# IMPACT OF ACCREDITATION ON ENGINEERING COLLEGE LIBRARIES IN MUMBAI

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By

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# CERTIFICATE

This is to certify that the thesis entitled ***"Impact of Accreditation on Engineering College Libraries in Mumbai"*** which is being submitted herewith for the award of the Degree of Vidyavachaspati (Ph.D.) in Library and Information Science, Faculty of Moral and Social Sciences, of Tilak Maharashtra Vidyapeeth, Pune is the result of original research work completed by **Ms. Janice Fernandes** under my supervision and guidance. To the best of my knowledge and belief the work incorporated in this thesis has not formed the basis for the award of any Degree or similar title of this or any other University or examining body upon her.

**Place: Jalgaon** **Dr Vinay B. Patil**

**Date:** Research Guide

# DECLARATION

I hereby declare that the thesis entitled “Impact of Accreditation on engineering college libraries in Mumbai” completed and written by me has not previously formed the basis for the award of any degree or other similar title upon me of this or any other Vidyapeeth or examining body.

Place : _____ Ms. Janice Fernandes

Date : _____ Research Student

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*William Shakespeare*

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# ABSTRACT


## 1. Introduction

Higher education in India today has grown and multiplied at an amazing pace. This demand coupled with an alarming expansion creates a number of challenges for the regulatory bodies in the context of maintaining and enhancing quality. Accreditation is one of the measures of Quality Assurance designed to assess the quality of an educational institution. Engineering institutions are regulated by the AICTE and their accreditation is undertaken by the National Board of Accreditation (NBA). The quality of an engineering institution as a whole is dependent on the quality of its various components including the library. It is hoped that the process of Accreditation will compel institutes of higher learning to set up and maintain quality libraries equipped with all the resources necessary in the electronic information age.

This study was undertaken in order to find out the impact of Accreditation on engineering college libraries in Mumbai. The main objectives of the study were , to study the process of Accreditation by the NBA in the context of engineering college libraries, to identify the various components of the process of Accreditation, to test the impact of Accreditation on Collection development, Infrastructure, Human Resources and Library services, to suggest criteria and practices that the NBA could emphasize on with respect to Accreditation and to propose a formal model for the planning and implementation of the accreditation process.

The research methodology included questionnaire, interview and observation. A structured questionnaire sent out to librarians of all the engineering colleges affiliated to the University of Mumbai. The data collection included queries about the impact of Accreditation on library infrastructure, automation, collection development, human resources, library services, value added services and the views of the librarian with regard to preparation for Accreditation as well as the NBA emphasis on specific criteria for Accreditation.

The data that was collected through the returned questionnaires was analysed and interpreted. The detailed analysis along with the findings are given in Chapter 5. A brief interpretation of the data indicates that out 60 colleges which filled the questionnaire, 35 colleges have been through the process of Accreditation or are in the process of Accreditation.

With regard to infrastructure, before Accreditation only 25 respondents had sufficient area for library use while after accreditation it increased to 33 libraries. The increase in the number of Computers and also the introduction of Wi-Fi facility was visible post Accreditation. The automation of library procedures and the setting up of a Digital Library was also seen in a majority of colleges as a positive impact of Accreditation.

With regard to human resources, in this survey it was seen that 2 colleges did not have a Librarian but only Assistant librarians. Other than that, all the remaining 33 colleges had librarians. There was however an increase in the number of library staff due to Accreditation. 18 colleges stated that there was an increase of one staff, 5 colleges said that there was an increase of 2 staff and 1college said that there was an increase of 3 staff. Besides library staff were encouraged to attend training programmes and upgrade their skills. Accreditation also helped librarians to secure for their staff, salary scales commensurate with qualifications and experience.

With regard to Collection development, before Accreditation only 23 libraries had sufficient titles, volumes and periodicals as per AICTE norms while after Accreditation a majority of colleges were able to do so. Accreditation also had a positive impact on subscription to e-resources. After Accreditation, it was noted that 17 colleges subscribed to 0-3 e-resources, 10 colleges subscribed to 4-6 e-resources while 8 colleges subscribed to 7-9 e-resources.

