, and questionnaire investigated the perceptions of academic staffs on students' expectations. Stratified random sampling was used at the three universities after a pilot study, and analyses included reliability assessments, descriptive analysis, gap analysis, and regression analysis. The findings revealed that negative gaps existed in all dimensions, indicating that academic staff perceptions of students' expectations were lower than the students' actual expectations. Notably, students across all three universities showed the highest mean gap scores in tangibility, responsiveness, and empathy dimensions. The study identified specific contributions of SERVQUAL dimensions to learning outcomes and future intentions at each university.

CHAPTER III
OVERVIEWS OF TECHNOLOGICAL UNIVERSITIES
IN MYANMAR

3.1 Development of Ministry of Science and Technology

Founded in the year 1996 under the decree No. (36/96) of the National Peace and Development Council, the MOST emerged as an important institution dedicated to fostering the advancement of the nation's interests through the continual progress of the science and technology sector and the cultivation of human resources within it. This commitment was reaffirmed on June 17, 2021, with the issuance of Order No. (138/2021) by the State Planning and Administration Council, reinstating the ministry after its merger with the MOE from 2016 to 2021.

The MOST is given the task of guiding the advancement towards sustainable development of the science and technology landscape. Within its scope now, there are (34) technical universities and (27) computer universities, (7) vocational training schools, (35) technical high schools, (3) government technical colleges, and technology-focused research and development institutions. These entities operate under specialized departments aimed at enhancing research, innovation, and technical proficiency across various sectors.

With a vision to propel Myanmar towards becoming a developed nation, the ministry strives to harness the full potential of science and technology by nurturing a cadre of skilled professionals and conducting research and development endeavors. Its mission is rooted in fostering national development by ensuring uniform progress across urban and rural areas, nurturing internationally competitive researchers, and leveraging the talent pool in science and technology to drive socio-economic growth. Through collaboration with various governmental departments and stakeholders, the ministry endeavors to address the evolving needs of the country and contribute to its enduring prosperity.

3.2 Evolution of Technological Universities under the Ministry of Science and Technology

In accordance with the necessity to foster national progress and development within the context of a globalized world, Myanmar's government has recognized human resource development (HRD) as a cornerstone for advancement. Efforts have been directed towards fortifying, enhancing, expanding, and establishing new educational institutions, particularly focusing on technological universities, colleges, institutes, and technical training schools. These endeavors aim to cultivate a cadre of highly skilled professionals capable of competing on the global stage.

Prior to 1988, the landscape of technical education in Myanmar was relatively uncommon, with only (11) government technical institutes, a computer college, and (16) technical high schools scattered across the nation. The accessibility to these educational facilities was predominantly confined to major urban centers such as Yangon and Mandalay, leaving many regions underserved. Consequently, individuals residing in states and divisions with limited access faced challenges in pursuing professional education, leading to a shortage of technicians in those areas.

However, post-1988, concerted efforts were made to address these disparities in educational access and opportunities. A comprehensive program for human resource development was formulated and implemented, with the establishment of (24) special development regions across states and divisions. Each special development region has a university, a government technical college, and a computer college, accompanied by the setup of a 100-bed hospital. These initiatives aimed to democratize access to professional education and healthcare services, thereby fostering equitable development across the nation.

The establishment of the MOST on 2 October 1996 aimed to enhance the advancement of science and technology. The foundation of MOST builds upon the Myanmar Science and Technology Research Department (MSTRD), which has been pivotal in the nation's industrial development since 1954. In January 1997, the MOE transferred technology and computer related institutions, colleges and the Department of Technical and Vocational Education (DTVE) to MOST.

Significantly, in January 2007, a significant milestone was achieved with the elevation of (26) government technological colleges to the status of technological universities, alongside the promotion of (4) government technical institutes to government technological colleges. This transformation indicated a significant

expansion of higher education infrastructure towards technical fields. Currently, Myanmar boasts a network comprising (34) technological universities and (27) universities of computer studies under the Department of Advanced Science and Technology (DAST). These professional institutions have played a crucial role in facilitating access to professional education for local national races, thereby fostering a diverse pool of skilled human resources. This narrowing of the development gap across the nation causes the transformative impact of these initiatives on Myanmar's socio-economic landscape. Table 3.1 illustrates the distribution of technological universities across various regions and states within Myanmar.

Table 3.1 – List of Technological Universities by Regions/States

Sr No.	Region / State	Name of TUs
1	Yangon Region	Yangon Technological University
		West Yangon Technological University
		Technological University (Thanlyin)
		Technological University (Hmawbi)
2	Mandalay Region	Mandalay Technological University
		Technological University (Mandalay)
		Technological University (Kyaukse)
		Technological University (Meiktala)
		Technological University (Yamethin)
		University of Technology (Yadanabon Cyber City) (UTYCC)
		Myanmar Aerospace Engineering University (MAEU)
3	Sagaing Region	Technological University (Sagaing)
		Technological University (Monywa)
		Technological University (Kalay)
4	Bago Region	Technological University (Toungoo)
		Pyay Technological University
5	Magway Region	Technological University (Magway)
		Technological University (Pakokku)
6	Ayeyarwady Region	Technological University (Pathein)
		Technological University (Hinthada)

		Technological University (Maubin)
7	Tanintharyi Region	Technological University (Myeik)
		Technological University (Dawei)
8	Kachin State	Technological University (Myitkyina)
		Technological University (Bhamo)
9	Kayah State	Technological University (Loikaw)
10	Kayin State	Technological University (Hpa-An)
11	Mon State	Technological University (Mawlamyaing)
12	Rakhine State	Technological University (Sittwe)
13	Shan State	Technological University (Taunggyi)
		Technological University (Panglong)
		Technological University (Kyaingtong)
		Technological University (Lashio)
14	Naypyitaw Union Territory	Naypyitaw Technological University

Source: Ministry of Science and Technology

3.3 Engineering Education and Accreditation Committee in Myanmar

The EEAC is an independent entity representing the MEngC and responsible for accrediting engineering programs in Myanmar. The EEAC formulated guidelines and procedures and released a manual for accreditation in October 2015. Then, it involves advancing accreditation through training sessions and initial accreditation activities, with backing from the Federation of Engineering Institutions of Asia Pacific (FEIAP), appoints evaluation teams to accredit each engineering program, and receives and reviews evaluation reports by the evaluation teams. The EEAC subsequently determines whether accreditation should be awarded and specifies any conditions that may be required, if deemed necessary.

Additionally, the EEAC acts as MEngC's representative in reciprocal recognition agreements concerning academic credentials and professional affiliations with international counterparts, providing regular updates to MEngC on its activities.

The EEAC outlines eight qualifying requirements that engineering programs must meet to be considered for accreditation. These requirements involve:

- Implementing Outcome-based Education (OBE),

- A total of at least 135 credits of Student Learning Time (SLT), including 90 credits specifically in engineering courses, distributed over a four-year duration,
- Project involving integrated design (IDP),
- Final-year project (minimum duration is six credits),
- Industrial training or internship experience (minimum duration is eight weeks),
- Eight full-time academic personnel (minimum requirement), including at least three engineers who are registered with the Myanmar Engineering Council (MEngC) or an equivalent accreditation body,
- Staff-to-student ratio should not exceed 1 staff member for every 20 students or fewer, and
- Report from an external examiner (required at least twice within a five-year period).

Meeting these qualifying requirements is essential for programs to proceed to a detailed assessment based on the accreditation standards. Failure to fulfill any of these criteria will result in the program being ineligible for further evaluation.

The EEAC has established seven criteria to assess the effectiveness of engineering programmes in Myanmar. These criteria are:

- **Programme Educational Objectives (PEOs):** PEOs are specific statements that communicate the expected achievements of graduates in their career and professional life a few years after graduation. These objectives are consistent with the mission and vision of the Institution of Higher Learning (IHLs) and are responsive to the expressed interest of programme stakeholders. PEOs are designed to align with the needs of the industry and society, and they guide the design and review of the curriculum in a top-down approach. PEOs are typically formulated to reflect the aspirations of the program and its stakeholders, and they serve as a framework for assessing the success of the program in meeting its educational mission.

- **Graduate Attributes (GAs):** GAs are a set of qualities comprising knowledge, skills, and attitudes that a person acquires upon completing a programme that awards a degree. These are designed to align with the needs of the industry and society and are typically formulated to reflect the aspirations of the program and its stakeholders. They are aligned with the PEOs and guide the process of curriculum design and evaluation using a hierarchical approach. They are intended to prepare graduates for their professional careers and to enable them to contribute to society

in a meaningful way. These GAs are assessed through various methods, including surveys, interviews, and other forms of feedback, and they serve as a framework for assessing the success of the program in meeting its educational mission.

- **Academic Curriculum:** Academic Curriculum refers to the content and structure of a program of study, including the courses, learning outcomes, and instructional methods used to achieve the PEOs and GAs. The curriculum should be structured to impart students with a comprehensive grasp of the subject matter, along with the essential skills and knowledge required to excel in their selected profession. The curriculum should be regularly reviewed and updated to ensure that it remains relevant and adapt effectively to the evolving requirements of both the industry and society. The curriculum should also provide opportunities for students to engage in experiential learning, such as laboratory work, internships, and other forms of practical experience. The curriculum should be designed to achieve equilibrium between the subjects that are technical and those that are not, and it should be delivered using appropriate instructional methods, such as lectures, seminars, and hands-on activities. The curriculum should be designed to meet the requirements of a diverse student and promote lifelong learning.

- **Students:** Students are an essential component of any academic program. They are individuals who are enrolled in a program of study and are seeking to achieve the PEOs and GAs of the programme. Students are expected to have the necessary academic qualifications and potential to achieve the PEOs and GAs. They bear the responsibility for their learning and are anticipated to actively engage in the learning process. Students should be provided with appropriate support, including academic advising, counseling, and other forms of assistance. The program should also provide opportunities for students to engage in co-curricular activities, such as clubs, organizations, and community service. The program should be designed to fulfil the requirements of a varied student population and to promote equity and inclusion. The success of the program is ultimately measured by the success of its students in achieving their educational and professional goals.

- **Academic and Support Staff:** They are essential components of any academic program. Academic staff are responsible for designing and delivering the curriculum, assessing student learning, and providing academic advising and mentoring to students. They are expected to have the necessary academic

qualifications and expertise to teach the subject matter effectively. Academic staff should also be engaged in research and scholarship to advance the knowledge and understanding of their field. Support staff, including laboratory technicians, administrative staff, and other personnel, are responsible for providing the necessary support services to make sure the smooth operation of the program. They are likely to have the necessary qualifications and expertise to perform their duties effectively and efficiently. Both academic and support staff should be committed to the mission and vision of the program and should work collaboratively to achieve the PEOs and GAs. They should be committed to providing a high-quality educational experience for students and should be adaptable to the evolving requirements of the industry and society. They should also be committed to promoting equity and inclusion and to creating a supportive and inclusive learning environment for all students. The success of the programme is ultimately measured by the success of its students, and academic and support staff play a critical role in helping students achieve their educational and professional goals.

