ED 412 Assignment

I.Total Quality Management

Total Quality Management as: a management process and set of disciplines that are co-ordinated to ensure that the organization consistently meets and exceeds customer requirements. TQM engages all divisions, departments and levels of the organization. Top management organizes all of its strategy and operations around customer needs and develops a culture with high employee participation. TQM companies are focused on the systematic management of data in all processes and practices to eliminate waste and pursue continuous improvement.

The goal of TQM is to deliver the highest value for the customer at the lowest cost, while achieving sustained profit and economic stability for the company. Top management must commit to a vision and align and train its employees toward a common mission. To do this, cross-functional teams work on improvements that respond to customer requirements. Long- term relationships with customers, suppliers and employees focus on quality beyond short-term profit. In essence, TQM alters the way of university thinks about work and all of its relationships as it impacts every function, system and person connected with the university.

TQM teams use a ten-step problem-solving model to complete their work

1. The team identifies and interviews customers of the process to determine which services are not meeting their needs. ·

2. The team charts customer problems, selects one major problem to work on, prepares an issue statement to direct the study and uses customer data to set a measure of improved performance. ·

3. The team constructs detailed flow charts/process maps of the process and sub-processes as they currently exist. ·

4. The team brain storms possible causes of the process problem, then uses TQM tools to select critical causes for further study.·

5. The team collects data, graphs it concisely and uses it to determine root causes of the customer problem. This data becomes a benchmark for measuring future progress. ·

6. The team develops possible solutions for the root causes that are verified by data, then measures them against criteria that reflect customer needs.·

7. The team identifies benchmarks for the process being studied, i.e. processes used by other organizations or work areas that produce a high-quality product or service. Possible solutions are measured against the benchmarks. ·

8. The best solutions are implemented and their performance is monitored. If the solutions work, they are adopted. ·

9. The team measures the results of the improvement and refines performance measures. If the problems are solved, the fixes are standardized and become Standard Operating Procedure.·

10. The team selects another process to review and improve.

Relating to students, faculty, pedagogy and facilities, elements. Besides the solid theoretical knowledge included in the basic sciences, engineering sciences and professional courses, a good engineer is expected to acquire additional technical and nontechnical skills. Some of these skills may be gained in the classroom using computers, or in laboratory experiments.

Other skills, such as communication and cultural awareness, may or may not be generally included in a student’s courses. However, the engineering student should be exposed to these before graduation. Some of the basic skills and experiences needed for an engineer, and how and where to gain these experiences. The experience in education and association with industry are reflected in the present work.

The engineering profession covers a wide spectrum of activities, including design, fabrication, operation, maintenance, marketing and research and development. All these activities need a solid theoretical back- ground to a different extent, and, at the same time, require skills and experiences of a different nature.

This section discusses three of these skills, namely:

1. Experimentation and

2. measurements, life-long learning and

3. communication.

The quality of the university facilities and the environment is often first judged on the physical appearance and the state of maintenance of the buildings, laboratories and laboratory equipment, the beauty and serenity of the surrounding grounds, and the size of the library.

General expectations by TQM processes have thirteen points-

1. The institution should be aware of its own situation and duties. It should maintain a close dialogue with its partners and show readiness to develop and act according to defined missions and/or strategies.

Tools: · External members of university senate, boards or any other executive committee.· External advisory committees in action to- wards departments, institutes, centres, etc.·

1. The course content lies at an internationally competitive level.

Tools: · Teaching is done by staff with research expertise within the teaching area.· Co-operation agreements exist with foreign universities about exchange of students, staff and credit points/hours.· Visiting professors.· A certain fraction of the courses at the instiution is offered in a common international language (English, French, Spanish, German).

1. The curriculum develops competent, capable, mature and motivated students and graduates.

Tools: · In the curriculum, projects are offered and the students are required to use their creativity and integrate knowledge from several areas/ subjects.· A variety of teaching techniques and examination forms are used in such a way that it fits with the content of the various subjects.· Teaching, co-operation and exchange are arranged with other universities, nationally as well as internationally.·

1. Good teaching is recognized and rewarded, and pedagogical experiences and skills are considered of value in the process of recruiting new faculty members.

Tools: · Hiring or search committees are advised about how to weigh pedagogical aspects during the identification process of new staff members.· Establishment of a permanent pedagogical advisory committee at the university.· Courses and seminars on pedagogic and didactic subjects are offered regularly to the staff at the university, and staff are urged to participate in such activities.· Good teaching is (as good research) recognized and rewarded in several ways, including salary increases.