With regard to library services, it was noted that the process of Accreditation saw a marked increase in the various services provided by the engineering library like Referral service, Inter library loan facility and Book bank facility to students. Before Accreditation 28 libraries had created Departmental libraries but after Accreditation all 35 libraries had set up Departmental libraries. Libraries also created a WebOPAC and undertook training for faculty in the use of library resources as a result of Accreditation.

With regard to value added services in the library, before Accreditation only 10 libraries had a library web page while after Accreditation this number increased to 21 libraries. A positive aspect is that the impact of Accreditation is visible in the creation of an Institutional Repository, providing information about Open Access Resources to users and making use of social media like RSS feeds, Blog, Facebook, Wiki, e-mail alerts and SMS alerts.

With regard to the librarian's views on preparation for NBA Accreditation, a majority of librarians stated that they had received support from their management in this context and a consultant was hired to assist them in the Accreditation process. Most of the librarians said that a separate committee was constituted in preparation of Accreditation and that they were a member of this committee. 22 librarians said that the Management had organised seminars and workshops while 18 librarians said that they had attended such programmes. Also only 17 librarians said that they were satisfied with the weightage given to the library by the NBA in the Accreditation process.

With regard to the librarian's views on specific criteria for NBA Accreditation, a majority of librarians were of the opinion that the NBA should lay more stress on library orientation and follow up programs as well as feedback with regard to the library collection and its usage. They also voiced their concern that there was a need for emphasis on library services and products, that innovation should be rewarded by the NBA with Accreditation points and that the NBA should focus on bringing more users into the library. They also affirmed the need for liaison with faculty to introduce modules enhancing library use, and the aspect of working together with the Training and Placement Cell. A majority of librarians insisted that the NBA should do an analysis of quality rather than quantity.

Various suggestions have been proposed by the researcher on the basis of the above findings. It is suggested that the engineering college libraries be provided with sufficient space in keeping with the norms of the AICTE. With regard to human resources it is strongly recommended that adequate and qualified staff be employed and they should be given the correct payscale commensurate with their qualifications. Library staff should be encouraged to upgrade their knowledge and skills. Staff should be motivated, their skills should be upgraded, if necessary and additional help should be provided if necessary. Libraries should be kept open for longer hours. Automation should be undertaken by the libraries. It is recommended that all engineering college libraries set up a full-fledged Digital library on their premises, complete with a Server, Computers with CD/DVD ROM and access to library facilities through the Intranet and Internet.

Engineering college libraries should strictly adhere to the norms of the AICTE with regard to the library collection. The college authorities should sanction adequate funds for the same. Librarians should determine the sufficiency and relevance of the library collection

through statistics and user feedback from time to time. It is suggested that libraries increase their periodical collection in a systematic manner so as to ensure the sufficiency of their journal collection.

Engineering college libraries should subscribe to more e-resources as per the demands of the course and the requirements of its users. It is recommended that engineering college librarians get together to discuss and deliberate on various additional services they could provide to users through resource sharing like Inter library loan, Referral services, Book Bank scheme, use of Web OPAC, faculty training etc. Inter institutional co-operation in terms of common pamphlets and how-to-use guides for e-resources and hands-on training will go a long way in providing better services to users. It is strongly recommended that the web-sites all engineering colleges have a separate Library Home page. Librarians should set up an Institutional Repository to collect, preserve and disseminate the intellectual output of their organization. Social media should be widely exploited so as to reach a larger audience.

It is recommended that librarians look at Accreditation as an opportunity to fortify the collection development in the library with regard to titles, volumes, journals and e-resources. The college authorities should provide guidance and support and sanction additional funds for Collection development.

