

Total Quality Management Implementation in Higher Education; Concerns and Challenges Faced by the Faculty

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ABSTRACT

It has now be a major concern among the Public Universities in Malaysia to implement Total Quality Management (TQM) to ensure quality of higher education. TQM initiatives include the implementation of ISO 9001:2000, Total Quality Organization and Total Quality Education Models, and more recently the Quality Assurance (QA) exercise. The QA consists of nine criteria and standards, which was imposed by the Ministry of Higher Education Malaysia to inculcate the quality culture in Malaysia's public universities. In the Faculty of Management and Human Resource Development UTM, effort has been made to utilize the criteria and standard of the QA as a mean to achieve total quality in managing its Marketing Program. This paper presents the concerns and challenges the faculty lives through in implementing the QA system onto the Marketing Program. The most significant concerns are: To Run the Program Effectively - Execution of the QA and ISO 9001:2000 QMS; Difficulties to measure a complex range of performance indicators – Program specification, Process performance, Process outputs, Service Standard and Quality of Graduates; The misfit of the focus between the University's concerns and the focus of QA; The trade off between creativity and rigidity in teaching and students' assessment; Cohesive teamwork and synergy amongst academic staff of different panels (specialization) and different faculties with the program specification; The intricacy between external decisions on students enrolment and resources capability of the Faculty; Limited involvement of SH; and Resources, Human resource development and Research. This paper presented the obstacles and offering recommendations to improve the QA implementation for the public universities in Malaysia.

Keywords: Quality Higher Education, ISO 9001:2000, Quality Assurance, Malaysia Public Universities.

1.0 Introduction

Changes in global educational landscape have forced the institutions of higher learning to revolutionize its operation. The imperatives of the conversion are the stringent requirement of the work force environment and increasing in the supply of the quality work force across continent and countries. On top of that, the competitive business environment drove the stakeholders of the educational sector to demand for more reliable, creative, and multi-skilled & knowledgeable work force. These have stipulated the higher education institutions to be more concern on quality educational system.

In today's competitive globalization age, the importance of teaching and learning become even more significant, given the daunting challenges and shortcomings in other aspects of higher learning education such as limited material and human resources, demands from the beneficiaries, globalization, issues of governance and management, etc. The constraints of resources and other impediments are likely to continue for some time to come. Issues of higher education at a national level are intimately linked with overall global conditions. This is not only because of the migration and movement of students and faculty but also because of the impact of economic globalization. These factors have created new challenges. The global context accentuates the business model approach to education and makes the human capital of developing countries more vulnerable to the economic appeal of developed countries' intensifying brain

drain. All these are imperative to the importance of implementing Total Quality Management (TQM) in higher learning institutions.

The effectiveness of TQM implementation in the manufacturing sectors gave the momentum for higher education institutions to adapt this concept and practice it in their own domain [Kanji et. al, 1999]. TQM is a suitable concept that is able to fulfill the needs to revolutionize the Higher Education Institutions (HEIs). TQM initiatives in HEIs include the implementation of ISO 9001:2000 and quality assurance (QA) as both are intended to form the base for effective TQM culture across the universities [Kanji, 1998 in Kanji, 1999].

2.0 Total Quality Management in Higher Education

Declining quality of graduates, increasing competition and growing mandates for accountability by accreditation associations, legislatures, and funding bodies are among the factors that have “forced” HEIs to focus on quality. In Australia, a senate inquiry has shown a dramatic fall in the quality of teaching standards, student entry -level qualifications, campus conditions and quality of learning experience. The inquiry has also shown increases in problems such as student plagiarism, grade inflation and ‘soft’ marking [Smart, Sim & McMahon, 2001]. All the Australian Universities have developed the so called shared features of implementing QA in all aspects of higher education business.

In Malaysia, recently several employers complained about the quality of local universities’ graduate. The graduate were said to lack the generic skills and unable to adapt and communicate effectively especially in English. Nevertheless they were found to have excellent technical skills and knowledgeable in their area of expertise [Chapman, 2005]. The quality assurance that was implemented at University Malaya highlighted the issue of rigidity versus flexibility. In this concern, the general unease among academics that instituting a quality system with the guidelines and procedures (program specification) been determined by the ruler would lead to restrictions. It gave less freedom to the program owner to develop their area of academic inquiry, scholarship and teaching. Another concern was the misfit between focuses and the decision to be taken whether the management of the quality system should be centralized or decentralized [Isahak, Chew Sing Buan and Halimah, 1998].

These cases show the need of quality in the higher education systems. The introduction of quality assurance criteria and standard, the utilization of ISO 9000 quality management systems and the interest in cross-national analyses are among examples of such interest [Mikol, 2002]. The initiative for ensuring quality of higher education has also been influenced by changes that take place in the governmental policy and customers’ expectations (in this case was employer). The successful acceptance and implementation of quality system in higher education is often influenced by the external factors such as favorable government regulations, economic climate, confident leaderships and a certain level of stress to initiate the need for change [Idrus, 2001]. In Malaysia, TQM initiatives at the universities include the implementation of ISO 9001:2000, Total Quality Organization and Total Quality Education models, and more recently the Quality Assurance (QA). QA is a program that recently been initiated by the Ministry of Higher Education (MOHE). It is to ensure the quality of higher public institutions whilst National Accreditation Board (LAN) looks after the quality of private institutes and universities.

