SUMMARY OF THE THESIS

India has always had a rich education system from ancient times and has produced many renowned educationists, researchers, writers and scientists. Currently too, the nation is rising as an educational hub and this revolution is led by the engineering institutes, which is fast becoming the centres of attention from other regions of the world as well. India owns a vast and expensive set-up of technical institutes and during the last decade, the quantum jump in the number of technical campuses has been close to exponential. Engineering institutes supply the basic ingredients to the industry, in the form of applied scientists and technicians. Recently in the India, the government policies to promote “Make in India” initiative has also ensured financial fillip to the concept of generating technically capable workforce on a large scale. But this race of opening technical colleges with the sole motive of financial gains has eventually led to decline of the quality of these colleges, be it the quality of education imparted or other education related services. Literature as well, points towards the mounting anxiety of educationists in need of planned education setups on quality related infrastructural issues. Therefore, now the time has come to introduce concept of quality within education system to guide it in right direction and produce the finished products of desired quality.

Within the technical education system, there are a number of subsystems like research and development, teaching cell, faculty, supporting staff, technical training and placement office, admission cell and library. Out of these, library is definitely one of the most vital and important part and in order to revamp education system of our country special focus should be on the quality of libraries present within the premises of technical institutions. Libraries play a very important role in the overall performance of an institution as a whole. Libraries provide all the necessary resources to its users to meet their scholastic requirements which ultimately help them in achieving their desired goals. The high quality of services provided by the libraries is even more important today because today's user is more aware and expectations are higher than ever. But the present scenario suggests that there is a huge difference between the user satisfaction and quality of services provided by the libraries. A person with average means can hardly afford the expensive study materials required but the desire for knowledge is there. Therefore the obvious solution for them is to visit libraries. Hence, libraries need to develop such an ambience that attracts students towards it. Wholesome use of the library services by the intended user is also a farfetched dream today. In order to have more influx of users in the
library premises holistic development of the library system as a whole is needed. Library system needs to have proper management and structuring of the books available, good quality and relevant material, easy and quick access of this material for the users and all this needs to be complimented with a capable and helpful library staff. In addition to all this, intended appraisal of services to be provided by the libraries can be done with proper and increased use of digital technology as targeted user of today is very comfortable in using technology for his/her convenience.

To reach the expected benchmark of services and to achieve the goal of fulfilling the educational requirements of its users has motivated libraries to introduce the concept of Quality Management (QM) into library services. This move towards Quality Management in the libraries can help them fully satisfy the users as well as increase the efficiency and work pleasure for the library staff. It can open such doors of possibilities, in the field of library services that were never believed to exist. Quality Management is determined by two lane proposals about how to sprint libraries efficiently – Most important is client fulfilment and second is helpfulness in providing facility. If the libraries comes across the user’s requirements and likes, it turn out to be easier in accomplishing the services precisely, well-timed and getting success.

Libraries can benefit by commencing the idea of QM in subsequent manners-

- Creating well-built family relation between internal (staff) and external consumers (users)
- Aspiration towards permanent perfection
- Exploiting work in effectual, professionally, inexpensively and carefully

In this dissertation, the author presents a humble effort to show various facets of Quality Management in the context of library services and introduce service quality models to run the libraries in a healthy environment.

The research work involves studies to evaluate and examine Quality Management practices in engineering college libraries in the state of Haryana because of the high number of such colleges in the state, hence more data to work with and also the importance of these engineering colleges in nation building. The horizon of the research study includes almost 90% of the total number of engineering colleges in the state. The dissertation consists of two case studies and also includes literature review, objectives, methodology, results and conclusions.
Contents of the Present Study