With regard to Accreditation it is suggested that the NBA should emphasize on certain specific criteria and practices. These basic procedures along with systematic policies and guidelines form the framework to a quality library. It is proposed that Library orientation, library training modules and liaison with faculty for the same should be encouraged and rewarded since this forms the basis for Information Literacy. It is recommended that the NBA should emphasize on feedback with regard to library collection and its usage. It is strongly recommended that the NBA focus on library services and products as part of the criteria for Accreditation. Innovative measures adopted by the library to provide these services as a move towards quality should attract acclaim and points from the NBA. The engineering college library should work together with the Training and Placement Cell. The NBA Accreditation process should be an analysis of quality rather than quantity with regard to various parameters and points should be assigned accordingly.

The researcher has proposed a model which could be used by the librarian of an engineering institution, going in for the process of Accreditation through the NBA. It has been suggested that the management of the engineering college as well as the regulatory and governing bodies take into account the importance and impact of Accreditation to the engineering library. Finally the librarian should consider the positive impact of Accreditation and recognize that both the library as well as the users will benefit from this exercise.

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| Sr No | Short form | Full form |
|---|---|---|
| 1 | ABEEK | Accreditation Board for Engineering Education of Korea |
| 2 | ABET | Accreditation Board for Engineering and Technology, Inc. |
| 3 | ACRL | Association of college and research libraries |
| 4 | AEER | Association for Engineering Education of Russia |
| 5 | AICTE | All India Council for Technical Education |
| 6 | AISHE | All India Survey on Higher Education |
| 7 | ALA | American Library Association |
| 8 | ASCE | American Society of Civil Engineers |
| 9 | ASME | American Society of Mechanical Engineers |
| 10 | ASTM | American Society for Testing and Materials |
| 11 | CEAB | Canadian Engineering Accreditation Board |
| 12 | CHEA | Council for Higher Education Accreditation |
| 13 | CII | The Confederation of Indian Industry |
| 14 | COPA | Council on Postsecondary Accreditation |
| 15 | DELNET | Developing Library network |
| 16 | DTE | Directorate of Technical Education |
| 17 | EBSCO | Elton B. Stephens Co |
| 18 | EC 2000 | Engineering criteria 2000 |
| 19 | ENAEE | European Network for Accreditation of Engineering Education |
| 20 | ESOEPE | European standing Observatory for the Engineering Profession and Education |
| 21 | GATE | Graduate Aptitude test of English |
| 22 | GMAT | Graduate Management Aptitude Test |
| 23 | GRE | Graduate Record Examination |
| 24 | HEI | Higher Education Institution |
| 25 | ICT | Information and Communication technology |
| 26 | IEEE | Institute of Electrical and Electronics Engineers |
| 27 | IFLA | International Federation of Library Associations and Institutions |
| 28 | IIT | Indian Institute of Technology |

| | | |
|---|---|---|
| 29 | INDEST | Indian National Digital Library in Engineering Sciences and Technology |
| 30 | IQA | Internal Quality Assurance |
| 31 | ISO | Indian Standards Organization |
| 32 | MHRD | Ministry of Human Resources Development |
| 33 | NAAC | National Accreditation and Assessment Council |
| 34 | NABEEA | Network of Accreditation bodies for Engineering Education |
| 35 | NBA | National Board of Accreditation |
| 36 | NET | National Eligibility Test |
| 37 | NKC | National Knowledge Commission |
| 38 | NPTEL | National Programme on Technology Enhanced Learning |
| 39 | OPAC | Online Public Access Catalogue |
| 40 | PG | Post graduate |
| 41 | RFID | Radio Frequency Identification |
| 42 | RUSA | RashtriyaUchchattarShikshaAbhiyan |
| 43 | SAR | Self-Assessment Report |
| 44 | SET | State Eligibility Test |
| 45 | SSR | Self-study Report |
| 46 | TQM | Total Quality Management |
| 47 | UG | Under graduate |
| 48 | UGC | University Grants Commission |

# CHAPTER 1

# INTRODUCTION

1.1 Background to the study

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# CHAPTER 1
# INTRODUCTION

## 1.1 Background to the study

*"Quality is not an act, it is a habit".*

*Aristotle*

According to the Cambridge English Dictionary, "a library is a building, room, or organization that has a collection, especially of books, for people to read or borrow, usually without payment". Libraries can be academic, public, or special libraries. Academic libraries can be further classified into school, college or university libraries. An academic library serves two main purposes-it supports the educational curriculum, and it supports the research of its faculty and students.Theacademic library frames its objectives and goals, keeping in mind the vision and mission of the parent institute. The library thus aims to equip students with the skills and knowledge that they need to achieve their goals and to be gainfully employed in industry.