As for the case of Universiti Teknologi Malaysia (UTM) (one of the 17 public universities in Malaysia), the implementation of TQM involves quality systems and standards (specified in Table 1, Appendix A). The quality system varies according to the faculties due to the differences in the nature of the faculties in UTM. Nevertheless, the purpose is constantly to ensure the quality of the education.

2.1 Quality Assurance Implementation in Malaysia’s Public Higher Learning Institutions

Quality assurance refers to all actions that are well-planned and systematic. It includes policies, attitudes, action, procedures, which are the necessities to provide adequate confidence. It ensures that the quality is maintained and enhanced continuously so that the products and services are able to meet the specified quality standard [MHE, 2002]. In higher education setting, it refers to the total systems, whereby the resources and information are devoted fully to maintain and improve the quality and standards of teaching, scholarship and research, and of students learning experience [QAA-UK, 1993].

In Malaysia, assuring quality of higher education is one of the vital agenda in the education industry, which the respective ministry, i.e. Ministry of Higher Education has make it compulsory to all higher

learning institutions to go through a QA exercise. The Quality Assurance Division of the Ministry is responsible on the QA embarkation in all public universities. The Ministry introduces the QA, a standard based quality assurance which is aimed at providing public confidence in the ability of public HEIs in Malaysia to maintain their teaching and learning standard. The introduction of QA was initiated in December 2001 and denotes the government's effort to determine criteria and standard for every program offered by public universities. The QA criteria and standards cover the totality of systems, resources and information devoted to maintaining and improving the quality and standards of teaching, scholarship and research, and of students' learning experience in the all public universities [QA Division, 2002]. The QA is designed to promote public confidence that quality in higher education is being maintained and improved continuously [QA Division, 2002]. The QA nine components of higher education details are presented in Table 2 in Appendix A. These nine criteria serve as performance indicators for quality of higher education in public HEIs. Each area is further subdivided into specific aspects or criteria to provide guidance for HEIs in the implementation of the QA. For each criterion, the standards are specified using two levels of attainment; namely basic standard and standard for quality development [QA Division, 2002]. Basic standards refer to the standard that must be met by every educational program and fulfillment of these criteria is demonstrated during evaluation. On the other hand, standard for quality development denotes that the standard is in accordance with international or national consensus about best practices for a particular program. A description of the focus of each criterion and standard in ensuring the quality of educational programs is provided in Appendix B.

Throughout the QA exercise, there were eight issues been discovered and became a serious concern among all the people involved. These issues need to be addressed by the authority bodies that design and develop the QA system. The people who involved in the QA exercise experienced several difficulties and mystification on the implementation, which led to wrong interpretation. Each university received a set of QA document that illustrated all the requirements and guideline to prepare QA database and self-assessment. A group of UTM Quality Experts was called for QA workshop and guidance to the faculty's QA committee members to develop the QA documents. Nevertheless, perhaps the system is rather new and university was not involved in the design process, therefore the system was not digested well and several misinterpretations occurred.

This paper discusses the importance of QA, the major concerns & challenges faced by the Faculty of Management and Human Resource Development (FPPSM), Universiti Teknologi Malaysia (UTM). It particularly discusses the concerns and challenge on the QA exercise based on the observation and experiences of the task force team's that have involved in developing and implementing the Quality Assurance system onto the marketing program.

3.0 Methodology

In the Faculty of Management and Human Resource Development, UTM, effort has been made to utilize the components and standard of the QA as means to achieve total quality in managing its marketing program. The Faculty started implementing the QA for its three programs – Bachelor of Management (Technology), Bachelor of Management (Marketing) and Bachelor of Sc. (Human Resource Development) since the middle of 2005. The internal was carried out in November 2005 and followed by the external assessments in February 2006.

This research employed purely the qualitative design and using observation and content analysis techniques. Data was gathered throughout the QA exercise and observations by the task force. The QA exercise went through three main stages that participated by two committees, i.e. Faculty's QA committee group (the task force) and second is the Internal Audit (UTM's Quality Experts) group. The first stage was during the database development process, whereby all the QA task force worked in the respective group (nine components of QA) across the programs. At this stage, obstacles and concerns faced by the faculty in the implementation of QA on the Marketing Program were observed and analyzed. Seven concerns have been discovered and gave challenge to QA implementation onto the Marketing Program at UTM. Second stage was during the self assessment process whereby the experience of all the task forces (who directly involved in the development of the database for Marketing Program) was assessed. At this stage, observation was made on the action and solutions that should be taken for each of the concerns (which were discovered at the first stage) that challenge the implementation of QA onto the Marketing Program. The third stage was during the audit process, which the internal audit of UTM assessed the database that was developed by the Marketing Program's QA task force. Report by the auditors finalized

and confirmed the concerns and challenges, and highlighted that additional concern had to be considered, i.e. on the involvement of the stake holders. Thus it made the concerns amounted to eight. The discussion between the auditors and the committee members (including the program owner) suggested the solutions for the all eight concerns and challenges.