Chapter 1 describes the evolution of quality management concept, concept of quality management in libraries, TQM principles in library services and quality related terminology in library. The chapter presents the significance of library, challenging task of library management, TQM initiative in libraries and a road map to enterprise TQM in library services. The chapter also presents Quality Models for improving service quality of libraries. The launching of a QM program in libraries requires a better understanding of the meaning of service quality, customer expectation and measure of quality and the generic determinants of quality. Thus there is a need for conceptual models to enable managements to identify quality shortfalls and plan the launch of a total quality improvement program. Closed loop model for improving service quality of library provides a picture to show how to commence a quality improvement initiative in providing a good service among the libraries. The model is a structured and discipline flow and shows the way by which the services in the library system can be evaluated and improved to satisfy the user's needs. Another service quality model for libraries stresses the significance of behavioural considerations among the users and staff participate providing service in libraries. This model proposes that for successful quality improvement, a balance between library users and library staff expectations is required. According to this model, the important contributor to service quality is the significance and usefulness of the service delivery system. The model recognizes the key critical factors that considerably control and maintain the service values. It shows how the staff expectations and customer’s expectations go parallel and depends upon with each other to provide quality service.

Chapter 2 reviews and classifies the literature on quality and TQM. In today’s competitive surroundings, QM advances become visible to be going in each feature of any business. Even though it is derived from the manufacturing and process industries but now it has sufficient literature of its applicability in academic ground also. Vast amount of literature covering various aspects of QM compiled from various journals, reference manuals, handbooks, text books, e-resources etc is summarized in this chapter. The purpose of this section is to explore the variety of explanation on Quality, QM, and TQM provided by several researchers in relation to service provided in libraries. Based on broad literature review, the following issues have been mainly addressed and classified in the present research work and these are:

• Perception of Quality
Conception of TQM
Perception of Quality in Library
Conception of TQM in Library
Perception of TQM performance in Libraries

Chapter 3 presents the objectives of the study, data collection plan and research methodology to study the relevance of QM in technical institutes libraries located in the state of Haryana. For this, firstly it is required to prepare a comprehensive research methodology in which the steps are arranged in proper sequence so that the actual and real results obtained at the completion. A process flow chart has been planned to signify sequence of actions under the methodology adopted in completing the research work. Literature survey is chosen as the first step to know the present status of research and application of QM across libraries. From the literature survey, it is found that most of the QM implementation has been carried out in manufacturing industries only and there is a definite scope to explore the QM issues within the service sector like library.

For present work to test the hypothesis and answer the research questions, it was required to identify the sources of data and design approach for collecting the data. An extensive list of TQM critical factors related to library service system was prepared with the help of sources like:

- Literature survey (Journals/Conferences proceedings).
- Discussions with academicians.
- Discussions with institutions managements.
- Government policy manuals.
- Text/Reference books.
- Different websites.

From these factors, intense discussions with academicians and library professionals, a list of thirty TQM factors was finalised and then these factors were categorized into six groups, according to their similarity of impact on TQM implementation in libraries. Chapter 4 presents the survey findings and discussion on results obtained after analyzing the data collected from various institutions. The data has been analyzed for the engineering institutions situated in the state of Haryana. Hypothesis were set and statistically validated to analyze the results.

This study is an attempt to exploit the application of TQM in the engineering college libraries; particularly in Haryana. After an extensive literature review and intense
discussion with academicians, a list of 30 TQM factors were formalized and then these factors were categorized into six groups, according to their similarity of impact on TQM implementation in libraries. A questionnaire, based on these groups of TQM factors, was prepared and forwarded to about 78 engineering institutes libraries affiliated to MDU (Maharshi Dayanand University) Rohtak and 58 engineering institutes libraries affiliated to KUK (Kurushetra University Kurushetra) in Haryana imparting technical training. This specifically designed questionnaire had five questions for each TQM group and these questions represented aspects relevant and reflective of that specific group. ‘Perception Score’ (what actually is) based on the intensity of implementation of TQM factor related to each question was requested from the respondents. The score values were compiled at a Likert scale of 1-5, based on the intensity of perceptual experiences and anticipations. For the survey, libraries of the private sector technical institutes were approached as this sector accounts for nearly 90% of the entire number of engineering colleges in Haryana. The intention of this questionnaire was to study the impact and practicality of a variety of factors of TQM on various aspects of engineering college libraries. The objectives of these specially designed five questions for each group were:

- To explore the attention being given to each of this group by engineering college libraries.
- To determine the priority being assigned to TQM parameters in these libraries.
- To find out the scope of improvement of TQM aspects in these libraries.