It is a well-known fact that India has the third largest Higher Education system in the world, next only to the United States and China. However in recent times the Indian higher education system has been growing at a pace which is both promisingand alarming. As of March 2015, India has 46 central universities, 329 state universities, 128 deemed universities and 205 private universities. The emphasis in the tertiary level of education lies on science and technology and today a large number of science and technology instituteshave been set up in different parts of the country both by the Government as well as various private bodies called 'Educational Trusts'.

With regard to the state of Maharashtra itself, the two important governmental bodies regulating technical education, especially engineering education, are the All India Council for Technical Education (AICTE) and the Directorate of Technical Education (DTE). The websites of both regulatory bodies indicate that there is a maximum increase both in the number of technical institutes as well as the number of students seeking technical education.

However in spite of this growth, the job situation presents a different picture. The **National Employability Report for 2012** stated that "less than 3% of engineers are employable".

The report further stated that, "The need of the hour is to focus not on opening more colleges but on improving the quality of existing institutions". The focus on quantity became the very reason for this low employment statistics. Several stake holders requested the AICTE to reject proposals for opening of new colleges and instead focus on improving the quality of the existing ones. The quality aspect has to be reflected in every component of the Institution, including the library.

Further the **National Employability Report for the year 2014** ascertains that "less than 20% engineers are employable for software jobs and only 7.49% are employable for core engineering jobs, even though more than 90% aspire for such jobs. This is marginally better, probably due to the insistence on quality and quality checks, yet a lot remains to be done."

The concept of 'assurance of quality' has taken strong root in the educational sector. Accreditation is one of the measures of Quality Assurance designed to assess the quality of an educational institution.

The **National Knowledge Commission** recommendations on Higher Education (NKC) focuses on "the need for excellence in the system, expansion of the higher education sector in the country, and providing access to higher education for a larger numbers of students." The NKC report stated that "the education system needs to be expanded without diluting quality and in fact by raising the standard of education imparted and making higher education more relevant to the needs and opportunities of a knowledge society."

In fact, all schemes planned and implemented by the government in the educational sector stress on the importance of quality and its wide ranging impact. The **RashtriyaUchchattarShikshaAbhiyan** (RUSA) initiated in 2013 by the Ministry of Human Resource Development, (MHRD) seeks to improve the overall quality of existing state institutions. This can be achieved by making sure that all institutions conform to prescribed norms and standards and "adopt Accreditation as a mandatory quality assurance framework in the context of higher education in India".

Engineering institutes are governed by the All India Council of Technical Education (AICTE) and their accreditation is undertaken by the NBA. The history of Accreditation with regard to Higher Education in the country demonstrates that there have been successful

experiments in creating and evaluating facilities for technical education in the country. However there now appears to be a need for a total review of the system.This is perceived from various reports that emphasize the need for technical institutions to make appropriate efforts to bring their engineers at par with the requirements in industry so as to eventually meet the expected growth rate.

The quality of an engineering institutionas a whole is dependent on the quality of its various components like human resources, infrastructure, facilities, placement records, classrooms, laboratories, and of course, the library. In today's digital age, it is envisioned that the library and the classroom are partners in the teaching-learning process. It is therefore imperative that this vital resource sets a high benchmark in terms of the quality of its information collection,facilitiesand services.