4.0 QA Implementation onto the Marketing Program, UTM – Major Concerns and Challenges

The major concerns and challenges in the implementation of QA faced by the Faculty are:

Concern 1: To Run the Program Effectively - Execution of the QA and ISO 9001:2000 QMS

Challenges: To merge the QA Criteria & Standard (9) (Refer to Figure 2 in Appendix B) with Requirements of ISO 9001:2000. The implementation of QA has given dilemma to faculties in UTM that are ISO certified. They are now at a crossroad as to whether they should maintain the ISO certification or focus their efforts on QA only. QA and ISO are two different type of Quality Management System; nevertheless it serves same vision, i.e. to monitor quality of the academic program. Therefore it should have some links whereby both systems could work hand in hand to enhance the academic program. As ISO 9001 certified Faculty, this dilemma provides the challenge to effectively merge the nine criteria and standards of the QA into the existing quality management system (ISO 9001). In the documentation context, the QA requires public universities to provide a quality assurance report. The purpose of the report is to provide adequate confidence to the public that the quality of higher education is being maintained and enhanced in accordance with specified quality standards and to assist institutions to continuously improve the quality of standards, scholarship and research, and of students' learning experience. In contrast, documentation in the ISO 9001:2000 reflects the specific documents required by the standards to reflect an institution quality management system.

Solutions: The extended process model of ISO 9001:2000 to form the QA & ISO 9001-Based QMS (Figure 3 in Appendix B). The Faculty has to modify ISO 9001:2000 process-based model and finally has developed a model of quality management system that incorporates all criteria and standard of the QA and requirements of ISO 9001. The Faculty is to adhere both, the QA and ISO 9001:2000 requirements whilst securing quality audits from both parties. Specifically, criteria of QA and requirements of ISO 9001 area addressed in the model are briefly compared in the Table 2 and 3 in Appendix A.

Concern 2: Difficulties to measure a complex range of performance indicators – Program Specification, Process performance, Process outputs, Service Standard and Quality of Graduates

Challenges: To establish performance indicators those really indicate quality of the Marketing Program. This challenge rests of the management of the quality of the program. The system does not provide an appropriate channel to monitor and evaluate the quality of the academic program. Quality management suggested a PDCA (Plan, Do, Check and Action) approach to ensure a continuous improvement the academic program. Performance of the academic system was now measured accordingly, meaning that there were no linkages between indicators. It was due to unavailability of PLAN that can help the administrator to have the sky view of the direction and total performance measurement. Most of the performance indicators stand isolated and did not provide continuous measurement.

Solutions: To focus measurement on Program specification, Process, Quality of service and Quality of graduate. The task force team believed that there should be a focus on the measurement task. Therefore the measurement should be focusing on the performance based on the learning outcomes that are stated in the Program Specification, measuring the process instead of the end result solely and finally measuring the quality of service along with the quality of graduate (statistics are shown in Table 4, 5 and 6 in Appendix A).

Concern 3: The misfit of the focus between the University's concerns and the focus of QA

Challenges: To coordinate and integrate all activities organized by all departments in the University towards the achievement of the learning outcomes and program objectives. The external factors refer to

external decision, assessors, focus and framework. The focus of the QA and the university's practices are not inline, therefore it is rather difficult for the QA committee to merge both of these entities. Each of the division, such as Student Affairs Division, Academic Affair Division, Faculties, Colleges, Human Resources Department, Finance Department to name a few are all work independently. Even though there are policies and standard requirement that require them to work on the same basis and directions, nevertheless the subject, objectives and focus are different. Therefore the format and structure of each unit's works are different and due to that, integrated data is unavailable. The absence of integration has developed some difficulties to develop integrated and relational databases; hence QA focus and University's practices are difficult to be implemented.

The internal issue consists of university's policies, internal stakeholders and managers. The main challenge was to integrate them consistently with each other especially on the conflicting interest and mismatches of both, the external and the internal system of assesses (as illustrated in Figure I in Appendix B). Another challenge is to integrate all departmental activities in UTM that contribute to the achievement of the marketing program's learning outcomes. QA system suggested assessment to be worked on nine criteria. Within these nine criteria, there are at least 27 to 30 sub criteria that need to be assessed, which each criterion relates to several different aspects of university's elements and practices. It involves all divisions, units, faculties and department. The main challenge is that to get data that are fully integrated.

Solutions: The implementation of program-based quality management system (ISO 9001:2000] at the University level (illustrated in table 10 in Appendix A).

Concern 4: The trade off between creativity and rigidity in teaching and students' assessment
Challenges: To prepare flexible teaching and learning methodologies and assessment of students that congruent with the program specification and contribute to the attainment of Learning Objective (LO) Program Objective (PO) (examples are presented in Table 7, 9 and 9 in Appendix A). Students are assessed according to the methods that have been determined in the program specification. The methods are then communicated to the students through a document called Teaching Module. Along the way, there may be some modifications are required due to changes in the environment along the line etc. However, modification in the assessment will cause problem in compliances to the learning outcome that is determined prior to the class commencement.

Solutions: The introduction of program specification and on-going monitoring of the specification

Concern 5: Cohesive teamwork and synergy amongst academic staff of different panels (Specialization) and different faculties with the program specification.

Challenges: To coordinate and integrate all activities organized by all panels and faculties in the university towards the achievement of the learning outcomes and program objectives. The program specification is designed by a program owner that consists of all experts in the marketing panel. Program specification consists of all courses that the marketing students have to take in order to be graduated. The difficulties rose during the delivery of the courses, whereby each course is delivered by a lecturer that belong to different panels. Therefore cohesiveness and synergy amongst the academic staff sometimes hard to be developed effectively.

Solutions: The implementation of program-based quality management system {QA/EAC/ISO 9001) at the Faculty level.