- **Facilities:** Facilities are an essential component of any academic programme. They refer to the physical infrastructure, equipment, and resources necessary to support the delivery of the curriculum and to provide a conducive learning environment for students. Facilities include lecture halls, laboratories, workshops, libraries, computer labs, recreational facilities, and other support facilities. The adequacy and quality of facilities are essential for the success of all educational programmes. Facilities need to be planned to meet the needs of the programmes and provide a safe and comfortable learning environment for students. They should be equipped with the necessary equipment and resources to support the delivery of the curriculum effectively. Facilities should also be regularly maintained and upgraded to guarantee their continued functionality and relevance. The safety, health, and environmental aspects of facilities should also be carefully monitored and managed to ensure the well-being of students and staff. Procedures should be in place to ensure that facilities are safe and that appropriate measures are taken to prevent accidents and injuries. Continuous Quality Improvement (CQI) strategies should be implemented to ensure that facilities adequately address the requirements of the programme and to identify areas for improvement. Self-assessment of program performance related to facilities should be conducted regularly to guarantee that

facilities adequately address program requirements and pinpoint opportunities for enhancement.

- **Quality Management Systems (QMS):** QMS is an essential component of any academic programme. QMS is the set of policies, procedures, and processes designed to guarantee that the program achieves its goals and provides students with a quality standard educational experience. QMS covers all aspects of the programme, comprising curriculum design, educational delivery, evaluation methods, student assistance, and infrastructure. The QMS should be designed to ensure that the programme is meeting the PEOs and GAs. It should also be designed to promote continuous improvement and to ensure that the programme is delivering a high-quality educational experience for students. The processes include planning programmes, developing curriculum, reviewing curriculum and content, incorporating feedback from stakeholders, assessing the impact of individual courses on GAs, monitoring assessment outcomes, addressing comments from external examiners, reviewing PEOs and GAs, and CQI. The QMS should also include mechanisms for ensuring the safety, health, and environmental aspects of the program, including facilities, are carefully monitored and managed to ensure the well-being of students and staff. Self-assessment of performance related to QMS should be conducted regularly to ensure that the programme is meeting its objectives. The QMS needs periodic reviews and updates to ensure it stays pertinent and adaptable to the evolving requirements of both the industry and society.

These criteria are essential for evaluating the quality and effectiveness of engineering programmes and ensuring that they meet the necessary standards for accreditation.

3.4 Development of Quality Assurance in Technological Universities in Myanmar

In technological universities, the development of QA has been a vital focus, aligning with global standards and local regulations. According to Schwarz and Westerheijden (2007), the concept of academic quality, focused on achieving excellence, has traditionally held significant importance within HE. Throughout history, universities have depended on the reputation of their faculty to draw students and academics, highlighting the legitimacy of their academic offerings and research endeavors.

The implementation of QA in technological universities involves two essential elements: accreditation and evaluation or assessment, as highlighted by Ewell (1989). Accreditation traditionally involves academic peer review, while Evaluation encompasses various methods of assessing teaching, learning, and inquiry processes. Exploring the roots of QA through its historical, philosophical, political, and social dimensions is crucial, including academic peer review, governmental oversight, education in science, administrative trends, and efforts to ensure responsibility.

In line with the Myanmar National Education Act 2014, Union Hluttaw Law No. 41, QA programs are mandated at all levels of education. This includes both internal and external inspection and evaluation processes to ensure education quality and standards improvement. The Ministry is tasked with specifying inspection and evaluation methods to maintain quality integrity.

By adhering to global QA standards, local regulations, and fostering a deep understanding of QA's diverse traditions and implications, technological universities in Myanmar strive to enhance Engineering Education Quality Assurance and positively impact the educational landscape both nationally and internationally.

3.4.1 Accreditation Development in Technological Universities in Myanmar

In 2009, the FEIAP made an attempt to implement accreditation for engineering programs within Myanmar's education system. Representatives from the Chinese Institute of Engineers (CIE) and Institute of Engineering Education Taiwan (IEET) came to Myanmar as a first attempt to negotiate with the Myanmar Engineering Society (MES). Following this, the Institution of Engineers Malaysia (IEM) and Chinese Institute of Engineers Taipei (CIE) were designated as mentors during the FEIAP General Assembly in Korea in May 2012 to assist the Myanmar Engineering Society (MES) in establishing an Engineering Accreditation Committee and system in alignment with FEIAP Engineering Education Guidelines.

In July 2012, FEIAP conducted another visit with several objectives: establishing an Engineering Education and Accreditation Committee/Body (EEAC) in Myanmar, developing an Engineering Accreditation Manual, training assessors for program accreditation, and securing one or two universities for volunteer accreditation to facilitate the review process. During this visit, the mentors assessed Myanmar Maritime University (MMU) and identified its potential for accreditation under the EEAC once the accreditation system was established.

A second visit by FEIAP, accompanied by a team from Taiwan, took place in May 2013. Formal visits were made to Myanmar Maritime University (MMU) and Yangon Technological University (YTU). Productive discussions were held with the YTU team, emphasizing the necessity of accreditation for quality assurance and mutual recognition of educational standards regionally and globally. Workshops were proposed to support from stakeholders such as policy makers, professional bodies, industry representatives, teachers from technological universities, and students.

Following the recommendations from the second visit, six workshops were organized by FEIAP in 2014 and 2015, covering topics like international recognition of engineering degrees, competency-based engineering education, self-assessment by education providers, and assessor training.

A third visit in 2014 aimed at conducting a workshop to facilitate engineer mobility and adherence to FEIAP Engineering Education Guidelines. By this time, the Myanmar Engineering Council Law had been enacted on 28th November 2013, indicating a formal framework for engineer registration and program accreditation within Myanmar. According to the Myanmar Engineering Council Law, with proclamation order no. 81/2013 of the Ministry of Construction, the first term of Myanmar Engineering Council along with the constitution of eight working committees had formed by the Union of Government on 11 December 2013.

The most recent workshop, organized by IEET on March 28, 2015, focused on training accreditation committee members from the Myanmar Engineering Council in evaluating undergraduate engineering training programs.

The first Accreditation Manual, Policy, Procedure, and Guidelines was published in 2015 and updated in 2018 and 2020. All the technological universities in Myanmar follow these manual and guidelines and prepared to get the programme accreditation.

Since 2018, the Myanmar Engineering Council has issued notifications for engineering programmes offered by technological universities. These notifications are approved during Executive Committee meetings and are based on recommendations submitted by the EEAC. These recommendations rely on the EEAC Manual 2018 and the FEIAP Engineering Education Accreditation Guidelines. The following Table 3.2 describes the numbers of engineering programmes accredited fully and provisionally by Myanmar Engineering Council.

Table 3.2 – Numbers of programme Accredited by M.Eng.C

Sr No.	Name of the University	Nos. of programme	Accreditation Status	Year Accredited
1	Yangon Technological University (YTU)	11	Full	2019
2	Mandalay Technological University (MTU)	7	Full	2019
3	Defence Services Technological Academy (DSTA)	7	Full	2021
4	Technological University (Kyaukse)	6	Provisional	2018
5	Technological University (Hmawbi)	6	Provisional	2019
6	West Yangon Technological University	6	Provisional	2019
7	Technological University (Thanlyin)	8	Provisional	2020
8	Technological University (Toungoo)	4	Provisional	2020
9	Technological University (Monwya)	7	Provisional	2020
10	Technological University (Taunggyi)	6	Provisional	2020
11	Technological University (Mandalay)	6	Provisional	2020
12	Technological University (Maubin)	4	Provisional	2020

Source: https://myanmarengc-eeac.org/accredited-programmes/

The Myanmar Engineering Council has issued fully accredited programmes for the respective academic year. These accreditations were granted by the EEAC of the MEngC, based on the Engineering Programme Accreditation Manual (2018). Notably, this includes (11) programmes from YTU, (7) programmes from MTU in 2019, and (7)

programmes from DSTA in 2021. Between 2018 and 2020, a total of (53) programmes from (9) technological universities received provisional accreditation. These programmes are currently in the process of seeking full accreditation, indicating a commitment to meeting and exceeding established standards.

3.4.2 Implementation of Quality Management Systems in Technological Universities

There are altogether (7) criteria in the EEAC manual and Quality Management Systems (QMS) is one of the criteria. It must be implemented and continually maintained to be assessed for accreditation.

To keep up with its developments, every technological university needs to implement its Quality Management Systems (QMS). In line with this, monitoring and management of educational activities and instructional processes has been regularly assessed by internal auditors who underwent sufficient training to carry out this task. The aims of implementing quality management system are: 1) to involve stakeholders in quality initiatives, 2) to conduct continuous internal assessment of all programmes including the supporting subjects, and 3) to ensure the enhancement of the teaching and learning environment of undergraduate engineering programmes. In order to meet the stated aims, work plans had to be designed and documentation processes need to be implemented.

Initially, there were many challenges for top management as well as for all staff involved to initiate the QMS processes in the university although it has already set up its QMS office. Some staff felt that they had work overload when they had to do their QA tasks and some were not interested in it at all. The most challenging aspect was the transfer system which happens every two years as mandated by the ministry. With this system, faculty members get to be transferred from one university to another. This results obviously to a constant turnover of personnel that challenges stability and continuity of programs and projects.

Therefore, all technological universities decided that getting the ISO certification would be its key driver to implement QMS systematically and sustainably. ISO 9001-2008 standards, now upgraded to ISO 9001:2015, was considered to be one of the tools that could bring about a radical change in the institutional performance. Although getting the ISO certification is not mandatory for programme assessment in the accreditation process, implementing QMS is recognized as a key factor in setting

the groundwork for accreditation. At present, there are 28 technological universities in Myanmar that have achieved ISO 9001:2015 certification. This certification acknowledges their commitment to providing high-quality undergraduate engineering education and training services.

3.5 Profile of Selected Technological Universities in Myanmar

In this section, background history of (7) selected technological universities is described and their existing level of quality assurance is also presented for a study on the quality assurance awareness among academic staff.

3.5.1 Technological University (Kyaukse)

Originally established as the Government Technical Institute (GTI) in December 1998, Technological University (Kyaukse) has undergone several transformations to become a university in Myanmar's educational landscape. In January 2001, GTI evolved into the Government Technological College (GTC), setting the stage for further advancement. On 20th January 2007, GTC was promoted to the status of Technological University.

A significant milestone in the university's quality assurance journey started in February 2016 with implementing a QMS aligned with ISO 9001 standards. This commitment to excellence earned the university ISO 9001:2008 certification on the Provision of Undergraduate Engineering Education and Training Services in February 2016. Building upon this success, the university achieved ISO 9001:2015 certification on 14th September 2018 and received re-certification on 9th February 2022, reaffirming its dedication to maintaining quality educational standards.

Table 3.3 below presents the current list of programmes along with the numbers of those that have received provisional accreditation from the EEAC.

Table 3.3 – Numbers of Existing and Accredited Programmes in TU (Kyaukse)

Name of the University	Nos. of existing programme	Nos. of accredited programme	Accreditation Status
Technological University (Kyaukse)	9	6	Provisional

Source: https://www.kyauksetu.edu.mm/

Although the university offers altogether (9) engineering programmes, (6) Bachelor of Engineering programmes received provisional accreditation from the Engineering Education Accreditation Committee under the MEngC, in 2018. The accreditation assessment for the other three engineering programs is delayed due to a shortage of human resources. Each programme must have a minimum of eight academic staff members, with at least three holding registration as Engineers with the MEngC or an equivalent qualification, as mandated by the EEAC.