With the growing number of engineering institutions and the growing intake capacity, it is hoped that the process of Accreditation will compel institutes of higher learning to set up and maintain quality libraries equipped with all the resources necessary in the electronic information age. Engineering college librarieswill in turn, strive to strengthen their goals to provide need based information to its users and thus create information literate and knowledgeable engineers who will use their skills and abilities to better the lives of people in society.

## 1.2 Definition of key terms and concepts

In attempting to discuss the subject of the impact of Accreditation, it would be helpful to define and delimit the use of the terms and consider some of the resulting implications. This is because the meaning of terms depends on the context in which they are used. Therefore for any purposeful discussion, the defining of terms is desirable.

This section defines the precise meanings of the general terms used in this study. These definitions have been quoted from the **'Analytic Quality Glossary'**– the international analytic glossary of issues related to quality in higher education 2016.

### 1.2.1 Higher Education Institution/ (HEI)

An educational body which carries out higher education activities based on approved study programmes. Higher education is then educational level which follows primary and

secondary education and is often called as tertiary education. As is the case with any educational institution HEIs must follow an external evaluation procedure in order to assess its quality as wellas the quality of itsindividual programmes. In India, the area of Higher Education comes under the purview of the Ministry of Human Resource Development (MHRD).

### 1.2.2 Academic Libraries

The word 'academic' is associated with learning, study, education or teaching. Academic libraries are situated on the campus of the educational institution of which they are a part, although they might sometimes be housed in a separate building. Academic libraries include school, college and university libraries. They are used by students as a repository of information and as a quiet place for study and research.The collection of the library includes both print as well as non-print material generally related to the syllabus of the students in that field of learning. In recent times, physical libraries are moving towards hybrid and now virtual libraries beyond the four walls of a buildingwith a variety of digital tools.

In today's knowledge environment, the role of academic libraries and its constituent librarians has changed from informing, advising and directing to teaching, evaluating, understanding and applying all aspects of 'Information Literacy' in relation to its users.

### 1.2.3 Engineering

The American Engineers' Council for Professional Development defines Engineering as "The creative application of scientific principles to design or develop structures, machines, apparatus, or manufacturing processes, or works utilizing them singly or in combination; or to construct or operate the same with full cognizance of their design; or to forecast their behavior under specific operating conditions; all as respects an intended function, economics of operation and safety to life and property."

Engineering is the design, analysis, and construction of works so as to have a practical application to theoretical concepts for the good of society. There are a number of disciplines called 'programmes' that a student can choose from in order to graduate after four years in a specified field leading to a degree in the 'Bachelor of Engineering'. These include as many as 40 different degrees, though all are not available in Mumbai. Some of the well-known ones include Mechanical, Chemical, Civil, Computer, Electronics, Electrical and Information Technology.

### 1.2.4 Quality (as in Academic Quality)

Quality in higher education is a multi-dimensional, multi-level, and dynamic but complex concept. It can be understood yet it is difficult to explain. It cannot be seen, yet it can be perceived. In the context of the quality of an educational institution, quality is seen in the fulfilment of the institutional vision and mission, through the goals and objectives of its various individual components. It is also attributed to specific standards within a given education system, institution, programme, or discipline.

In this context a wide spectrum of definitions of academic quality has been used in order to describe and understand this concept .

**Quality as Excellence:** a traditional and academic view, according to which only the best standards of excellence are said to revealtrue academic quality. This could be the effectiveness of the processat work in fulfilling the objectives and mission of the educational institution.

**Quality as Enhancement or Improvement:** focusing on the continuous search for improvement, in the hope of making better the earlier performance. This lays emphasis on the responsibility of the institution to make the best use of its powers, autonomy and freedom with its available resources . Achieving quality is the core concept of the academic spirit and to the idea that academicians themselves know best what quality is.