Concern 6: The intricacy between external decisions on students' enrolment and resources capability of the Faculty

Challenges: To provide adequate finance/space/ physical facilities, etc. and make it consistent with the need to increase students' intake as an indicator of the development of the Marketing Program. The numbers and quality of intake together with financial resources are all decided by the respective ministry. The decision on the intake and the allocation of the resources is out of university's hand. The university and faculty precisely are implementers; hence it develops challenge in managing and makes do with what they have in hand. For the past 10 years, Malaysia had reduced the number of students being sent abroad, on the other hand universities are asked to increase the number of the intakes. Due to this, universities have to receive high number of enrollments and the trend shows a continuous increment. Nevertheless, the allocations of the financial resources are decreasing as government is now slowly encouraging universities to find their own financial resources to run the university. These circumstances created an

imbalance situation. Universities endure insufficient resources and due to that, there are many lacking here and there. Therefore it's very tough for the university to comply the entire QA requirement at high level because the requirement set quite a high standard of fulfillment and entail expenses.

Solutions: No increased in the students intake (current number is 60) for the past 3 years; until the new Faculty building is established in 2009.

Concern 7: Limited involvement of SH

Challenges: To ensure active involvement of professional and industries (current involvement showed visiting professors and external examiners as active SH participation) and appropriate participation of other stakeholders; students, communities, NGO in the management of the program. Stakeholders' involvement is important in ensuring the achievement of high quality program. Nevertheless, some stakeholders possess a clear avenue to participate in the curriculum design, assessment and monitoring the progress of the academic program. However, some stakeholder has no clear avenue and no official channel to participate. For instance, the students themselves have no official roles and no official avenue to participate in the curriculum designing process and no avenue to officially channel their thoughts on the educational aspects.

Solutions: To propose specific policy on SH involvement; i.e. who should involve, types of involvement, mechanism for involvement, etc.

Concern 8: Educational resources, Human resource development and Research

Challenges: To link all resources of the University and requirements of QA and to focus on professional development of the academic staff (due to lack of budget). QA requires the educational resources to be available at faculty level, nevertheless, most of the resources are out of faculty's control because they are located and administered by other divisions and units in the university. It has no formal relationship with the faculty; therefore it is difficult for the faculty to provide all the educational resources, such as counselors, residential facilities, financial assistance to name a few to the students. It is very important issue, thus it needs serious attention from all participating bodies to think of the avenue for faculty to have an access to these supporting systems. Human resources are at the utmost importance to the faculty and university as whole. Human resources refer to academic staff, which the program could not run without. Nevertheless, the professional development of the academic staff is not given emphasize other than the basic requirements. It was due to limited resources and unavailability of sufficient financial resources that can support all professional development programs. In QA environment, university should instill research culture among the academic staff. Research culture does exist in the university; however fund is not sufficient to have everyone embark at full pledge on research. Therefore the development of skills and professionalism are not so encouraging and very slow. Due to this reason, QA requirement is not fully achieved; nevertheless the situation is not too bad though.

Solutions: To develop QA-based resource management system and professional development of the academic staff at the Faculty and University levels

4.0 Conclusion

This paper highlights the experience of the committee members on the issues and challenges during QA exercise. Eight concerns & challenges and how the faculty responded to the challenges were discussed. All these concerns and challenges require immediate attention and need to be addressed accordingly to ensure the effectiveness of the QA exercise. Such efforts will certainly help the Faculty, as well as other faculties in public universities, to achieve total quality in higher education.

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*Appendix A***Table 1: TQM and Its Applications**

| Quality Systems/Standards | Application |
|--|---|
| Engineering Accreditation Council (EAC) Accreditation Requirements | Teaching and learning activities at all Engineering Faculties |
| Washington Accord | Teaching and learning activities at all Engineering Faculties |
| Quality Assurance in Public Universities of Malaysia | Teaching and learning activities at all non-engineering Faculties |
| ISO 17025 | All laboratories |
| ISO 9001:2000 | All support services including Registrar Office, Bursar, Research, Consultancy, Publication, Maintenance, etc. Engineering and non-engineering faculties are also encouraged to be certified to ISO 9001:2000. To date, there are two engineering and three non-engineering Faculties have been certified to the standard. |

Table 2: The Nine Components of QA and Its Focus

| Criteria and Standards | Sub-criteria and Standards | Focus of QA (basic standard) |
|---|--|---|
| 1.Vision, Mission, Goals and Learning Objectives | 1.1 Statements of vision, mission and educational goals | <ul style="list-style-type: none"> The needs for each institution to define its vision, mission and educational goals and make them known to its constituency. The mission statement and goals must be defined by principal stakeholders which include the Dean, faculty members, the university, government and the profession. The institution and program must have appropriate autonomy to design the curriculum and allocate the resources necessary for its implementation to ensure the achievement of program objectives. The specific competencies that should students should exhibit at the end of the program must be defined. The competencies must include mastery of knowledge in specific fields including ICT, intellectual skills in problem solving and creative decision making, practical skills, ability to communicate, critical |
| | 1.2 Participation in formulation of mission and objectives | |
| | 1.3 Academic Autonomy | |
| | 1.4 Educational outcome (Program objectives) | |