In October 2019, the university's dedication to high-quality education was recognized on an international scale when it became an Associate Member of the AUN-QA. This affiliation opened doors to participation in the AUN-QA Community Project (2023-2027), a collaborative initiative aimed at enhancing the QA frameworks of universities in Cambodia, Laos, and Myanmar. Through this project, Technological University (Kyaukse) joins hands with regional counterparts to align its programmes with the AUN-QA framework and outcome-based education practices, thus ensuring continuous improvement at both institutional and programme levels.

3.5.2 Technological University (Toungoo)

The history of Technological University (Toungoo) traces back to 30th June 1982, when it was initially established as the Government Technical High School (GTHS) to provide technical education and skills training to meet the increasing needs of the industry and regional development.

On 2nd December 1985, this GTHS underwent a significant transition and was upgraded to the status of the Government Technical Institute (GTI). This upgrade marked a moment in its evolution, signifying an expansion of its academic offerings and capabilities to better serve the educational needs of the community.

As GTI continued to grow and adapt to changing educational landscapes, it was subsequently promoted to the level of a Government Technical College (GTC) on 2nd October 1999. This transformation reflected the ongoing commitment to providing higher levels of technical education and training to students. On 20th January 2007, GTC reached its current designation as Technological University (Toungoo).

In its ongoing pursuit of QA, the university took a significant step with the establishment of the Quality Management Systems (QMS) Office in 2014. This office was tasked with implementing and maintaining QMS to ensure the highest standards of academic, administrative efficiency, and student satisfaction. As its commitment to

quality and continuous improvement, Technological University (Toungoo) attained ISO 9001:2015 Certification for its Quality Management on 21st July 2016.

Technological University (Toungoo) offers altogether (6) engineering programmes for bachelor degree and (4) Bachelor of Engineering programmes were provisionally accredited by the Engineering Education Accreditation Committee under the MEngC in 2019 and 2020. The other two programmes – Mechatronic Engineering and Information Technology are trying to meet the requirements of accreditation guidelines but they face a challenge due to a shortage of teaching staff members. Table 3.4 describes Numbers of existing and accredited programmes in Technological University (Toungoo).

Table 3.4 – Numbers of Existing and Accredited Programmes in TU (Toungoo)

Name of the University	Nos. of existing programme	Nos. of accredited programme	Accreditation Status
Technological University (Toungoo)	6	4	Provisional

Source: http://www.tutoungoo.edu.mm/

3.5.3 Technological University (Taunggyi)

Technological University (Taunggyi) stands within the landscape of (No.85) Quarter, South of Ayetharyar, Taunggyi, boasting an expansive area of 60.83 acres. Its journey began with the establishment of the Government Technical Institute (GTI) in Kalaw, which was later transferred to the Defense Services Command and General Staff Colleges (DSCGSC) on 12th July 1991. Subsequently, the Government Technical Institute (Ayetharyar) was inaugurated on 24th August 1992.

The momentum continued with the promotion of Government Technical Institute (GTI) to Government Technological College (GTC) on 10th November 1999. Concurrently, Technical High School (THS) was elevated to the status of GTI on 21st December 1998, before merging with GTC (Ayetharyar) on 18th July 2000, facilitating a consolidation of resources and expertise. The Government Technological College (GTC) ascended to the status of Technological University (Taunggyi) in 20th January 2007.

The commitment to excellence and continuous improvement led to the development of QMS on 23rd August 2015, involving every faculty member in the

process. The institution's dedication to quality was duly recognized with ISO 9001:2008 certification on 30th September 2016, followed by the ISO 9001:2015 accreditation on 13th September 2018.

In pursuit of academic accreditation, Technological University (Taunggyi) has made significant steps, with (6) programs securing provisional accreditation and ongoing efforts to attain full accreditation. Table 3.5 shows the numbers of existing and accredited programmes in 2020.

Table 3.5 – Numbers of Existing and Accredited Programmes in TU (Taunggyi)

Name of the University	Nos. of existing programme	Nos. of accredited programme	Accreditation Status
Technological University (Toungoo)	6	6	Provisional

Source: https://www.tutaunggyi.edu.mm/

3.5.4 Technological University (Pathein)

Technological University (Pathein) is situated in the Ayeyarwaddy Region, specifically in the Pathein District's Kan-Gyi-Daung Township. Settled within Field No. 68 of Twenty Plants Village, it is conveniently located adjacent to the Pathein Kyan-Khin Railway. Spanning across 27.45 acres, the university offers a conducive environment for academic pursuits.

Initially established as the Government Technical College (Pathein) within the premises of the former Cooperative Training School in Lun-Kan Ward, Pathein, Ayeyarwady Region, on 27th December 1999. It commenced its academic offerings with a four-year Bachelor of Engineering (B.Tech) degree programme.

In a significant development, the university shifted to its new campus on 1st August 2002, following the completion of construction activities during the fiscal year 2000-2001. This relocation facilitated enhanced facilities and infrastructure for academic and research endeavors. Subsequently, on January 20, 2007, it attained the status of Technological University (Pathein).

The university established Quality Management Systems (QMS) in 2017 to enhance its QA efforts, adhering to ISO 9001:2015 standards. It successfully obtained ISO certification on October 8, 2019. Furthermore, all staff members are trying to

prepare their programmes and courses to meet the criteria and guidelines laid out by the EEAC, ensuring alignment with global best practices in engineering education.

3.5.5 Technological University (Myitkyina)

Technological University (Myitkyina) is Located 9,300 feet away from Myitkyina-Mandalay – Pyihtaungsu street and eight miles away from south of Myitkyina, Myitkyina district, Kachin State. It commenced its journey on the 3rd of August, 1981, leveraging machinery imported from New Zealand. Initially housed in the premises of the No. (4) Basic Education High School building in Myitkyina, it began its operations as a Technical High School (THS) following the developments of 1980. Over time, it progressed steadily, transitioning into a Technical Institute on 1st September 1997, and subsequently into a Government Technological College on 2nd October 1999.

On 20th January 2007, a significant milestone was achieved as the university attained the status of Technological University. Presently, it offers (4) engineering programmes: Civil, Electronic, Electrical Power, and Mechanical.

In 2017, the university established a QMS in line with ISO 9001:2015 standards, achieving certification on 2nd December 2019, as part of its commitment to quality assurance. Furthermore, the university places a strong focus on maintaining the quality educational standards, acquisition of knowledge, and innovation efforts according to the guidelines of EEAC. To this end, the teaching syllabi for each engineering and academic subject are continually reviewed and updated to align with international standards and industry requirements.

3.5.6 Technological University (Hpa-An)

Technological University (Hpa-An) is situated in Hpa-An Township, Kayin State in Myanmar. Nestled on field No. (1185), near Ye Thar Village, along the Hpa-An-Donyin Road. Positioned at a strategic distance of about 7.9 kilometers from Thanlwin Bridge (Hpa-An) and 12 kilometers from the Zwe Ka Bin Mountain, it enjoys a serene accessible location.

The university was initially established as the Government Technical High School (GTHS) on 6th September 1993. Over time, it evolved into the Government Technical College (GTC) on 28th December 2000. Finally, 20th January 2001, it was upgraded the status of Technological University (Hpa-An). To uphold its commitment

to excellence in teaching, research, and development, Technological University (Hpa-An) collaborates closely with other technological universities across Myanmar. Through these partnerships, the university continually refines its teaching syllabi and academic curricula to remain abreast of evolving industry trends and global standards.

In a landmark development in 2017, Technological University (Hpa-An) established QMS adhering to the guidelines of ISO 9001. This dedication to quality was duly recognized when the university was awarded the ISO 9001:2015 Certificate for the Provision of Undergraduate Engineering Education and Training Services on 23rd April 2019.

Moreover, all staff members are trying to prepare all academic programmes to align with the criteria and standards set forth by the EEAC, guaranteeing the global standards in engineering education.

3.5.7 West Yangon Technological University (WYTU)

WYTU, situated in Hlaing Thar Yar Township, Yangon Region, Myanmar, stands adjacent to the Industrial Zone. Established in December 1999, it initially operated as a constituent of Yangon Technological University (YTU). However, it transitioned into an independent institution on December 15, 2005, marking nearly 20 years of educational service.

WYTU offers a diverse array of undergraduate and postgraduate programs. With a focus on cultivating adept engineers and architects across various disciplines, the university contributes to national socio-economic advancement. It aspires to attain international recognition by prioritizing high standards in its educational approach, research, and innovation. Since 2015, the institution has implemented a Quality Management Systems (QMS), mandated by the Engineering Education and Accreditation Committee (EEAC). This effort culminated in ISO 9001:2008 certification in 2016, followed by ISO 9001:2015 certification in 2018.

Table 3.6 shows that (6) undergraduate programmes at WYTU have received provisional accreditation from EEAC, adhering to the standards outlined by the FEIAP in 2018.

Table 3.6 – Numbers of Existing and Accredited Programmes in WYTU

Name of the University	Nos. of existing programme	Nos. of accredited programme	Accreditation Status
Technological University (Taungoo)	10	6	Provisional

Source: https://www.wytu.edu.mm/

Departments are actively working to attain full accreditation for these programmes. However, the remaining four programs face constraints in human resources for implementing accreditation processes. Despite this challenge, they are trying in order to fulfill the criteria for accreditation. Additionally, WYTU attained associate membership status with the AUN-QA in 2018, further demonstrating its commitment to academic excellence and regional cooperation. This affiliation has paved the way for participation in the AUN-QA Community Project (2023-2027), a collaborative initiative focused on enhancing the quality assurance frameworks of universities in Cambodia, Laos, and Myanmar. Through this project, WYTU collaborates with regional QA experts to align its programmes with the AUN-QA framework and outcome-based education practices, ensuring continuous improvement at both the institutional and programme levels.

CHAPTER IV
SURVEY ANALYSIS ON AWARENESS OF ACADEMIC
STAFF ON QUALITY ASSURANCE

The aim of this chapter is to analyze the findings derived from the investigation of the academic staff's awareness on QA in technological universities in Myanmar. It addresses two main study objectives: 1) to analyze the awareness level of academic staff on QA in technological universities, and 2) to investigate the ways forwards to QA in technological universities. This section presents the findings derived from the academic staff survey from technological universities, and analysis of the data. It is composed of three components. The initial section outlines the survey's structure, while the subsequent part provides details on how data was gathered. The final part describes the results of the survey.

4.1 Survey Design

Despite existing (34) technological universities in Myanmar, this study specifically focuses on (7) selected technological universities situated across four Regions and three States. These Regions and States were chosen randomly, followed by the random selection of one technological university from each selected Region and State to gather data. The utilization of random sampling in this study is intended to facilitate the generalization of survey findings to analyze academic staff awareness on QA and investigate ways forward to QA in technological universities. Further details about the (7) selected technological universities can be found in Table 4.1.