However, common to all of these quality approaches is the integration of the following elements:

- the guaranteed realization of certain minimal standards and benchmarks that need to be set down and followed
- the capacity to set the objectives in the current scenario with a vision for the future and to achieve them with the given input
- the ability to satisfy the demands and expectations of consumers and stakeholders
- the constant and unrelenting drive towards excellence

### 1.2.5 Quality Assurance

This refers to an ongoing, continuous process of evaluating the quality of a Higher education system, institutions, or programme. The mechanism and process of evaluation should involve assessment, monitoring, guaranteeing quality levels, maintain and improving

these to fulfill set objectives and reach a certain goal. As a regulatory mechanism, Quality Assurance focuses on both accountability and improvement. Quality Assurance provides data, information and judgments through an agreed upon and consistent process and well established criteria with a focus on a higher level of quality.

Quality Assurance is different from Accreditation, in the sense that the former is only a prerequisite for the latter. Both imply a number of outcomes, such as the capacity to to provide educational services, the capacity to award officially recognized degrees, and the right to be funded by the state, with pre-defined parameters.

### 1.2.6 Accreditation

The process by which a governmental body or sometimes a private body evaluates the quality of a Higher education institution or a single or multiple educational programmeor course in order to formally recognize it as having met certain pre-determined minimal standards. The result of this process is usually the awarding of a status of recognition with regard to 'Accredited' or 'Not Accredited' often for a time limited validity. After this period the institution can apply for Re-accreditation.

In India the process of Accreditation with respect to a 4 year degree programmelike Engineering, Architecture or Hotel management is carried out by the National Board of Accreditation (NBA) while the accreditation of a 3 year degree programme like Arts or Science or Commerce is carried out by the National Accreditation and Assessment Council (NAAC)

### 1.2.7 Criteria

These are checkpoints which determine the accomplishment of certain pre-defined intentions or objectives or standards. Criteria describe in detail the characteristics of the requirements and conditions to be met in the process of assessment of quality.Theyprovide the quantitative and qualitative basis on which an evaluative conclusion can be drawn.

### 1.2.8 Best Practice

A method involving a range of practices which results in the improved performance of the educational institution or its constituent programmes, which are usually recognized as "Best" by other peer organizations. A best practice does not always represent an absolute or

ultimate example for others to follow. However its application seeks to assure the enhanced performance of a higher education institution. In this sense it identifies the best approach to a particular situation, and a certain methodology to be followed, which other institutions can learn from and emulate so as to reach that level of desired quality.

### 1.2.9 Outcomes

With respect to assessments procedures of educational institutions, these are anticipated or achieved results of programmes which follow the accomplishment of institutional goals and objectives. These can be validated by a wide range of indicators such as knowledge of students, their attitude to life, skill sets and placement statistics.

It is seen that outcomes are the direct result of the educational programme, planned in terms of learner growth in allareas. In the context of Accreditation by the NBA, it is presumed that the teaching faculty puts down detailed outcomes with regard to each topic in their syllabus of study. In the same manner, outcomes can also be drawn up for the various products and services of the library.

The word 'Impact' suggests a strong effect or influence. In the context of Accreditation of engineering college libraries in Mumbai, the researcher aims to understand the influence of the process of Accreditation on various aspects of the library. There are various systems to track and assess the quality of a library. Two important ones are 'Libqual' and 'Servqual' Libqualis a suite of services that libraries use to solicit, track, understand, and act upon users' opinions of service quality. LibQUAL survey data is used to identify best practices, analyze deficits, and effectively allocate resources.The Servqual quality service model identifies five essential factors of service quality, namely - reliability, assurance, tangibles, empathy and responsiveness - that create the acronym RATER.

## 1.3 Statement of the Problem

It is accepted that library and Information Services of Higher Education institutions play a pivotal role in enhancing the quality of academic and research environment. Libraries are the centres of knowledge and form an integral part of the educational arena.

Quality Assurance refers to those processes which ensure that the engineering institutions adheres to some set quality standards. Accreditation, which is a measure of Quality Assuranceexamines whether the Institution and its constituents observe the standards and

criteria set by it. According to the AICTE norms for setting up of new engineering institutions, no engineering college can be set up without the existence of a library. Moreover the library should have the required infrastructure, collection of print and non–print resources, facilities to provide services so as to satisfy the information needs of the users and use of modern technologies in the form of information products in keeping with the changing ICT environment.