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| | | | thinking, possession of attitudes and values of responsible citizenry and self renewal skills through life long learning. |
| 2. Program Design | 2.1 | Curricular approach and teaching learning methods | <ul style="list-style-type: none"> Each program must determine the curricular approach and structure as well as the teaching-learning and assessment methods that are employed to support the approach. Other requirements that an institutional must fulfilled include appropriateness of educational content and teaching-learning methods, the use of varieties of teaching-learning methods, ensuring students to take responsibility for their own learning, dealing with electives and enrichment of student experiences, develop individual characteristics and prepares the students for responsible leadership. |
| | 2.2 | Scientific method | <ul style="list-style-type: none"> Each program must teach the principles of the scientific method and provide opportunities for analytical, critical, constructive and creative thinking and evidence-based decision making. |
| | 2.3 | Curriculum content | <ul style="list-style-type: none"> The importance basic or core disciplines that are essential to create understanding of the concepts, principles and methods that support the objectives of higher education as well as the program must be identified and incorporated in the curriculum. Each program must fulfill the core discipline requirements for a field of majoring subject. The breadth and depth of core course content and time allocation must be appropriated to ensure attainment of program objectives. |
| | 2.4 | Ethics and humanity | <ul style="list-style-type: none"> Aspects on ethics and humanities that enable effective communication, decision-making and ethical practices must be identified and incorporated in the curriculum. |
| 3. Assessment of students | 3.1 | Assessment methods | <ul style="list-style-type: none"> The frequency and methods of student assessment including the criteria for pass/fail must be documented and clearly stated to students on commencement of the |

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| | <p>3.2 Relation between assessment and learning</p> <p>3.3 Management of student assessment</p> | <p>program. The assessment methods must balance between summative and formative evaluation and between theory and practical examinations. A variety of valid methods must be used in the assessment of students.</p> <ul style="list-style-type: none"> • Assessment principles, methods and practices must be clearly compatible with program objective and content and must promote learning. • Mechanism for ensuring the validity, reliability and fairness of the examination systems and security of the academic records must be established. |
| <p>4. Students</p> | <p>4.1 Admission policy and selection</p> <p>4.2 Student intake</p> <p>4.3 Transfer student</p> <p>4.4 Student support and counseling</p> <p>4.5 Student representation</p> | <ul style="list-style-type: none"> • An admission policy which include a clear statement on the criteria and process of selecting students must be established to ensure consistency in student selection • For effective delivery of programs, the size of students intake for each session must be stated and related to the capacity of the institution. • Mechanism and criteria to enable qualified students who do not wish to continue to transfer to an alternative program must be provided. • Student support services include physical amenities and programs that facilitate learning, sports, arts and culture, accommodation, transport, security, food, health, finances, academic advice and counseling must be made available and handled by adequate and qualified staff. • A policy must be established regarding student representation and appropriate participation in the formulation, management and evaluation of the curriculum, and in other matters relevant to students. |

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| 5. Academic staff/Faculty | 5.1 Recruitment policy | <ul style="list-style-type: none"> • A staff recruitment policy which outlines the qualifications, responsibilities and expertise that is required to deliver the curriculum must be established as well as to determine the staff and student ratio for each program. |
| | 5.2 Service policy and staff development | <ul style="list-style-type: none"> • The HEIs must have staff policy which addresses matters related to service, development and evaluation of staff. |
| 6. Educational resources | 6.1 Physical facilities | <ul style="list-style-type: none"> • Assuring sufficient and appropriate physical facilities, training facilities and equipment, adequate collection of up-to-date reference materials including ICT mediated references to ensure adequate delivery of the curriculum. |
| | 6.2 ICT | <ul style="list-style-type: none"> • A policy regarding the selection and effective use of computers, internets and external networks and other means of ICT in the educational program must be established. Adequate and appropriate infrastructure and human resources must be provided. |
| | 6.3 Research and development | <ul style="list-style-type: none"> • A policy that fosters the relationship between research and education must be established whilst research facilities and areas of research priorities of the institution be described. |
| | 6.4 Educational expertise | <ul style="list-style-type: none"> • A policy regarding the use of educational expertise in planning educational programs and in the development of new teaching and assessment methods must be developed. |
| | 6.5 Educational exchanges | <ul style="list-style-type: none"> • A policy for collaboration with other educational institutions and for the transfer of educational credits must be established. |
| | 6.6 Educational budget and resource allocation | <ul style="list-style-type: none"> • Concern with the establishment of policies related to finance and procurement that support the attainment of the institutional objectives and budgeting and resource allocation. |

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| 7. Program monitoring, evaluation and improvement | <p>7.1 Mechanism for program evaluation</p> <p>7.2 Teacher and student feedback</p> <p>7.3 Student performance</p> <p>7.4 Involvement of stakeholders</p> | <ul style="list-style-type: none"> • Concern with the establishment of mechanism, structure and process for program evaluation and resources involved. • The needs to systematically sought and used feedbacks from teachers and students in planning program evaluation and development. • Concerns with analysis of student performance within the framework of the objectives, the course and the program as well as in relation to background of students. • Involvement of stakeholders, such as administration of the institution, employers, educational and government agencies, professional organizations, postgraduate educators, representative of the community, in program evaluation. |
| 8. Leadership and governance | <p>8.1 Governance</p> <p>8.2 Academic leadership</p> <p>8.3 Administrative staff and quality management</p> <p>8.4 Interaction with external factors</p> | <ul style="list-style-type: none"> • Designing governance structures, functions, and authority of the HEIs to ensure attainment of the program objectives. • Specifying criteria and responsibilities of the academic leadership of the HEIs and mechanism to select the academic leadership. • The needs for appropriate and sufficient administrative staff to support the implementation of the faculty's educational program and other activities and the importance of quality management to ensure good management and deployment of resources. • The constructive and proactive interactions, and cooperation between the HEIs and external sectors of society |
| 9. Continuous improvement | | <p>The needs for HEIs to continually and systematically review and monitor environmental changes and all aspects of the QA so that programs can be smoothly planned in a constant changing environment.</p> |

