
Thesis submitted in accordance with the requirements of the National Technical University College of Malaysia for the Degree of Bachelor of Engineering (Honours) Manufacturing (Process)

By

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May 2006
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA

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TAJUK: QUALITY MANAGEMENT SYSTEM IN HIGHER EDUCATION - A STUDY ON
ISO9001:2000 IMPLEMENTATION AT KUTKM

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DECLARATION

I hereby, declare this thesis entitled “Quality Management System in Higher Education – A study on ISO 9001:2000 Implementation at KUTKM” is the results of my own research except as cited in the reference.

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ABSTRACT

ISO 9000 standard has been successful in manufacturing and service industry. In Malaysia, more than 1000 companies have successfully attained the ISO 9000 certification. It is become a big competition in the industry level due to the customer demand and as to win in the global market. Furthermore, the application of ISO 9000 standard to the education is relatively new and still growing. Only a small number of higher education level that having the certification of ISO. The era of competition and globalization of knowledge had emphasized on the importance of quality. ISO 9000 certification will soon be a must for each degree program. This is to assure quality in education especially engineering education. ISO 9000 helps in setting up the proper documentation in the organization and contributes lots in maintaining the system quality and upgrading it as well. The knowledge of a lecturer can be preserved in the teaching system and can be improved from time to time. In this paper, the study is using the focus group method to investigate the implementation in the National Technical University College of Malaysia especially in the engineering education. The National Technical University College of Malaysia audit result clearly shows that there are also some problems occur in applying the ISO9000 in teaching and learning process. This paper mainly about the quality management system, the process and implementation of teaching learning that must be followed. The objectives of the study is to provide corrective actions for common NCR from Teaching and Planning procedures, to determine the level of awareness of QMS among the academic staff, to overview the feedback from the academician toward the ISO 9001:2000 and finally to provide preventative actions towards the issues. The study is conducted by the observation method and survey through questionnaire method. The result of the survey shows that there are many misunderstanding with the quality procedure of Teaching Planning (PK02) and Teaching Implementation (PK03) among the academic staff. The common mistakes that are performed by the academic staff are difficult to follow the class replacement procedures and student attendance and problem in completing the Teaching Plan according to the QMS of KUTKM. Further improvement is suggested for maintaining the QMS of ISO in KUTKM.
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I would like to extend my highest appreciation to my great supervisor, Miss Zuhriah bt. Ebrahim, all the lecturers of Faculty of Manufacturing, the assistant of registrar of all faculties, staff of Quality and Accreditation Unit of KUTKM, Mr. Mohd. Hanapiah b. Md Lip (assistant of registrar) and Pn. Marsitah bt. Abu Bakar, all academic staff of KUTKM, and finally not forgetting to my fellow friends who help me in completing the thesis successfully.

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DEDICATION

Special dedication to;
My supportive mother Mdm. Rosina Patrick,
My concern father Mr. Gireen Bana,
And my understanding sister, Ernie

Big thanks to everyone that contribute to the success of my thesis.
May God bless you all.
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<td>KUTKM</td>
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CHAPTER 1
INTRODUCTION

ISO or International Organization for Standardization is a worldwide federation of national standard bodies. In Malaysia, SIRIM is the member body that help promotes the development of the standardisation. The main objective of the member body of ISO is to encourage the creating standard for each member country. It is also for preparing the industries or services organization a standard system that can applicable for worldwide usage.

ISO 9000 is the standards that assist an organization of all types to implement and operate effective quality management systems. Before getting the ISO recognition, the organization has to establish or set up a quality system and procedure that is outlined in the models set out in the standard. The objective of original ISO 9000 standard was enable organizations to consistently produce products and give services that met the customers’ requirements and lived up to the organization’s stated intentions. The purpose of quality standard were created is to help in identifying the weaknesses in the system, correcting and preventing identified errors and to promote continual improvement in the system. The standard provide vehicle for consolidating and communicating concepts in the field of quality management that have been approved by an international committee of representatives from national standards bodies. It is not their purpose to fuel the certification, consulting, training and publishing industries. The primary users of the standards are intended to be organizations acting as either customers or suppliers.
Although ISO has been successful in manufacturing and services industries, the application to education is relatively new and still growing. Only a numbers of higher education level that have the certification of ISO. ISO helps in setting up the proper documentation in the organization and contribute lots in maintaining the system quality and upgrading it as well. The knowledge of the lecturer can be preserved in the teaching system and can be improved from time to time. This study used focus group methods to investigate the implementation in the higher education level especially in the engineering faculties. There are also some problems occurs in applying the ISO in the higher education level.

1.1 HISTORY OF ISO

The quality standard is believed exist since the ancient times with the practices of the standardizing stones and wooden gauges for measurement in the civilizations of the Egyptian and Samarians. Traces of standards for goods and products can be found throughout history with the merchants and trades men in the Roman Empire, China, India, Japan and the Islamic world. The King of England had standardized the quality of silver and gold in the fourteenth century that is during the industrial revolution in Europe. At this time, a set of strict standards was set up in the industry of textiles. In the early nineteenth century, Sir Frederick Winslow Taylor developed a series of work standard under the principle of ‘scientific management’ (Hoyle, 2001). The first form of modern quality standards were developed during World War II by the Allies for both products and processes.

The British Standard Institution (BSI) creates the first and the real commercial quality standard series in 1979. It was published and released as the BS5750 series of standards. In 1980s, it becomes the cornerstone for national quality and many other countries used BS5750 as a basis for their own quality systems including the USA, where the ANSI 90 series of quality standards war created. During the same period, the International Organization for Standardization (ISO) appointed a group to develop a set
of international quality. They were created the Open Systems Interconnection (OSI) that ensured the products from different organization and different countries could interact in specific areas.