In the last few years, the exponential growth of engineering institutions all over the country has resulted in huge demands on the monitoring of its quality. It has been noticed that some private institutions are even offering degrees without the requisite approval from the concerned regulatory authorities. This has created apprehensions for the administrators. The solution is to have a system of assessment, accreditation and recognition for the institution of higher education. The process of Accreditation will automatically provide a label of quality to the engineering institution under scrutiny which will then set a standard of educational culture.

The scope of the present study includes all the engineering institutions affiliated to the University of Mumbai. The accreditation of the engineering institution includes the assessment of all its components. This includes the library, its infrastructure, facilities, staff and services. It would be interesting to note how many of these are eligible for Accreditation, how many have been Accredited and subsequently Re-accredited , what was the impact of Accreditation on the various parameters of the library, how Accreditation has helped both the librarian and the users what are the lessons learnt for the future.

This study aims to find out the importance and impact of the process of Accreditation in the context of engineering college libraries in Mumbai. It aims to suggest internal measures for the engineering college library to develop into a ‘Quality Library’ and embrace Quality Assurance as a path way to excellence.

## 1.4 Need of the study

An engineering institution and its constituent library are governed by the rules and regulations of the All India Council of Technical Education, (AICTE) New Delhi. The AICTE has laid down certain norms and standards with regard to books, journals, electronic resources and other library facilities which are to be adhered to,at the start of the new engineering Institution. It has also specified certain parameters and incremental factors to calculate the yearly addition in the number and type of information resources with each passing year.

Most engineering institutions abide by the first condition since this is mandatory in order to gain permission to set up the academic Institution. However it is imperative to make a note of how many colleges follow the second condition in order to satisfy the ever growing information requirements of their user community.

The need for the study has been perceived due to the following factors –

### 1.4.1 Engineering education – knowledge oriented and job oriented

The four year programme leading to a Bachelor's degree in Engineering is designed to provide the students with precise and in-depth knowledge about the chosen field of study. It is presumed that the quality of an institution that a student studies in will instinctively raise the level of quality of the individual and hence the scramble for seats to gain admission into 'Bench-marked' colleges.

### 1.4.2 Satisfaction of both information provider and information receiver involved in the process of higher education

An engineering institution involves a number of stake holders like students, teachers parents, management, as well as governmental and regulatory bodies. In the context of accreditation of engineering college libraries it is often seen that the satisfaction of two important stake holders – librarian and users is not given due importance and their views are not taken into consideration.

### 1.4.3 Accreditation is now mandatory for all institutions under A.I.C.T.E.

Accreditation is now a mandatory procedure for Higher Educational Institutions. Hence most engineering colleges are rushing to apply for Accreditation and do not have a step-by-step plan to follow. However some institutions deem in a tedious procedure while others consider that there is too much documentation involved and do not know where to begin.

### 1.4.4 The library as a significant component of the accreditation process

Since there are marks awarded to the engineering library in the Accreditation process, most librarians hasten to ensure that the minimum criteria of the AICTE is fulfilled with respect to books, journals and e-resources. Paradoxically it is in this rush for ensuring quantity that quality suffers the most.

### 1.4.5 Continuous quality assurance is necessary for Re-accreditation

Accreditation is issued for a certain duration of time, generally 3-5 years. After that, the technical institution has to apply for Re-accreditation. The quest for excellence does not stop after the result of the Accreditation process but is rather an on-going procedure aimed at building a 'quality library'.

### 1.4.6 Value to the Library Science profession

The study aims at providing value to the profession by establishing the librarian as an important member of the committee set up by the management of the engineering institution to assist and guide in the Accreditation process.

The quest for excellence does not stop with a recognition of quality but is rather an on-going process. The need of the study has been perceived since Accreditation is mandatory and the library is a significant component of this process. Besides for the process of Re-accreditation continual quality assurance is necessary.