Table 3: A comparison between the criteria and standards of QA and ISO 9001:2000 clauses

| QA Criteria and Standards | Relevant ISO 9001:2000 claus(es) | Principle |
|---|---|---|
| <p>1. Vision, Mission, Goals and Learning Objectives</p> <p>1.1 Statements of vision, mission and educational goals</p> <p>1.2 Participation in formulation of mission and objectives</p> <p>1.3 Academic Autonomy</p> <p>1.4 Educational outcome (Program objectives)</p> | <p>Management commitment</p> <p>Customer focus</p> <p>Quality policy</p> <p>Planning</p> <p>Quality objectives</p> <p>Quality management system planning</p> | <p>Leadership</p> <p>Planning and policy</p> <p>Customer/stakeholders focus</p> <p>Results – business, organizational and individual product/program</p> <p>System approach to Management</p> |
| <p>2. Program Design</p> <p>2.1 Curricular approach and teaching learning methods</p> <p>2.2 Scientific method</p> <p>2.3 Curriculum content</p> <p>2.4 Ethics and humanity</p> | <p>Planning of product realization</p> <p>Customer-related processes</p> <p>Determination of requirements related to the product</p> <p>Review of requirements related to the product</p> <p>Customer communication</p> <p>Design and development</p> <p>Design and development planning</p> <p>Design and development inputs</p> <p>Design and development outputs</p> <p>Design and development review</p> <p>Design and development verification</p> <p>Design and development validation</p> <p>Control of Design and development changes</p> <p>Production and service provision</p> <p>Control of production and service provision</p> <p>Identification and traceability</p> | <p>Design and development</p> <p>Customer/stakeholders requirements</p> <p>Management of Process</p> <p>Process control</p> |
| <p>3. Assessment of Students</p> <p>3.1 Assessment methods</p> <p>3.2 Relation between assessment and</p> | <p>Production and service provision</p> <p>Control of production and</p> | <p>Inspection/testing/evaluation</p> <p>Monitoring of process and product</p> |

| | | |
|---|---|---|
| <p>3.3 learning Management of student assessment</p> | <p>service provision Identification and traceability Control of monitoring and measuring devices Control of nonconforming product Monitoring and measurement of processes Monitoring and measurement of product Customer property</p> | |
| <p>4. Students</p> <p>4.1 Admission policy and selection 4.2 Student intake 4.3 Transfer student 4.4 Student support and counseling 4.5 Student representation</p> | <p>Production and service provision Control of production and service provision Preservation of product</p> | <p>Quality input Quality support services</p> |
| <p>5. Academic staff/Faculty</p> <p>5.1 Recruitment policy 5.2 Service policy and staff development</p> | <p>Provision of resources Human resources Competence, awareness and training</p> | <p>Human resource Management Human Resource Development Quality service Total involvement</p> |
| <p>6. Educational Resources</p> <p>6.1 Physical facilities 6.2 ICT 6.3 Research and development 6.4 Educational expertise 6.5 Educational exchanges 6.6 Educational budget and resource allocation</p> | <p>Provision of resources Human resources Competence, awareness and training Infrastructure Work environment Purchasing Purchasing process Purchasing information Verification of purchased product</p> | <p>Resource Management Research and development Supplier relationship</p> |

| | | |
|--|--|---|
| <p>7. Program Monitoring, Evaluation And Improvement</p> <p>7.1 Mechanism for program evaluation 7.2 Teacher and student feedback 7.3 Student performance 7.4 Involvement of stakeholders</p> | <p>Monitoring and measurement Customer satisfaction Internal audit Monitoring and measurement of processes Monitoring and measurement of product</p> | <p>Monitoring, Evaluation, Measurement, Analysis and Improvement Management by fact</p> |
| <p>8. Leadership and Governance</p> <p>8.1 Governance 8.2 Academic leadership 8.3 Administrative staff and quality management 8.4 Interaction with external factors</p> | <p>Management commitment Customer focus Quality policy Planning Quality objectives Quality management system planning Responsibility and authority Management representative Internal communication Management review</p> | <p>Leadership</p> |
| <p>9. Continuous Improvement</p> | <p>Management review Customer satisfaction Internal audit Monitoring and measurement of processes Monitoring and measurement of product Analysis of data Improvement Continual improvement Corrective action Preventive action</p> | <p>Improvement</p> |

Table 4: Focus of measurement: Program specification, Process, Quality of service and Quality of graduate

| Performance Indicator | Measurement |
|------------------------------|---|
| Program specification | <ul style="list-style-type: none"> • Compliance to Program Specification (including changes made for a cohort of students) • Program evaluation every three year |
| Process | <ul style="list-style-type: none"> • Effectiveness of class delivery (Each semester for each course) • Achievement of learning outcomes (Each semester for each course) • Failure rate, repeat rate and graduate on time • Monitoring of students performance to identify any potential of failures • Generic skills (during admission and after graduation) |
| Quality of Service | <ul style="list-style-type: none"> • Student Satisfaction Index (each session) • Graduate Satisfaction Index (Upon graduation) |
| Quality of Graduates | <ul style="list-style-type: none"> • Employability rate • Skills level/Program objectives accomplishment – Employer Evaluation Indices (After three years of graduation) |