Sampling entails the methodical choice of a segment of a population intended for the purposes of study. Kombo & Tromp (2006) define it as the method by which individuals, items, or subjects are chosen to examine. In this study, random sampling techniques were utilized to form the participation universities, ensuring that each member university has an equal chance of being included. This approach facilitates the generalization of findings to the broader population (Kombo and Tromp, 2006).

Table 4.1 Selected Technological Universities by Regions/States

S.N.	Selected University	Selected Region/State
1	Technological University (Hpa-An)	Kayin State
2	Technological University (Myitkyina)	Kachin State
3	Technological University (Taunggyi)	Shan State
4	Technological University (Kyaukse)	Mandalay Region
5	Technological University (Taungoo)	Bago Region
6	Technological University (Pathein)	Ayeyarwady Region
7	West Yangon Technological University	Yangon Region

Source: Ministry of Science and Technology

In this study, data were collected from academic staff at selected technological universities using a structured questionnaire. To determine the appropriate sample size for the faculty members, the Taro Yamane formula (Yamane, 1973) was applied.

The formula used to get the samples from population of these seven technological universities,

Yamane's formula for known sample size

$$n = \frac{N}{1 + N(e^2)}$$

Where:

n is the sample size,

N is the population size,

e is the margin of error (level of precision).

Assuming a margin of error of 2.5% (0.025), the calculation would be:

$N = 631$

$e = 0.025$

$$n = \frac{631}{1 + 631(0.025^2)} = 425.54 = 453$$

According to Yamane's formula, the sample size for the main respondents (academic staff) is 453 for this study.

Table 4.2 presents the participation of academic staff from selected technological universities in Myanmar, indicating a diverse representation across institutions. Among the academic staff, the highest number is from Technological University (Kyaukse) with 79 respondents, which account for 17.44% of the total

respondents. Second highest is the Technological University (Taunggyi), where 78 academic staff are involved in the survey, which are equivalent to 17.22% of total respondents. Third in rank are Technological University (Taungoo) and West Yangon Technological University (WYTU), both of which have 17.00% contribution to the proportion of respondents. The remaining total responses (about 30%) are academic staff from Technological University (Pathein), Technological University (Hpa-An) and Technological University (Myitkyina).

Table 4.2 Numbers of Academic Staff responded in the survey

S.N.	Name of University	Number of respondents	% of respondents
1	Technological University (Hpa-An)	50	11.04
2	Technological University (Kyaukse)	79	17.44
3	Technological University (Myitkyina)	31	6.84
4	Technological University (Pathein)	61	13.47
5	Technological University (Taunggyi)	78	17.22
6	Technological University (Taungoo)	77	17.00
7	West Yangon Technological University	77	17.00
Total		**453**	**100**

Source: Survey data, 2024

4.2   Data Collection Method

In this study, a combination of primary and secondary methods of data collection was utilized. Primary data sources directly aligned with the study's objectives were utilized, primarily through the distribution of questionnaires aimed at assessing the awareness of academic staff regarding quality assurance. Additionally, secondary data was sourced from various institutions including universities, the ministry, and accreditation committee.

The questionnaire design process drew upon references from the manual of EEAC, prior studies, and survey reports associated with ensuring quality in HE. By employing primary information, the gathered data was systematically analyzed to draw insightful conclusions.

To fulfill the study objectives, a structured questionnaire was employed for data collection among academic staff at technological universities in Myanmar. The questionnaire is structured in (5) sections including demographic details of respondents.

The demographic information section, section (A), is expected to get essential data such as the respondent's university affiliation, gender, age, qualifications, position, and years of experience teaching at their current university. Knowledge on existing institutional QA systems (Section B) and awareness of academic staff on QA (Section C) are dedicatedly assigned to address the first study objective. Perceptions on difficulties in carrying out QA are explored in Section D and the ways for betterment in enhancing QA in technological universities are examined in Section (E).

4.3 Survey Results

This section consists of data presentation, analysis, and interpretation of survey findings obtained from responses provided by academic staff via the structured survey questionnaire.

4.3.1 Profile of the Respondents

The demographic data provides insights into the composition of academic staff at technological universities, highlighting aspects such as gender distribution, age demographics, qualification levels, positions held, and years of teaching experience.

The following Table 4.3 shows demographic data of academic staff from technological universities.

Based on the demographic data collected from academic staff serving at technological universities, the majority of the respondents were female. It seems that while both male and female have equal access to education, females may feel more encouraged or choose themselves to pursue careers in education, leading to their higher representation in the educational sector compared to males.

Table 4.3 Demographic Data of Academic Staff from Technological Universities

Description	No. of Respondents	Percentage
Gender		
Male	42	9.3
Female	411	90.7
Total	**453**	**100**
Age Level (Year)		
21 – 30	108	23.8
31 – 40	190	41.9
41 – 50	129	28.5
51 – 60	26	5.7
Total	**453**	**100**
Qualification		
Bachelor's degree	143	31.6
Master's degree	241	53.2
Doctoral degree	69	15.2
Total	**453**	**100**
Position		
Tutor / Demonstrator	127	28.0
Assistant Lecturer	63	13.9
Lecturer	132	29.1
Assistant / Associate Professor	85	18.8
Professor	16	3.5
Professor & Head	30	6.6
Total	**453**	**100**
Number of years teaching at the current university		
Less than 5 years	299	66.0
6 – 10 years	117	25.8
11 – 15 years	31	6.8
More than 16 years	6	1.3
Total	**453**	**100**

Source: Survey data, 2024

The age distribution of the faculty members shows that the largest group falls within the age range of 31-40 years, accounting for 41.9% of the total sample. It seems that individuals in this age group may actively look for chances to enhance their knowledge and comprehension of QA practices. The second largest participation is the age group of 41-50 years. They take part in leadership or senior academic positions where they have a greater influence on institutional policies and practices related to quality assurance. The lowest participation is age group of 51-60 years. It seems that they approach their late 50s and early 60s, so they may be less actively engaged in professional development activities or less inclined to participate in surveys and research initiatives.

Recording qualifications, approximately 70% of them possess Master's and Ph.D. degrees, indicating a high level of educational attainment among them. With such educational backgrounds, these individuals are well-equipped to actively participate in the development of QA processes.

The vast majority of academic staff, comprising assistant lecturers, lecturers, associate professors, professors, and professor & head, collectively represent over 70% of those actively participating in the survey. This indicates that various positions within the academic hierarchy are significantly contributing to quality assurance efforts.

Most academic staff members have teaching experience of less than 5 years, with some having between 6 to 10 years of experience at current universities. This is largely influenced by the annual transfer system, which frequently sees academic staff moving from one university to another, thus limiting their tenure at any single institution.

4.3.2 The operation of Quality Assurance in Technological Universities

This section outlines the perceptions of academic faculty regarding the functioning of QA within technological universities. It involves the existence of IQA in universities, quality principles, ISO certification for Quality Management and participation of university faculty in QA implementation.

The following Table 4.4 describes the academic staff's perception on the QA systems in their technological universities.

Table 4.4 Perceptions of Academic Staff on the Operation of Quality Assurance
Systems

S.N.	Particulars	Frequency			
		Yes	%	No	%
1	Existence of Internal Quality Assurance (IQA) unit/department/committee	422	92.3	31	6.8
2	Quality Assurance System Principles based on ISO 9001	450	99.3	3	0.7
3	Certification of ISO based system	438	96.7	15	3.3
4	Involvement in establishing of IQA unit /department/committee	376	83.0	77	17.0

Source: Survey data, 2024

Concerning the existence of IQA unit/department/committee, the majority (92.3%) of academic staff indicate that their university has a dedicated unit, department, or committee responsible for IQA. This suggests a strong institutional focus on maintaining and enhancing the educational quality and delivery of services provided. In the realm of QA system principles, almost all respondents (99.3%) report that their QA system is based on ISO 9001 principles. This indicates a widespread adoption of internationally recognized standards for quality management within the universities surveyed. A significant portion (96.7%) of universities with ISO-based Quality Assurance Systems have obtained certification.

The majority (83.0%) of educational staff report being participated in the implementation of the IQA unit, department, or committee. This suggests a collaborative approach to QA, with active participation from academic staff in shaping and improving internal processes.

Upon detailed analysis of individual involvement in the implementation of QA at their universities, as shown in Table 4.5, it becomes evident that participation levels vary significantly.

A very small percentage of academic staff members (just over 1%) report never being involved and rarely involved in the implementation of QA at their institution. This suggests a limited level of engagement or awareness regarding QA activities.

While the degree of involvement may vary, the overall engagement level is notably high, with nearly 90% of academic staff participating in QA implementation.

Table 4.5 Individual Involvement in the Implementation of Quality Assurance

Description of frequency	Frequency	Percent
Never involved at all	3	.7
Rarely involved	45	9.9
Involved a little	136	30.0
Quite involved	171	37.7
Very much involved	98	21.6
Total	**453**	**100.0**

Source: Survey data, 2024

The information regarding the organization of Quality Assurance Committees and the individuals accountable for QA can be found in Table 4.6.

Table 4.6 Perception of Academic Staff on the Structure of Quality Assurance

S.N.	I know that the following persons and team are involved in QA implementation.	Yes	No
1	Top Management (Rector)	330 (72.8%)	123 (27.2%)
2	Pro-Rector	350 (77.3%)	103 (22.7%)
3	QA committee functioning within the institution	399 (88.1%)	54 (11.9%)
4	A committed individual (such as QA officer) responsible at the organizational level	394 (87.0%)	59 (13.0%)
5	QA team that operates at the faculty/ department level	394 (87.0%)	59 (13.0%)

Source: Survey data, 2024

The majority of academic staff indicate the involvement of Pro-Rectors in the QA initiatives is slightly higher than that of Rector. This is because pro-rectors are

assigned to lead the quality related activities in most of the technological universities, so academic staff perceive pro-rectors as being more involved in QA initiatives. The vast majority of academic staff (nearly 90%) indicate the presence of a QA committee operating at the institutional level, the presence of a QA officer, overseeing operations at the institutional level, alongside QA teams functioning within individual faculties or departments. Having a designated individual responsible for QA indicates a clear accountability, focusing on quality management and there is a strong top-down support and leadership in quality assurance efforts within the institution.

Table 4.7 presents their perceptions regarding the quality-related initiatives conducted by the QA unit/committee/department.

Table 4.7 Focus of Academic Staff on Quality Related Activities

S.N.	Particulars	Mean	Std. Deviation
1	Teaching and Learning	3.94	.861
2	Graduate employability	3.60	.930
3	Research	3.57	.937
4	Governance and management	3.61	.936
5	Community outreach	2.38	1.361
6	International cooperation	2.49	1.294
Overall		**3.27**	**1.053**

Source: Survey data, 2024

According to the survey results, academic staff may perceive that the QA unit/committee/department focuses more on educational activities, employment prospects for graduates, and research activities compared to community engagement and international cooperation. As they are key stakeholders in the academic process, they may have a stronger awareness of the QA unit's focus on teaching and learning activities based on their direct involvement in these areas. They may interact more frequently with QA processes related to these activities, thus leading to a perception of greater focus on these aspects.