From the statistical analysis using MINITAB software, it is visibly evident that librarians of MDU affiliated engineering colleges and KUK affiliated engineering college moderately agreed that TQM parameters like collection and depth of services, customer service and physical infrastructure are getting the required attention. But other critical parameters like Management Commitment, Financial Resources and Human Resources are not given proper attention. The results indicate that while establishing the institute, due attention was given to the library as a facility and hence the available physical infrastructure. Sufficient collection and depth of services could also be due to the sound initial investment and management commitment at that time. Better customer service indicates the right intent of the library staff and their inclination towards providing customer focus services. On the other hand, poor management commitment is mainly due to the lack of continued interest of management in maintaining the regular quality of operations of the library. Lack of sufficient financial resources does not allow the libraries to keep updated with regard to its resources and collection and it also cannot
keep abreast of the latest advances in the library field such as e-books, e-periodical and related software etc. Further from the survey results it is evident that "Human Resources: Experience and Trained Staff" within the library is being totally neglected in both categories of university colleges and there is a variation in the extent of implementation of this important TQM factor. It's shows that there is a lack of experience, expertise and qualified staff's within the libraries and because of this, the librarians face a lot of road blocks in bringing quality initiatives.

Chapter 5 explains performance evaluation of an engineering institute library through Quality Index (QI) model. Performance evaluation of libraries is necessary as it will help the library managers to identify key areas within the library which need urgent attention. If managers are in the position to find out the quality improvement scope required at different level in the libraries then it become easy for them to take remedial steps at each level. So, evaluation of libraries should be done on a regular basis. Quality Index (QI) model, a system approach for performance evaluation of library can directly affect the needs if it is conducted wisely. The purpose of this section is to identify the scope of improvement needed through the computation of Quality Index (QI) for a particular institution library using a Quality Index Model. The study will provide an opportunity in executing quality initiatives to enable to better performances in libraries and ongoing researches on evaluation mode of libraries.

After an extensive literature review and intense discussions with academicians, a list of thirty TQM factors was formalized and then these factors were categorized into six sub-groups, according to their similarity of impact on TQM implementation in libraries. A questionnaire, based on these groups of TQM factors, was prepared and forwarded to an engineering college librarian to watch the service quality of the library. The specifically designed questionnaire had five questions (Key Effectiveness Areas) for each TQM group (Critical Factor) and these questions represented various aspects relevant and reflective of that specific group. Insight Actual Observation (IAO) (what actually is!) and Insight Requisite Observation (IRO) (what should be!) based on the intensity of implementation of TQM factor related to each question was requested from the respondent institution library. The questionnaire, based on TQM factors, was planned and finally used to work out assessments for significant analysis on IAO and IRO of various Key Effectiveness Areas (KEAs) over the case study. KEAs are the highest priority, target areas which require attention, monitoring and control so as to achieve the overall goals. The score values were compiled at Likert Scale of 1-5 (5: Very High, 4: High, 3:
Normal, 2: Low, 1: Very Low) depending upon the passion attach to the genuine, real position (Insight Actual Observation) and Insight Requisite Observation (Predictable Observation) of TQM factors in institute library.