Table 5: Graduate on Time (GOT) Statistic - Class of 2000 to Class of 2006

| Academic Session (Entry) | Admission | Graduation | % |
|--------------------------|-----------|------------|-------|
| 2000/2001 Cohort 1 | 52 | 49 | 94.23 |
| 2001/2002 Cohort 2 SHG | 58 | 46 | 79.3 |
| 2002/2003 Cohort 3 | 41 | 39 | 95.1 |

Table 5: Employability Rate 2003 - 2005

| Academic Session | % |
|------------------|------|
| 2003 | 40.3 |
| 2004 | 58.5 |
| 2005 | 69.9 |

Table 6: Graduate Satisfaction Index

| Dimensions | Means Score (4) (04/05) | Means Score (4) (05/06) |
|-----------------|----------------------------|----------------------------|
| Curriculum | 3.3 | 3.34 |
| Career Guidance | 2.86 | 2.7 |
| Teaching Staff | 3.44 | 3.48 |
| Facilities | 3.34 | 3.55 |

Table 7: Example of Program Specification for Marketing Program

| Code | L01 | L02 | L03 | L04 | L05 | L06 | L07 | L08 | L09 |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| SHF 2183 | a | a | 1 | 1 | 1 | 1 | 2 | 1 | 1 |
| SHF 2173 | a | b | 1 | 1 | 2 | 1 | 2 | 1 | 2 |
| SHF 3183 | a | a | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| SHF 3253* | a | a | 1 | 1 | 1 | 1 | 1 | 1 | : |
| SHF 3263* | a | b | 2 | 1 | 1 | 1 | 1 | 1 | : |
| SHF 3213* | a | a | 1 | 1 | 1 | 1 | 1 | 1 | : |
| SHF 3123* | a | a | 2 | 1 | 1 | 1 | 2 | 1 | : |
| SHF 3113* | a | b | 1 | 1 | 1 | 1 | 1 | 1 | : |
| SHF 3143* | a | a | 2 | 2 | 1 | 1 | 2 | 1 | : |

Key:

Technical Skills: a = major contribution to outcome; b = moderate contribution to outcome; c = minor contr. to outcome

Generic Skills : 1 = Substantial (with assessment); 2 = Not substantial (introduce).

Table 8: Example of Program Specification for Marketing Program – T & L

| Teaching methodologies | % used in the Marketing Program |
|------------------------------------|---------------------------------|
| Lecture | 90.6% |
| Tutorial | 18.7% |
| Assignment/project/Case study | 84.4% |
| Presentation of Project | 28.1% |
| Industrial Visit | 18.7% |
| Video and Virtual | 34.4% |
| Practical and Lab | 25% |
| Visiting Lecturers from industries | 15.6% |
| Seminar and Forum | 6.2% |
| Group discussion | 68.7% |

Table 9: Example of Program Specification for Marketing Program – Students Assessment

| Assessment of Students | % used in the Marketing Program |
|------------------------|---------------------------------|
| Quizzes | 44.4% |
| Tests | 77.8% |
| Projects | 88.9% |
| Presentation | 66.7% |
| Assignment | 100% |
| Simulation | 88.9% |
| Final Exam | 100% |

Table 10: The Implementation Of Program-Based Quality Management System (ISO 9001:2000) At The University Level

(ISO

| Examples of The ISO 9001:2000 Requirements | The focus of the Departmental QMS (E.g. Registrar, Student Affairs, Bursar, etc) |
|---|---|
| Management Responsibility & Quality Policy and Objectives | <ul style="list-style-type: none"> • All departmental top managements must view QA as everyone responsibilities in the University • QP & QO Must be inline with Learning Outcomes, Program objectives & Generic Skills • Criteria and Standard of the QA be part of the all departmental QMS |
| Resource Management | <ul style="list-style-type: none"> • To train all administrators to appreciate QA rather than treating QA as academic matters of individual faculty • To develop QA competency amongst administrators |
| Product Realization | <ul style="list-style-type: none"> • Processes, activities and services of all Departments must be planned and implemented inline with program specification |
| Measurement, Analysis and Improvement | <ul style="list-style-type: none"> • Measurement of effectiveness of the QMS must address the extent to which all processes, activities and services of the Departments have contributed to the attainment of LO, PO and GS. |

Table 11: Involvement of Stake Holders (SH) in the Management of Marketing Program

| SH REQUIREMENTS & INVOLVEMENT | | | | | | | |
|--|-----------------|-----------------|-------------|-----------------------|--------------------|----------------------|---------------------------|
| Program Objectives | Students | UTM (11) | MOHE | Industries (8) | Prof Bodies | Visiting Prof | External Examiners |
| Objective 1 | Yes | Yes | | Yes | | Yes | Yes |
| Objective 2 | | Yes | | Yes | | Yes | Yes |
| Objective 3 | | Yes | Yes | Yes | | Yes | |
| LO 1 | | Yes | Yes | | | Yes | Yes |
| LO 2 | | Yes | Yes | | | Yes | Yes |
| LO 3 | Yes | Yes | | Yes | | | Yes |
| LO 4 | | Yes | | Yes | | Yes | |
| LO 5 | | Yes | | Yes | | | |
| LO 6 | | Yes | Yes | | | | Yes |
| LO 7 | | Yes | | Yes | | | Yes |
| LO 8 | | Yes | Yes | Yes | | Yes | |
| LO 9 | | Yes | | Yes | | | |