1. Buildings, facilities and administrative procedures are arranged to support quality development of teaching and to ensure a good study environment for students.

Tools: · Modern or modernised classrooms. · Modern or modernised equipment and/or instruments.· Easy access to computer facilities.

1. Teachers perform, participate and evaluate the learning process in a balanced dialogue with respect for each other and the students.

Tools: · Open dialogue between teachers and students in the classroom and on an individual basis.· Teaching questionnaires and evaluations.· Statistics on classroom and laboratory activities, participation and examination results.

1. Teaching evaluations are followed up by the department and are used in the organized quality development process.

Tools: · Discussion of evaluation results at the department and in the department teaching committee. Evaluations are considered open to such an extent that discussions about them in the department are meaningful.

1. Planning and further development of the various courses at a department are a common job and of common interest.

Tools: · Colleagues advise each other about performance in the classroom.· Pedagogics, teaching methods and forms and various teaching experiences are discussed in the teaching committee of the department

1. The teachers are interested and engaged in their subject and its presentation.

Tools: · Participation in conferences, further education, etc on pedagogic and didactic subjects.· Participation in pedagogic networking. · Production of textbooks and other educational material. Resources for participation in conferences et

1. The individual courses are planned and described in such a way that the prerequisites are known, relevant and necessary, and, furthermore, so that they establish a relevant platform for following courses in the curriculum.

Tools: · Contact between teachers. · Contact between departments. · Dialogue with central study board or similar executive committee, body or person.

1. Teaching methods and examination forms are chosen according to course goals and content.

Tools: · Course evaluations by students. · Follow-ups on evaluation results. · Identification of course success rates and follow-up if too low.

1. Exams shall test both subject understanding and subject capabilities.

Tools: · Examination problems shall test both understanding and capabilities.

More oral examinations. · Teachers shall participate in discussions and developing projects on the subject.

1. Textbook and other teaching material are worked out thoroughly and are easily understood.

Tools: · The student’s course evaluation forms contain questions on the subject, and criticism is followed up. The subjects are brought to discussion between colleagues at the department/institute.

The process of Total Quality Management is being used by many institutions in the University as a management tool to improve the productivity of the administrative side of university operations. TQM can help, as previously stated, in improving the productivity of the Registrar’s office, the Admissions office, the operation of the Physical Plant, and indeed can help in improving productivity of any purely administrative function of the university. It has, however, been much more difficult to apply TQM to the academic side of the institution; ie classroom teaching, faculty advising, curriculum content and research. A few schools have utilized TQM concepts to help professors improve their teaching, student focus teams to evaluate course design, content and delivery based on customer feedback. At the present time, student focus teams have evaluated twelve College of Engineering courses ranging from first year to graduate offerings.

II.Global Engineering program

Group face having to work with colleagues in different time zones, in a foreign language and in global workgroups with members in far off countries. In order to make cross-cultural global cooperation work, cross-cultural competences must be strengthened.

Cultural differences, which can be seen, tasted, felt, smelled or heard, are not the ones that cause difficulties. It is the invisible cultural differences that create misunderstandings different value systems, attitudes, beliefs and expectations.

They should not walk out into the world thinking that everything must be done the way. Local employees have a knowledge of their markets that an outsider does not have. It is dangerous to say that the right way to do things is the way that they need to observe them.

Some is currently going through a difficult period in order to modernize and adjust its higher (engineering) education system to a much more global and flexible system, which would facilitate the exchange of information, participation in global affairs and, even more importantly, influence the global system of higher education. International cooperation, plus the exchange of ideas and experiences, is the most successful way to accomplish this. The collaboration between Technological University in our country and Engineeering University in other country.

Technology today is a global commodity and business must find technology and engineers anywhere in the world and put them to work. A far greater number of students and faculty desire to study, teach, and research abroad than can ever possibly afford to do so.

Connectivity by the Internet and World Wide Web is an excellent alternative. The barriers preventing engineering education globalization, like lack of standards and costs, will eventually fall. With globalization of engineering education, especially driven by information technology like the computer and Internet, worldwide pervasiveness will, it is hoped, take decades to achieve, not centuries. The world map of engineering education with no boundaries or borders is our goal.