In addition, their perception of QA unit's focus on governance and management is relatively high (Mean = 3.61). Governance and management activities are integral components of QMS implementation in academic institutions. QMS frameworks, such

as ISO 9001, emphasize the importance of effective governance structures, clear management processes, and continuous improvement mechanisms to ensure quality in educational services. Therefore, academic staff perceive a higher focus on governance and management activities because most of them involve in the QMS implementation processes.

Academic staff perceive that QA unit/committee/department focuses on Community outreach and international cooperation activities is rather low. Due to the institutional priorities, teaching-learning related activities and management activities are often key indicators of academic quality and institutional effectiveness. Academic staff have limited involvement or visibility in community outreach and international cooperation initiatives compared to core academic activities. As a result, their perception of the QA unit's focus on these external engagement activities is lower due to less direct interaction or engagement in these areas.

To sum up, the survey results provide valuable insights into the operation of QA systems. The vast majority of faculty members reported the presence of a dedicated unit/department/committee responsible for internal quality assurance, with a high percentage indicating that their QA system principles are in accordance with ISO 9001 and certified accordingly. Furthermore, a significant proportion of faculty members reported being actively took part in the implementation of IQA mechanisms at their institutions. The data also highlights the involvement of various stakeholders, including top management, QA committees at institutional and faculty/department levels, and dedicated personnel overseeing quality assurance. Overall, the findings suggest a strong commitment to QA practices and a high level of engagement from academic staff in ensuring quality and continuous improvement within their universities.

4.3.3   Awareness of Academic Staff on Quality Assurance

This section aimed at assessing the awareness of academic staff on QA carrying out in their respective universities. Specifically, the survey questions are aligned with the criteria of EEAC Accreditation Manual from the MEngC. Academic staff from technological universities need to be familiar with these accreditation criteria and requirements for programme accreditation.

Table 4.8 shows the awareness level of academic staff on the first criterion concerning Programme Educational Objectives.

Table 4.8 Academic staff's awareness on Programme Educational Objectives (PEOs) Related Aspects

S.N.	Particulars	Mean	Std. Deviation
1	Your university has listed PEOs for each programme.	3.67	1.020
2	Your university has communicated PEOs with all stakeholders.	3.53	1.008
3	PEOs align closely with the university's vision and mission.	3.64	1.057
4	The faculty members are engaged in discussions regarding the methods employed to assess the attainment levels of PEOs.	3.42	1.127
Overall		**3.57**	**1.053**

Source: Survey data, 2024

Based on the academic staff's response on the Programme Educational Objectives (PEOs), they indicate that they have a considerable level of awareness with a mean score of 3.67 and 3.64 concerning the listing of PEOs for each programme and the alignment of PEOs with the university's overarching vision and mission. It means that they have a strong awareness on the alignment between the educational objectives and the institutional vision and mission. However, there is a lower awareness level (Mean = 3.42) in terms of discussing the methods employed for assessing the attainment of PEOs among faculty members. Due to the complexity of evaluation processes, they need to know the specific methods and criteria used for assessment through clear communication channels and proper trainings.

Table 4.9 describes the responses of the academic staff's awareness on Graduate Attributes (GAs).

Table 4.9 Academic staff's awareness on Graduate Attributes (GAs) related aspects

S.N.	Particulars	Mean	Std. Deviation
1	The GAs for your programme are listed down and stated.	3.64	1.067
2	How the GAs relate to the PEOs are discussed among all levels of faculty members to understand clearly.	3.54	1.085
3	Outcome-Based Education (OBE) model has been implemented for the purpose of delivering, assessing, and evaluating the attainment of the GAs.	3.64	1.050
4	The outcomes of the evaluation and assessment of each GA are deliberated among all faculty members across various levels.	3.44	1.076
Overall		**3.57**	**1.070**

Source: Survey data, 2024

Academic staff have an above-average level of awareness, that is mean score of 3.64, regarding the listing of GAs for each program and the adoption of an OBE model to examine and evaluate the performance of GAs. This means that they have a strong emphasis on defining the competencies in knowledge, abilities, and mindsets that students are anticipated to. possess upon graduation and aligning assessment practices with these attributes. However, there is a slightly lower awareness level within this criterion with a mean score of 3.44 in discussing how GAs relate to Programme Educational Objectives (PEOs) among faculty members and in sharing the results of GA assessment and evaluation. experience for students. This suggests that while there is awareness of GAs and their alignment with teaching methodologies, there may need for improvement in discussions around the assessment and evaluation outcomes among faculty members. In addition, this could be insufficient clear guidelines of the respective universities emphasizing the importance of integrating GAs into the assessment and evaluation processes.

Regarding the Academic Curriculum, staff members express overall satisfaction with the programme's organization, teaching methods, and evaluation techniques, as indicated by mean scores ranging from 3.45 to 3.94, detailed in Table 4.10.

Table 4.10 Academic staff's awareness on Academic Curriculum related aspects

S.N.	Particulars	Mean	Std. Deviation
1	The programme structure and course contents are described.	3.94	.996
2	The programme delivery and assessment methods are discussed among all levels of faculty members.	3.85	.960
3	A matrix linking courses to GAs is developed in each programme.	3.61	1.081
4	The curriculum development and review process engage multiple parties invested in the program.	3.45	1.050
Overall		3.71	1.022

Source: Survey data, 2024

Regarding the awareness of academic staff members on Academic Curriculum, they have a relatively high awareness level on the description of program structure and course contents, as well as discussions on program delivery and assessment methods. It means that they have a solid understanding of the content and delivery mechanisms within the academic programmes. However, there is a lower awareness level in terms of involving various stakeholders in the curriculum development and review process. This could result from insufficient involvement of stakeholders beyond the academic faculty in the process of developing the curriculum.

The following Table 4.11 describes the data provides insights into the academic staff's perception regarding the application of QA measures related to students related aspects within the institution.

According to academic staff's responses, they perceive the clarity of admission processes and credit transfer policies, feedback mechanisms and student workload

positively, with mean scores ranging from 3.54 to 3.70. However, the mean scores for student counseling services availability (Mean = 3.33) shows slightly lower levels of awareness. This may point to potential gaps in their misunderstanding between the roles of counseling service and those of student affairs. While counseling services are not yet established separately in technological universities, the Department of Student Affairs and respective departments address support services aimed at enhancing students' well-being and academic success.

Table 4.11 Academic staff's awareness on Students related aspects

S.N.	Particulars	Mean	Std. Deviation
1	The guidelines outlining how students are admitted to the program are clearly stated.	3.70	1.021
2	The guidelines and procedures regarding the transfer of credits are described.	3.54	1.079
3	students' counselling services are available within the university.	3.33	1.101
4	A system for gathering feedback and suggestions from students, whether through formal or informal channels, is used to enhance and improve the programme further.	3.64	1.052
5	students' workload is described.	3.61	1.030
Overall		**3.56**	**1.057**

Source: Survey data, 2024

The data from the following Table 4.12 offers valuable insights into how academic staff perceive Academic and Support Staff related aspects within the institution.

Concerning their awareness on Academic and Support Staff-related aspects, they have a moderate awareness level with the mean score of 3.56 regarding the expertise of faculty members covering all areas of the programme and the overall academic staff workload (Mean = 3.60). This means that they recognize the importance of assessing and managing the capabilities and workloads of academic staff to ensure

effective program delivery. However, there are lower awareness levels (Mean = 3.45) in areas such as the adequacy and effectiveness of administrative personnel in delivering assistance to the educational processes and implementing professional training schemes and incentives for academic staff. Without visible initiatives and incentives to engage in training programs, academic staff may not actively seek out or be aware of available opportunities for professional development. In addition, they need clear communication about support structures which could help improve staff awareness and foster a more cohesive academic and support staff environment within the institution.

Table 4.12 Academic staff's awareness on Academic and Support Staff related aspects

S.N.	Particulars	Mean	Std. Deviation
1	The competencies of the faculty members are evaluated comprehensively, covering all aspects of the program.	3.56	.921
2	The overall academic staff workload is discussed and reviewed institutionally.	3.60	.900
3	The discussion and evaluation focus on the adequacy and effectiveness of administrative personnel in supporting the educational program.	3.45	.917
4	The program for professional development and rewards for faculty members is put into effect.	3.45	1.018
Overall		3.52	.939

Source: Survey data, 2024

Table 4.13 indicates the responses from academic staff regarding the adequacy and management of facilities within the institution. In respect of Facilities-related aspects, they have a moderately high awareness level with a mean score of 3.63 regarding the adequacy of teaching and learning facilities to cater for multi-delivery modes. This means that they recognize the importance of having appropriate physical infrastructure to support diverse teaching and learning methods.

Table 4.13 Academic staff's awareness on Facilities related aspects

S.N.	Particulars	Mean	Std. Deviation
1	The adequacy of teaching and learning facilities, including classrooms, library resources, computing and IT systems, as well as laboratories and workshops, is crucial to accommodate various modes of delivery.	3.63	.977
2	The adequacy of support facilities such as hostels, sports and recreational centers, student centers, and transportation plays a crucial role in enhancing students' campus life.	3.55	.943
3	Procedures and monitoring are established to ensure health, safety, and environmental standards are maintained across facilities, including lecture halls, laboratories, equipment, and other areas.	3.41	.968
4	The institution or faculty manages safety, health, and environmental issues concerning its facilities.	3.28	1.031
Overall		**3.60**	**.980**

Source: Survey data, 2024

However, there are lower awareness levels (Mean = 3.28) in the management of safety, health, and environmental issues related to facilities. It seems that they have insufficient training programs or limited access to relevant information, thus resulting in staff members lacking a full understanding of the importance of addressing safety, health, and environmental issues. Enhancing training on safety procedures and ensuring clear communication about support services can help improve staff awareness and contribute to a safer and more conducive learning environment within the institution.

The view of the academic staff on Quality Management Systems, implementation, and effectiveness in their universities are indicated in the Table 4.14.

Table 4.14 Academic staff's awareness on Quality Management Systems related aspects

S.N.	Particulars	Mean	Std. Deviation
1	The establishment and enhancement of QMS were carried out.	3.97	.987
2	The process for overseeing examination regulations involves tasks such as preparing and reviewing examination papers.	3.94	.919
3	The evaluation framework covers examinations, projects, and industrial training.	3.96	.936
4	The system encompasses both student admissions and the processes involved in teaching and learning.	3.90	.931
5	The safety, health, and environmental management system was thoroughly reviewed and enhanced.	3.59	.981
Overall		**3.87**	**.951**

Source: Survey data, 2024

It is very obvious that QMS implementation and development are based on the positive feedback of the academic staff with the scores between the mean score of 3.59 and 3.97. They indicate a high awareness level regarding the implementation and development of QMS, as well as the systems for examination regulations, assessment, student admission, teaching, and learning. Most of them response positive feedback on QMS implemented in their universities and a strong understanding of the importance of QA processes in various aspects of academic operations. However, there exists a lower level of awareness concerning the system for managing safety, health, and environmental concerns.

Faculty members are provided with adequate information or guidance on how to integrate safety, health, and environmental considerations into their academic activities, they may fully understand the significance of the management system in safeguarding the welfare of both students and staff members.