MOHE = Ministry of Higher Education

Appendix B

Figure 1: QA Exercise -: The External and Internal factors of Assesses' System

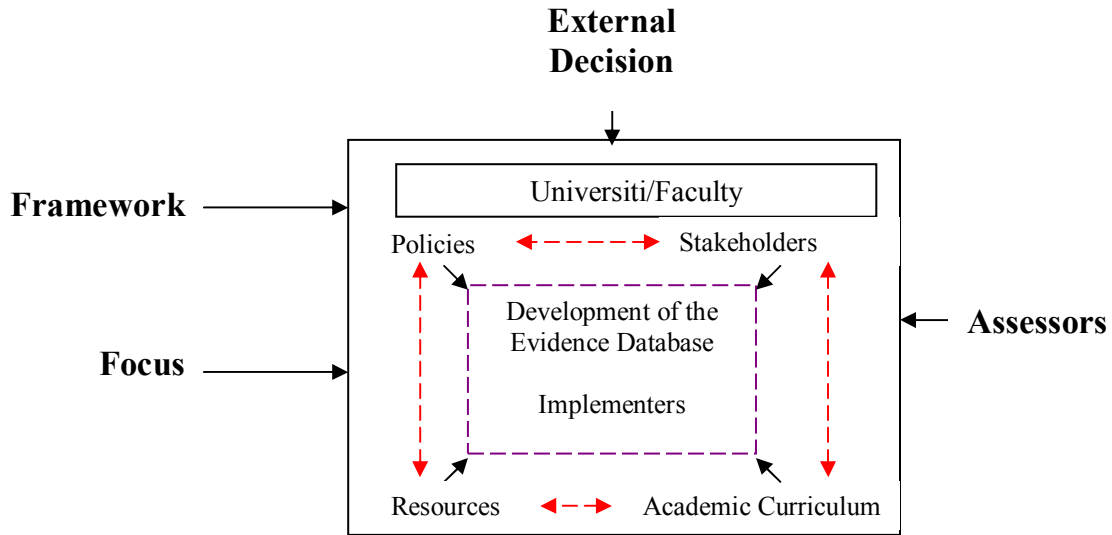


Figure 2:

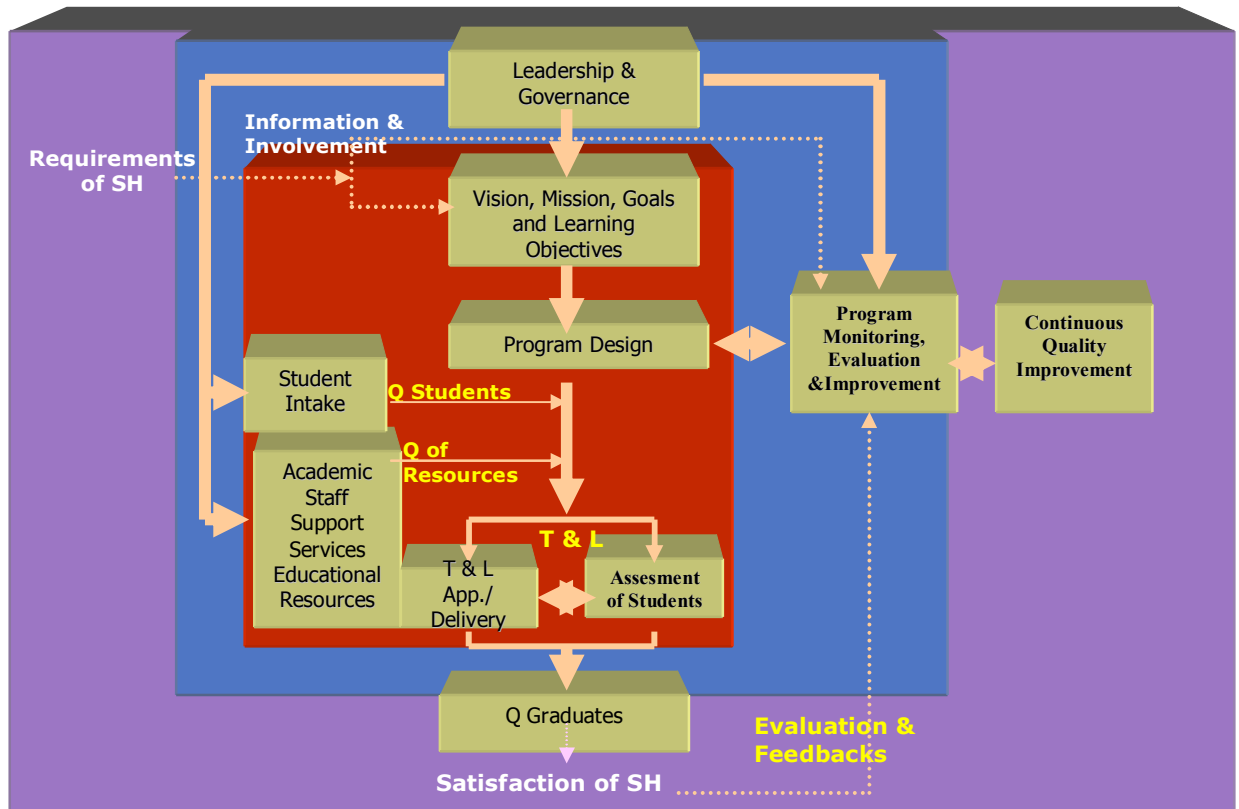


Figure 3: The extended process model of ISO 9001:2000 to form the QA & ISO 9001-based QMS