Quality improvement scope measurement of an institutional library using the QI Model consists of the following steps:

• Firstly, considering institute library as a system
• Recognition of critical factor (Sub-systems)
• Recognition of the KEAs in each critical factor
• Calculating Weightage Factor (WF) of each sub-system and KEAs
• Computing Performance Index (PI) of KEAs based on IAO and IRO score as respond by librarians
• Calculation of Quality Index of system and sub-systems
• Recognition of low performance sub-systems and KEAs within the system

Under QI model using system approach, QI for the system is developed in stages, from the QI of the sub-systems representing the system. QI of the sub-system is, in turn, built up from the performance Index of the KEAs of that sub-system.

Data analysis summarizes QI of different sub-systems, their weightage factor and QI for the system (Engineering Institute Library). Result shows that Quality Index of the institute library (System) come out to be 0.3298. This shows that there is 32.98% scope of improvement still required for this particular institute library for bringing quality initiatives. From the Quality Index Model results it is evident that the sub-system ‘Human Resources: Experience and Trained Staff’ within the library is facing a crucial overlook and call for an elevated intensity of improvement (44.5%). The guiding principle for skill and knowledge of the librarians are being ignored and accessibility of library staff is extremely low by which librarian undergoes deeply burdened and has no time to modernize themselves in fresh improvements. The other critical parameters like ‘Financial Assets’ and ‘Management Dedication and Headship’ are also not given proper attention. Results also show that only the sub-system of ‘Customer Service’ needs least improvement (23%) as compared to other sub-systems.

Chapter 6 presents the conclusions and scope for future work. Present work is a pioneering attempt to test and explore the TQM issues in engineering college libraries in the state of Haryana and to measure the performance of an institute library at management level, financial level, infrastructure level, collection level, and service level. The results of the study give ample indication of the versatility and potential of QM
practices for libraries. Following major concluding remarks from different sections of the thesis are as follows:

• Study shows that organizations that effectively put into practice approaches of QM in libraries perform better as well as creates a healthy culture in relation to employment satisfaction and customer satisfaction.

• From the literature survey, many key critical factors have been identified related to quality management in relation to users as well as staff and being arrange in the creation of service quality models. Closed loop model and service quality model for libraries provide a picture to show how to commence a quality improvement initiative in providing a good service among the libraries. Presented models have structured and discipline flow of methodology and show the way by which the services in the library system can be evaluated and improved to satisfy the user's needs.

• From the statistical analysis of the data collected from engineering college libraries in Haryana, it is visibly evident that MDU affiliated engineering college’s librarians and KUK affiliated engineering college librarians moderately agreed that TQM parameters like Collection and Depth of Services, Customer Service and Physical Infrastructure are getting the required attention. But other critical parameters like Management Commitment, Financial Resources and Human Resources are not given proper attention.

• The results indicate that while establishing the institute, due attention was given to the library as a facility and hence the available physical infrastructure. Sufficient collection and depth of services could also be due to the sound initial investment and management commitment at that time. Better customer service indicates the right intent of the library staff and their inclination towards providing customer focus services.

• Poor management Commitment is mainly due to the lack of continued interest of management in maintaining the regular quality of operations of the library.

• From the survey analysis results it is evident that "Human Resources: Experience and Trained Staff" within the library is being totally neglected in both categories of university colleges and there is a variation in the extent of implementation of this important TQM factor. It shows that there is a lack of experience, expertise and qualified staff within the libraries and because of this, the librarians faces a lot of roadblocks in bringing quality initiatives.

• QI model for performance evolution on quality was employed to compute values of QI for the system represented by the institute library. It is observed that there is span of perfection in every sub-system. Results shows that the non availability of expert,
experienced, trained supporting library staff needs maximum attention and proves the area of maximum scope of improvement. The study also show 32.88% is the scope of improvement still required for particular institute library which is ample and needs serious attention of the management and librarians.

There is no right or wrong but one ought to regulate efficiency and performance with conformance to quality. Quality gets nearer by taking care of your customers with affection. This research work provides documented evidence of statistically examining the TQM issues in engineering college libraries in the state of Haryana as well as performance evaluation of an engineering college library through Quality Index Model.