Based on the data collected across Criteria 1-7, it is evident that the academic staff from technological universities have a strong understanding in most of the quality-related activities and practices. Responses across different aspects including PEOs, GAs, Academic Curriculum, student body, academic and support staff, facilities, and QMS consistently reflect a favorable perception regarding the implementation and efficacy of quality assurance measures.

The data reveals that academic staff recognize the importance of clearly defined objectives and attributes, well-structured curriculum, adequate support for students, competent faculty and support personnel, along with effective QMS. While there may be areas where perceptions vary slightly or where improvements could be made, overall, the responses suggest a solid understanding and appreciation of quality assurance principles among the academic staff from technological universities.

This awareness is crucial for ensuring the delivery of high-quality education and maintaining quality standards in technological institutions. It reflects a commitment to continuous improvement and aligning practices with the standards set forth by the Accreditation Manual of EEAC from the MEngC.

4.3.4   Difficulties in carrying out Quality Assurance in Technological Universities

The challenges encountered during the implementation of quality assurance in technological universities were viewed as the difficulties inherent to this QA process.

The responses of this study indicated that academic staff have agreed various difficulties concerned QA implantation based on their perceptions within technological universities. There are altogether 6 parts in the section of perceptions on challenges encountered while conducting QA using Five Likert scales: knowledge and understanding on QA, an appropriate QA framework, readiness to QA, workload of staff, cooperation from staff and strong leadership.

Table 4.15 shows how academic staff response about difficulties in carrying out QA concerning the aspect of expertise and comprehension on QA. Academic staff members agree that they have carried out QA (Mean = 3.74) because they have their direct involvement and experience in QA activities. Staff members who have participated in QA processes have practical knowledge, skills, and understanding of QA principles, methodologies, and tools.

Table 4.15 Knowledge and understanding on Quality Assurance

S.N.	Particulars	Mean	Std. Deviation
1	I have carried out quality assurance.	3.74	.659
2	Carrying out QA really takes time to understand.	3.87	.656
3	People who are responsible for QA have knowledge of quality assurance.	3.81	.705
4	The leader understands quality assurance very well and is able to initiate it.	3.94	.700
Overall		**3.84**	**.680**

Source: Survey data, 2024

The Mean score of 3.87 of Academic staff members agree that carrying out QA really takes time to understand as they acknowledge the complexity and depth of understanding required to effectively implement QA practices. Quality Assurance involves various processes, standards, and frameworks that need to be implemented and may require time and effort to understand fully. They recognize that mastering QA concepts, procedures, and requirements is a continuous learning process.

In terms of responsible people for QA, academic staff members perceive that people who are responsible for QA have knowledge of quality assurance (Mean = 3.81) because they emphasize the importance of expertise and competence among individuals tasked with overseeing QA activities. They expect that those responsible for QA possess the necessary knowledge, skills, and qualifications to lead, coordinate, and monitor quality improvement initiatives effectively.

Concerning their perception on leadership, they accept that the leader understands QA very well and is able to initiate QA activities. When leaders have a deep understanding of QA principles, they can initiate QA processes and lead their subordinates to facilitate the successful implementation of QA practices. In addition, leaders who are well-versed in QA can effectively communicate the importance of quality, provide guidance, and empower staff members to actively engage in quality improvement efforts.

Regarding an appropriate QA system, the responses of academic staff are described in Table 4.16.

Table 4.16 An appropriate QA system

S.N.	Particulars	Mean	Std. Deviation
1	The university has established a QA process.	3.81	.697
2	The administrators have provided clear information about the quality assurance system for us.	3.77	.662
3	Most staff know working procedure of quality assurance for the university.	3.67	.725
Overall		**3.75**	**.695**

Source: Survey Data, 2024

Academic staff members agree that there is a working procedure of QA for the university (Mean = 3.81) because they know their universities have a well-defined and established working procedure for Quality Assurance and provides clarity and structure in implementing QA processes. A documented procedure helps staff member to ensure consistency, transparency, and accountability in QA activities.

In terms of the provision clear information about QA by the administrators, they agree that they have been provided clear information to set up QA system by their administrators (Mean = 3.77). They accept that clear communication and information dissemination from administrators regarding the Quality Assurance system are essential for understanding expectations, roles, and responsibilities related to QA.

They also agree that most staff know the working procedure of QA for the university (Mean = 3.67) as it indicates a level of awareness and familiarity among colleagues regarding the working procedure of Quality Assurance. When most staff members are knowledgeable about QA procedures, it promotes a culture of quality and collaboration within the university. Shared understanding and awareness of QA within their colleagues results in effective teamwork, communication, and coordination in implementing quality improvement measures.

The perceptions of academic staff concerning readiness to implement QA is shown in the following table 4.17.

Table 4.17 Readiness to Quality Assurance

S.N.	Particulars	Mean	Std. Deviation
1	I have worked with quality assurance system before.	3.19	.966
2	The staff are enough for carrying out QA in my university.	3.15	.929
3	Budget allocation is enough for carrying out QA in my university.	2.96	.955
4	Learning facilities is sufficient for carrying out QA in my university.	3.17	.896
Overall		**3.12**	**.937**

Source: Survey data, 2024

Academic staff members (Mean = 3.19) agree that they have worked with QA system before because having prior experience with a QA system indicates readiness and familiarity with QA processes and procedures. Staff members who have worked with QA systems before are likely to feel more confident and competent in carrying out QA activities, contributing to a smoother implementation and effective utilization of QA practices within the university.

Concerning human resources to implement quality assurance, academic staff members (Mean = 3.15) agree that there need to have enough staff for carrying out QA. It reflects their perception of having adequate human resources to support and engage in QA activities. Having sufficient staff members available for QA tasks ensures that responsibilities are distributed effectively, workload is manageable, and expertise is available to address various aspects of quality improvement initiatives.

While the mean score is below neutral for budget allocation which is enough for carrying out QA in my university (Mean = 2.96), staff members may still agree with this statement to some extent based on their assessment of the current budget allocation for QA activities. Despite potential limitations, staff members may acknowledge that the allocated budget, though not optimal, is sufficient to support basic QA efforts and initiatives within the university.

For having sufficient learning facilities are sufficient to carry out QA in their university, academic staff members (Mean = 3.17) moderately agree that their universities have enough facilities. They perceive that having adequate learning facilities, such as technology, equipment, and infrastructure, is essential for conducting QA activities effectively. While they have an access to appropriate learning resources, they can implement QA processes, collect data, analyze results, and make informed decisions to enhance standard of teaching, learning and academic research.

The table labeled 4.18 presents the feedback from academic staff regarding their involvement in QA tasks.

Table 4.18 Workload of academic staff

S.N.	Particulars	Mean	Std. Deviation
1	Academic workload is fair for carrying out QA.	2.73	.855
2	I am able to finish all our work without assistants.	2.81	.869
Overall		**2.77**	**.862**

Source: Survey data, 2024

According to the abovementioned data, some academic staff members may perceive their overall workload as challenging or demanding in the context of carrying out QA activities. A heavier workload can potentially hinder their capacity to fully engage in QA tasks, allocate sufficient time for quality enhancement efforts, or prioritize QA responsibilities amidst competing demands. Staff members who accept their workload as somewhat burdensome may experience difficulties in balancing their academic duties with QA requirements, thus leading to potential challenges in effectively implementing QA practices.

Similarly, academic staff members show a lower agreement level in the statement that they are able to finish all their work without assistants (Mean = 2.81). It means that some staff members may feel less confident in their ability to complete their workload independently without assistance. Staff members who express uncertainty about managing their tasks without assistants may face challenges in managing multiple responsibilities, meeting deadlines, or maintaining quality standards in their academic

work, including QA-related activities. The perceived need for assistance may indicate potential gaps in resources, support, or capacity that could impact staff members' effectiveness in carrying out QA tasks.

The ways in which academic staff participate in implementing quality assurance are outlined in Table 4.19.

Table 4.19 Cooperation from academic staff in carrying out quality assurance

S.N.	Particulars	Mean	Std. Deviation
1	There is encouragement for greater collaboration among individuals in implementing QA measures.	3.63	.674
2	The staff across various departments exhibit a positive attitude on QA.	3.59	.630
3	The staff accept QA.	3.63	.612
Overall		**3.62**	**.639**

Source: Survey data, 2024

As indicated in the table, academic staff members with a mean score of 3.63 agree with this statement that there is encouragement for individuals to collaborate more effectively in conducting QA. When there is a supportive environment that encourages cooperation, staff members are more likely to actively engage in QA activities, share knowledge and resources, and work together towards common quality improvement goals.

They agree that the across various departments exhibit a favorable outlook towards ensuring quality (Mean = 3.59) as it reflects a shared positive attitude towards Quality Assurance across various departments within the university. A positive attitude towards QA indicates a willingness to embrace change, adopt best practices, and contribute to quality enhancement efforts. When staff members from different departments demonstrate a positive outlook on QA, it develops a sense of unity, mutual support, and collective responsibility for quality improvement throughout the institution.

Similarly, they perceive that they accept QA (Mean = 3.63) because their acceptance of QA reveals willingness to engage in quality enhancement processes, comply with QA standards and procedures, and actively take part in QA activities to improve academic programmes and services. Those who accept QA are more likely to show their commitment to continuous improvement, and contribute positively to the overall QA framework within the university.

Table 4.20 illustrates the significant role that leadership plays in executing QA procedures.

Table 4.20 Strong Leadership

S.N.	Particulars	Mean	Std. Deviation
1	The administrator has a clear vision and mission concerning QA.	3.85	.687
2	Senior management of the universities have interest in carrying out quality assurance.	3.85	.700
Overall		**3.85**	**.694**

Source: Survey data, 2024

Most of the academic staff members agree that the administrator possesses a well-defined vision and purpose regarding QA (Mean = 3.85). It seems to be the presence of strong leadership at the administrative level with a clear understanding of the importance of Quality Assurance in their universities. When their administrators have a clearly defined vision and mission for QA, they provide direction, purpose, and guidance for staff members when incorporating QA practices.

As the same mean score of 3.85, they perceive senior management of the universities have interest in carrying out QA. It indicates that senior management within their universities have an interest and commitment to QA. When senior leaders show their interests in QA, it signals organizational support, prioritization of quality enhancement efforts, and a culture of accountability for quality outcomes.

To sum up, the academic staff generally have a positive attitude towards QA, accepting its importance and acknowledging strong leadership support and clear vision from administrators and senior management. They also perceive the presence of an appropriate QA system with a working procedure and clear information from

administrators, though there is room for improvement in staff awareness. While staff members express their university's readiness to QA, there may be a need for additional resources or training. However, there are areas of concern such as budget allocation, sufficiency of learning facilities, workload of staff, and a need for more time to fully comprehend quality assurance.

4.3.5   The ways to enhance the operation of Quality Assurance

Technological universities need to guarantee the achievement of excellent educational and research results by improving QA. As academic institutions and their staff member are trying to maintain and improve their educational standards of quality, it is essential to identify and overcome the challenges that may impede effective quality assurance practices. This section explores the ways to enhance the quality assurance systems implemented within technological universities. By examining the difficulties in developing QA and addressing these challenges and the level of agreement among staff members, valuable insights can be gained into the factors that contribute to the successful implementation of QA initiatives. As it is important to understand how academic staff perceive and engage with QA processes, investigating the ways forwards to QA in technological universities is shown in the following Table 4.21.