ISO had published the first of quality standards, ISO 9000:1987 in 1987 which were adopted by BSI in the United Kingdom and the Europe Committee for Standardization Commission. Finally in 1994, the ISO 9000:1994 series of standards were published and adopted by more than 60 countries in place of their national standards. Between 1987 and 1994, the standard underwent approximately changes that were intended for clarification (Tricker & Sherring-Lucas, 2001)

Now, the ISO 9000: 2000 quality management system consists of a set of quality standards that have been revised and improved in order to better be applied to a wider variety organizations. The objective of ISO has changed from a model for quality assurance to a set of standards for effective quality management. The previous standards of ISO 9001: 1994, ISO 9002: 1994 and ISO 9003: 1994 have been integrated into the ISO 9001: 2000. Organizations previously certified under ISO 9002: 1994 or ISO 9003: 1994 are now required to seek re-certification under ISO 9001: 2000. Similarly, organizations certified under ISO 9001 must update their quality systems to meet ISO 9001: 2000 requirements. These changes represent more a user-friendly standard for educational institutions. Specifically, the language, flexibility and structure of the new standard are inherently more compatible with the operation of educational institutions (Edmonton, 2002).

The figure 1.1 below shows the simplification of the certification with only one standard. The three quality standard that is ISO 9001, ISO 9002 and ISO 9003 of the 1994 version had been included in one overall standard, ISO 9001: 2000. This is because the 1994 version of ISO causing many confusion in the recognition.
1.2 ISO 9001: 2000 IN HIGHER EDUCATION LEVEL

Education is very essential and vital in our society. It has a big contribution and plays important roles in the globalisation and modernization country. The increases education level and higher achieves always commanding a higher social status and higher life style of a society. The education industry is become the most important industry as we bound to the globalisation era. Rapid changes and challenges among the private sector are become the serious competition in order to get more customer demands. The educational institutions are pressured to be more ‘efficient’ with less funding, meet the needs of the market and engage in never-ending quality improvement effort (Welch, 1998). Educational institutions worldwide are implementing ISO 9000 as they face increasing external pressure to maintain accountability for funding. Although ISO has been successful in manufacturing and service industries, the application to education is relatively new and not without its problem.
ISO 9001: 2000 Quality Management Systems have a single requirements standard that is applicable to all organizations, products and services. It is the only standard that can be used for the certification of a Quality Management System and its generic requirement can be used by any organization mainly to address the customers satisfaction, to meet customer and applicable regulatory requirements and also enable internal and external parties (including certification bodies) to access the organization’s ability to meet these customer and regulatory requirement such as in educational bodies.

The ISO 9000 is one such market-based quality system that has become an attractive option for a growing number of educational institutions. The system is being implemented in primary, secondary and higher educations. The MS ISO 9000 standard have been around since 1987 in Malaysia. In 1990, there are seven public universities in Malaysia. Until 1997, eleven have been approved and five more have been mentioned (Minister of Education, 1997). There are 25 educational and training institutions have been certified with ISO 9000 certification (Subramaniam, 1999).

Nowadays, the number of universities and colleges that had received the MS ISO 9001: 2000 recognition had increase. The universities and colleges that fully recognized by ISO 9001: 2000 are National Technical University College of Malaysia, University of Technology MARA, University of Science Malaysia, University of North Malaysia, University of Malaysia Sarawak, National University of Malaysia, Islamic International University, TAFE College, INTI College, Systematic College, Taylor’s College, IKIP and Informatics. Meanwhile, University of North Malaysia and University of Technology MARA have certified the Examination Unit and the Library Service respectively to MS ISO 9002 standard.

In Malaysia, the private sector educational establishments are accredited through the Minister of Education’s approval and licensing process. This function has been vested in the National Accreditation Board (NAB) under the Minister of Education since 1996 (Hazman Syah, 2000).
1.3 THE BACKGROUND PROBLEMS

The implementation of ISO 9001: 2000 in the higher education level is not a new scenario since it had been implemented earlier in the year 1990. But nowadays, they are many problems that had occurred while implementing the ISO 9001: 2000 in the higher education level.

National Technical University College of Malaysia (KUTKM) is one of a new technical university that have been fully certified with MS ISO 9001: 2000. The results from the first internal audit of KUTKM had shown that there are some failure in the application of the Teaching and Learning Procedures. In KUTKM, the Teaching and Learning Procedures is established for all faculties; Faculty of Manufacturing Engineering (FKP), Faculty of Mechanical Engineering (FKM), Faculty of Electronic and Computer Engineering (FKEKK), Faculty of Electrical Engineering (FKE) and Faculty of Information Technology and Communication Engineering (FTMK).

The major problems that had been identified through the internal audit results is incomplete file subjects. Most of nonconforming (NCR) are caused by lecturers failed to complete the file subjects as required by the QMS of KUTKM. File subject is a document for keeping all documents of a subject that has been offered by each faculty to the students. It consists of teaching plans, timetable of the subjects, lecture’s notes, questions of tutorial, quiz, test, assignment and final examination, as well the answers for all the tasks. The student attendance record, students’ marks, absentee’s record and replacement class notices must be documented and filed. In addition, the lecturer are less familiar with the new system and documentation style such as the new exist replacement class booking form, replacement class notice form, course outline form and others. The standard form had been found not effectively used by the academician. The procedures seem a burden to them in completing the file subject.