According to the data responded by the academic staff members, the following ways are explored to overcome the difficulties and enhance the QA in technological universities.

Setting up meetings: It reveals that increasing the awareness on QA among all academic staff members was seen as the major factor that can contribute to improve the functionality of QA. With a mean score of 3.69, academic staff members agree that setting up meetings to ensure that all staff members gain a comprehensive understanding of QA is considered important. The university is taking such an approach to realize that bringing staff members together to meet, discuss and increase awareness on QA processes is indeed evident. Through the meetings, the university can create an environment that build a culture of QA and maintain a continuous improvement in the practices in whole organization.

Use an appropriate Quality Assurance system: A proper system and providing clarity prior to implementation are also deemed crucial, as indicated by the survey's average grade of 3.70. This shows that the university recognizes the needs to establish clear and appropriate systems for QA procedures. To this effect, the university can raise

the QA effectiveness by embracing uniformity in procedures and making the processes of quality assurance simple and easy to implement in the departments.

Table 4.21 Ways forwards to quality assurance in technological universities

S.N.	Particulars	Mean	Std. Deviation
1	Set up meetings to ensure that all staff members gain a comprehensive understanding of QA.	3.69	.696
2	Utilize a suitable framework and establish transparency prior to QA implementation.	3.70	.731
3	Communicate relevant manuals, guidelines, and procedures for QA to all staff.	3.83	.730
4	Provide training courses on QA for all staff in the university.	3.86	.697
5	Arrange for staff members to participate in external seminars or training sessions focused on QA, held outside the university.	3.77	.745
6	Invite experts on QA to enhance understanding and expertise in QA.	3.77	.718
7	Encourage all faculty members in the university to accept QA and involve in setting up QA	3.78	.738
8	Support more budget for QA activities in all faculties/department.	3.48	.940
9	Solve the problem about heavy academic workload by a reorganized teaching timetable.	3.60	.871
10	Enhanced efforts to communicate the importance of QA to all levels of staff.	3.71	.749
11	Develop QA system continuously.	3.79	.741
Overall		**3.73**	**.760**

Source: Survey data, 2024

Communicate to all staff: Creating and disseminating all the manuals and procedures that will be used for QA to the staff members is a factor that deserves attention as

expressed by the mean score of 3.83 from the survey. This shows the importance of clear and accessible guidelines of for standardization practices requirement for the staff. Through clearly conveying manuals and procedural guideline, the university can be sure that all staff are aware of and aligned with QA standard, which result in improved consistency, compliance, and quality across the university.

Provide training courses on QA for staff: Offering QA workshops and trainings to employees in the university is seen as indispensable, as is evident in the average score of 3.86 in the questionnaire. Thus, investing in training and development opportunities for staff to improve their knowledge and expertise in quality practices is important that can be done to mitigate the quality issue. Through running the training courses, the higher education institution (HEI) can prepare its workers adequately to grow and develop quality assurance measures, improve academic performance, and contribute to a culture of continuous improvement across the whole institution.

Arrange for staff to attend the seminars or training courses on quality assurance: Sending staff to attend seminars or training courses on QA outside the university is considered important, as indicated by the average rating of 3.77 in the survey responses. It shows that the university at least appreciates the value of having its staff attend external courses in addition to the internal training to make them acquire knowledge and ability in QA. Through institutional support for outside seminars and workshops, academic staff can learn from others when it comes to QA operations.

Invite experts on quality assurance: Academic staff response to invite experts on QA to build up the academic staff's knowledge received a mean score of 3.77. This shows that academic staff have agreement about the value of bringing in experts to raise staff awareness of QA. Experts on QA can benefit the university's quality assurance system by providing best practices, specialized knowledge, and perspectives. Academic staff members can improve their own practices by learning about quality assurance trends by utilizing the experience of outside experts in the QA field. Engaging with experts and facilitating mentorship programs can encourage and inspire faculty members to improve their skills and expertise in QA.

Encourage all faculty members to accept QA: Encouraging all faculty members in the university to accept QA and involve in setting up QA said to be important as academic staff accept it with the mean score of 3.78. By actively engaging faculty members in setting up QA initiatives, the university demonstrates a commitment to collaborative decision-making and continuous improvement, which can enhance

overall QA practices. In order to do so, top and senior management persons need to provide platforms for staff to actively participate in QA committees, working groups, or task forces to contribute their expertise and perspectives. In addition, encouraging acceptance of QA among faculty members promotes a culture of quality and professional development within the universities, where staff members are motivated to align their practices with established quality benchmarks and contribute to the institution's quality enhancement efforts.

Support more budget for quality assurance: Although aiming to a budget increase for quality assurance is one of the largest needs, academic staff may agree less on it, which is evidenced in the average score of 3.48. Budget constraints and competing priorities within universities often lead to limited resources being allocated to QA initiatives. Academic staff may be aware of these financial limitations and may perceive that increasing the budget for quality assurance could potentially divert funds from other critical areas such as research, teaching, or student support services. Moreover, they may have varying perceptions of the impact of budget allocation on quality assurance outcomes. Some staff members may believe that enhancing quality assurance requires more than just financial resources and that a strategic allocation of existing resources, process improvements, and staff training may be equally or more effective in improving QA practices.

Recognized teaching timetable: This restructuring of teaching timetable is a significant measure. It is supported by the fact that the survey conducted among the academic staff gave average of 3.60 as the rating for this solution. Workload management has been considered a factor that influences the efficiency of educational quality and eventually the quality assurance. The university may be able to deal with the excessive academic workload issue by means of a more systematic approach to the planning of the teaching timetable. As a result, the university faculty member's work-life balance will be improved, their teaching quality will be enhanced, and a good quality assurance strategy will be possible. A properly designed teaching time table can go a long way in improving the learning atmosphere, improve student achievement as well as seeing to the participation of academicians in QA tasks.

Enhanced efforts to communicate the importance of QA to all levels of staff.: Influencing quality assurance to all academic staff is said to be significant, involving clearly the 3.71 mean score as presented in the survey. Developing awareness campaigns, workshops, or events will highlight the significance of QA and its impact

on teaching, research, and student outcomes. By promoting quality assurance initiatives effectively, staff engagement, commitment, and quality standards and process understanding can be strengthened consequently. Increasing promotion of quality assurance can also help create the culture of quality and continuous improvement within institutions. Additionally, recognizing and celebrating staff achievements in QA through awards, certificates, or public acknowledgments will inspire engagement and participation.

Develop quality assurance system continuously: Building the quality assurance system continually has been considered vital, as it is indicated by the mean score result 3.79. Establishing a quality assurance review committee or task force will allow for the regular evaluation and enhancement of existing quality related processes. Developing feedback system for staff and suggestions for system improvements can be encouraged through surveys, focus groups, or suggestion boxes to ensure a process of the development of QA system continuously. By means of regularly enhancing the quality assurance system, the university can ensure its relevance, effectiveness, and alignment with best practices in quality assurance. This approach to the quality assurance development can lead to increased efficiency, effectiveness, and overall quality enhancement across the institution.

Based on the responses of academic staff members in technological universities regarding ways to enhance quality assurance, three main conclusions can be drawn. The first one is importance of communication and training. The survey results indicate that effective communication, training, and knowledge-sharing are crucial for overcoming difficulties in quality assurance. Setting up meetings, providing training courses, and inviting experts are valued strategies for building understanding and expertise in QA among staff members.

The second is resource allocation and support. Allocating sufficient budget for QA and addressing workload issues through reorganized teaching timetables are important factors. Adequate financial resources and workload management can significantly impact the successful implementation of QA practices.

Last but not least is promotion and continuous improvement. Increasing promotion of quality assurance and continuously developing the QA system are essential for fostering a culture of quality consciousness, staff engagement, and ongoing improvement. Promoting awareness and commitment to quality assurance initiatives can lead to enhanced quality standards and processes within technological universities.

CHAPTER V
CONCLUSION

This study mainly focuses the awareness of academic staff on QA in technological universities in Myanmar and explores valuable insights into the current state of QA practices within these selected universities. According to the survey result, the academic personnel have a positive feedback and understating of QA measures hence they can effectively join the quality initiatives within their universities. In terms of the existence of defined QA procedures, the findings show that there is a moderate level of agreement among academic staff which emphasizes the importance of structured approaches to maintain quality standards.

5.1 Findings

Several important findings on the awareness of academic staff about QA and potential areas for improvement have been identified through a survey analysis carried out in technology universities in Myanmar. The current state of QA practices in these universities is illustrated by the data collected from 543 academic staff members of technical universities. First, the survey revealed that most academic staff are between 31 and 40 years of age with a significant percentage being holders of master's degrees as well as teachers who have been teaching at their present universities for five or more years.

The study has shown that the academic staff in technical universities in Myanmar have a positive view of QA practices and are well aware of them. Most academic staff understand the working practices of quality assurance within their universities. Moreover, there is a moderate level of agreement between staff on the existence of defined quality assurance procedures and clear information provided by administrators about QA system.

In the successful implementation of QA practices, cooperation and support from staff has become a critical factor. In order to improve the effectiveness of QA activities in technical universities, it needs to promote cooperation and a supportive environment among academic staff. In addition, in order to ensure that staff members are able to devote sufficient time and resources to quality assurance initiatives which will

ultimately contribute to a greater effort towards improving the quality of work, it is essential to address workload management problems.

A major driver of the successful implementation of QA practices in institutions has been identified as a high level of leadership support. Leadership is a vital factor in the management of QA initiatives, promoting a culture of excellence and aligning it with institutional goals and objectives. The efficiency and sustainability of the QA at technological universities can be greatly influenced by the leadership's commitment to QA processes.

The study also highlighted the importance of continual improvement in QA practices. In order to determine areas of improvement and ensure continuous improvements in quality, academic staff need to focus their efforts on periodic evaluations and feedback mechanisms. By promoting a culture of continuous learning and development, technological universities can improve their quality assurance processes while maintaining excellent academic standards.

In terms of Accreditation guidelines set by the Engineering Education and Accreditation Committee (EEAC), academic staff have demonstrated a high level of awareness for the existence of Program Educational Objectives (PEOs) and their alignment with the universities vision and mission. However, most of them have moderately awareness on how to assess and measure the attainment of educational objectives within each programme.

Within the domain of Graduate Attributes (GAs), academic staff demonstrate a high level of awareness regarding the listing and discussion of GAs within faculty members. They also recognize the adoption of an Outcome-Based Education (OBE) model for delivering, assessing, and evaluating GAs. However, they need to improve their awareness level of how to evaluate Graduate Attributes of their programme.

As to Academic Curriculum, academic staff show a well understanding of program structures, course contents, and delivery methods. In addition, they know their active engagement in discussions related to curriculum aspects is a shared commitment to curriculum development and delivery. However, they need to improve their awareness in two key areas: to develop a matrix that links courses to Graduate Attributes (GAs) in each programme and to know the stakeholder involvement in the curriculum review process. To ensure that the curriculum is effectively aligned with educational objectives and stakeholders' needs, they need to strengthen their awareness in these aspects.

Regarding Student-related activities, academic staff are notably aware of the clarity of admission requirements and the availability of student counseling services within the university. They also acknowledge the importance of obtaining student feedback for program improvement through formal or informal channels.

For the criteria of Academic and Support Staff, they response a positive level of awareness regarding their competencies, workload, and the sufficiency of technical and administrative support. They know the importance of professional training schemes and incentives for staff. To deliver high quality education, all staff members are adequately equipped and supported.

As regards Facilities, while academic staff response a strong awareness of assessing the sufficiency of educational resources and support services, there is an area to improve their awareness in the management of safety, health, and environmental issues related to facilities.

Concerning Quality Management Systems (QMS), academic staff have a positive perception regarding the implementation and development of QMS within their universities, examination regulations, assessment systems, and student admission processes. However, according to their response, there is a need for further attention and improvement in ensuring the well-being and safety of all individuals within the academic environment.

In terms of the perspectives of academic personnel on challenges related to implementing QA in technological universities, they generally have a positive attitude towards QA, accepting its importance and acknowledging strong leadership support and clear vision from administrators and senior management. However, there are areas of concern such as budget allocation, sufficiency of learning facilities, and workload of staff. Although they seem to have a good level of knowledge and understanding of QA, there is a need for time to fully comprehend it.

In the matter of the ways to enhance quality assurance in technological universities, academic staff express that there are two categories to be considered. Firstly, it involves quality assurance management within the universities. It consists of setting up effective communication within institutions, giving training courses, knowledge-sharing through meetings, and interactions with experts for building understanding and expertise in quality assurance among staff members, using appropriate quality assurance systems, having clear communication on quality assurance, and managing strategies during the quality assurance implementation.

Besides, they need to allocate sufficient resources, such as budget and workload management, to support quality assurance initiatives and make their quality assurance implementation successful. Secondly, perceptions of people and attitudes towards quality assurance is considered to be important. To develop a quality culture and enhance quality standards within technological universities, they need to promote their awareness, engagement, and continuous improvement of the quality assurance system. In order to do so, technological universities can strengthen their quality assurance processes, promote a culture of quality, and enhance the quality of education and research outcomes within their universities.

5.2 Recommendations

A deep and proper survey was conducted to assess the awareness of academic staff on QA at technological universities in Myanmar. The survey results highlighted several key recommendations to enhance QA practices and address identified challenges.

To address the lower mean score for academic workload, universities should focus on reorganizing teaching schedules and optimizing workload distribution to ease the burden on academic staff. Conducting workload assessments can identify inefficiencies and streamline tasks. Additionally, offering professional development, mentoring, and time management resources will aid staff in managing their workload without compromising quality. It is also essential to allocate sufficient financial and human resources to support QA initiatives and sustain quality improvement efforts.

Maintaining existing QA processes and activities is important to be taken into consideration. Universities should encourage cooperation and engagement among academic staff in QA activities. Regular workshops, training sessions, and team-building activities can promote a collaborative environment. Providing support, recognition, and incentives for active QA participants should help maintain motivation and commitment. This continuous promotion of QA culture ensures sustained faculty engagement, ownership, and accountability, leading to long-term success in quality enhancement.

Technological universities in Myanmar should enhance their QA practices by implementing the strategies mentioned in ways forward to QA. Effective communication, training, and knowledge-sharing among staff are vital to overcoming QA challenges. Continuous development of the QA system and promoting a quality-

conscious mindset among staff can foster a culture of improvement. Additionally, encouraging faculty acceptance of QA and involving them in QA initiatives should contribute to a stronger culture of quality and professional development within the universities.

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Appendix

Questionnaire for Academic Staff

This questionnaire is designed to collect relevant information about your awareness on the quality assurance system implementing in your university. Your response to the items of this questionnaire will remain confidential and the results will be used to examine the awareness level of academic staff on quality assurance and investigate the ways forwards to quality assurance in the context of technological universities.

You can use a Tick [√] to indicate your responses for items and please briefly state your responses for the open-ended items.

Section A: Basic demographic data

1. Name of the University:

    _____

2. Please indicate your sex by ticking in the relevant box.

    A. Male ☐   B. Female ☐

3. Please indicate your age. _____ years.

4. Indicate your highest academic qualification:

    Bachelor's degree   ☐

    Master's degree   ☐

    Doctoral degree   ☐

    Others (Please specify) _____

5. What of the following best describes your position at your institution?

    Tutor / Demonstrator   ☐

    Assistant Lecturer   ☐

    Lecturer   ☐

    Assistant / Associate Professor   ☐

    Professor   ☐

    Professor & Head   ☐

    Other (please specify): _____

6. For how long have you been teaching in your current university? Please indicate the appropriate box.

Less than 5 years ☐

6 -10 years ☐

11 - 15 years ☐

More than 16 years ☐

Section B: The system of Quality Assurance exists in technological universities

1. Does your university have a unit/department/committee responsible for the Internal Quality Assurance of the university?

Yes ☐   No ☐

2. Is your Quality Assurance System Principles based on ISO 9001?

Yes ☐   No ☐

3. If it is an ISO based system, has it been certified?

Yes ☐   No ☐

4. Did you involve in the implementation of Internal Quality Assurance unit/department/committee?

Yes ☐   No ☐

5. How often have you been involved in the implementation of quality assurance at your institution?

Very much involved ☐

Quite involved ☐

Involved a little ☐

Rarely involved ☐

Never involved at all ☐

6. Which of the following people or structures are involved in Quality Assurance Unit/Department/Committee?

	Yes	**No**
Top Management (Rector)		
Pro-Rector		
QA committee functioning within the institution		

A committed individual (such as QA officer) responsible at the organizational level		
QA team that operates at the faculty/ department level		

7. To What extent does your quality assurance unit/committee/department focus on the following activities?

(5 = very much, 4 = much, 3 = moderately, 2 = not much, 1 = not at all)

Activity	1	2	3	4	5
Teaching and Learning					
Graduate employability					
Research					
Governance and management					
Community outreach					
International cooperation					

Section C: Awareness of Academic Staff on Quality Assurance System implementation

Please rate your awareness level on Quality Assurance System implementation in your university.

1 = Not at all aware, 2 = Slightly aware, 3 = Somewhat aware, 4 = Moderately aware, and 5 = Extremely aware.

1. Programme Educational Objectives (PEOs)

To what extent you are aware that ………………	1	2	3	4	5
your university has listed PEOs for each programme.					
your university has communicated PEOs with all stakeholders.					
PEOs align closely with the university's vision and mission.					

the faculty members are engaged in discussions regarding the methods employed to assess the attainment levels of PEOs.					

2. Graduate Attributes (GAs)

To what extent you are aware that ……………	1	2	3	4	5
the GAs for your programme are listed down and stated.					
how the GAs relate to the PEOs are discussed among all levels of faculty members to understand clearly.					
Outcome-Based Education (OBE) model has been implemented for the purpose of delivering, assessing, and evaluating the attainment of the GAs.					
The outcomes of the evaluation and assessment of each GA are deliberated among all faculty members across various levels.					

3. Academic Curriculum

To what extent you are aware that ……………	1	2	3	4	5
the programme structure and course contents are described.					
the programme delivery and assessment methods are discussed among all levels of faculty members.					
a matrix linking courses to GAs is developed in each programme.					
The curriculum development and review process engage multiple parties invested in the program.					

4. Students

To what extent you are aware that ……………	1	2	3	4	5
the guidelines outlining how students are admitted to the program are clearly stated.					

the guidelines and procedures regarding the transfer of credits are described.					
students' counselling services are available within the university.					
A system for gathering feedback and suggestions from students, whether through formal or informal channels, is used to enhance and improve the programme further.					
students' workload is described.					

5. Academic and Support Staff

To what extent you are aware that ………………	1	2	3	4	5
the competencies of the faculty members are evaluated comprehensively, covering all aspects of the program.					
the overall academic staff workload is discussed institutionally.					
the discussion and evaluation focus on the adequacy and effectiveness of administrative personnel in supporting the educational program.					
the program for professional development and rewards for faculty members is put into effect.					

6. Facilities

To what extent you are aware of ………………	1	2	3	4	5
the adequacy of teaching and learning facilities (classrooms, library, computing and IT systems, laboratories and workshops) to cater for multi-delivery modes.					
the adequacy of support facilities (hostels, sports and recreational centers, student centers, and transport) in facilitating students' life on campus.					

procedures and monitoring in place for health, safety and environmental aspects of facilities including lecture halls, laboratories, equipment, etc.					
safety, health and environment issues being managed by the institution/faculty in relation to facilities.					

7. Quality Management Systems (QMS)

To what extent you are aware of ……………….	1	2	3	4	5
the implementation and development of the Quality Management Systems.					
the system for examination regulations including preparation and moderation of examination papers.					
the system of assessment for examinations, projects, and industrial training.					
the system for student admission and teaching and learning.					
the management system for safety, health and environment.					

Section D: Perceptions on difficulties in carrying out Quality Assurance

What is your opinion regarding the following difficulties in carrying out Quality Assurance? Please rate: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and   5 = Strongly agree.

1. Knowledge and understanding on Quality Assurance

	1	2	3	4	5
I have carried out quality assurance.					
Carrying out QA really takes time to understand.					
People who are responsible for QA have knowledge of quality assurance.					
The leader understands quality assurance very well and is able to initiate it.					

2. An appropriate QA system

	1	2	3	4	5
The university has established a QA process.					
The administrators have provided clear information about the quality assurance system for us.					
Most staff know working procedure of quality assurance for the university.					

3. Readiness

	1	2	3	4	5
I have worked with QA system before.					
The staff are enough for carrying out QA in my university.					
Budget allocation is enough for carrying out QA in my university.					
Learning facilities is sufficient for carrying out QA in my university.					

4. Workload of staff

	1	2	3	4	5
Academic workload is fair for carrying out QA.					
I am able to finish all our work without assistants.					

5. Cooperation from staff

	1	2	3	4	5
There is encouragement for people to be more cooperative in carrying out quality assurance.					
The staff across various departments exhibit a positive attitude on QA.					
The staff accept QA.					

6. Strong leadership

	1	2	3	4	5
The administrator has a clear vision and mission on QA.					
Senior management of the universities have interest in carrying out QA.					

Section E: The ways to overcome the difficulties in carrying out Quality Assurance

What is your opinion regarding the following ways employed by the university to overcome the difficulties in carrying out QA? Please rate:

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly agree.

	1	2	3	4	5
Set up meetings to ensure that all staff members gain a comprehensive understanding of QA.					
Utilize a suitable framework and establish transparency prior to QA implementation.					
Communicate relevant manuals, guidelines, and procedures for quality assurance to all staff.					
Provide training courses on QA for staff in the university.					
Arrange for staff members to participate in external seminars or training sessions focused on QA, held outside the university.					
Invite experts on QA to build up the knowledge on quality assurance.					
Encourage all faculty members in the university to accept QA and involve in setting up QA.					
Support more budget for QA activities in all faculties/department.					
Solve the problem about heavy academic workload by a reorganized teaching timetable.					

Enhanced efforts to communicate the importance of QA to all levels of staff.					
Develop QA system continuously.					

Thank you for your co-operation.