## 1.5 Significance of the study

This study will be undertaken in order to find out the impact of the process of Quality assurance called Accreditation, on the engineering college libraries in Mumbai. The study undertakes to find out the benefits and consequences of the process of Accreditation. It also dwells upon the status of Quality Assurance of the library before and after Accreditation with regard to its products and services.

It is envisaged that this research study will benefit the various stake holders of academic libraries as follows –

**1.6.1 The Users -**The direct recipients of the output of this research are the users of the library, faculty and research scholars. Any changes in infrastructure, resources and products will benefit these users and can pave the way for quality library services.

**1.6.2 The Librarians -**As the managerial head of the academic library, actively involved in planning, decision making and implementation, this study will provide librarians with a systematic plan on how to prepare for the process of Accreditation.

**1.6.3 The Administrators-** It is anticipated that the survey will impress upon the management of the institution, the importance of the library and the librarian in the Accreditation process. It ishoped that the librarian will be an important member of the Accreditation team set up by their individual institution.

**1.6.4 The Governing bodies -**It is envisaged that the Governing Bodies responsible for the functioning of engineering institutions, take note of the suggestions made in the study so that the process of Accreditation in engineering college libraries truly develops into a 'Pathway towards Excellence'

**1.6.5 The Society -**It is hoped that the level of quality of the academic institution and its components will set a standard for its output, in termsof its student community, for the future.

## 1.6 Scope and limitation of the study

1) The study covers all the engineering college libraries which come under the purview of the A.I.C.T.E. and are affiliated to the University of Mumbai.
2) The target audience for the study will be college librarians.
3) The study is limited to the geographical area of Mumbai Region because widening the area might dilute the results of research.

## 1.7 Objectives of the study

The objectives of the present study may be enumerated as follows –

1) To study the process of Accreditation by the NBA in the context of engineering college libraries

2) To identify the various components of the process of Accreditation by the NBA in engineering college libraries in Mumbai.
3) To test the impact of Accreditation on Collection development, Infrastructure, Staffing and Library services of engineering college libraries in Mumbai
4) To suggest procedures and facilities that the NBA could emphasize on with respect to the process of Accreditation in engineering college libraries.
5) To propose a formal model for the planning and implementation of the accreditation process in engineering college libraries

## 1.8 Hypotheses

1) Engineering college librarians in Mumbai have been through the process of Accreditation or are in the process of Accreditation.
2) The process of Accreditation has a positive impacton engineering college libraries.
3) The NBA should lay more emphasis on specific criteria and practices of the engineering college library with respect to the process of Accreditation.

## 1.9 Research Methodology

Research is the art of scientific investigation. It is a systematic effort designed in a way to gain new knowledge. The ultimate goal of research is to produce an accumulating body ofreliable knowledge which can still be added to. Such knowledge enables us to explain, predict and understandcertainphenomena that is of interest to us. The research design for this study included the populationunder study, various sampling procedures,sample size, time frame, data collection methods, data analysis procedures and presentation of collected, analysed and interpreted data.

The aims and objectives of this study were achieved by reviewing the literature, using various documentary sources, questionnaires and interviews to generate both qualitative and quantitative data.In view of the nature of the problem, the research methodology to be employed will involve the Survey method. This method is a descriptive method and will consist of the following tools –

**1. Questionnaire**

It is proposed that a questionnaire is sent out to the librarians and library staff of various engineering colleges in Mumbai. All the 66 engineering colleges affiliated to the University of Mumbai are proposed to be selected. The questionnaire will be designed based on the study of literature and will be modified based on the pilot study and discussions held with practicing librarians and experts ion the field.

**2. Interview**

It is also proposed to interview librarians and library personnel closely associated with the process of Accreditation so as to obtain more information on the topic. Such interviews will provide an insight into the practical aspects of the process of Accreditation, the documentation involved and the resources needed for the same.

The data thus collected through the above methods will be further analyzed using statistical techniques so that interpretations can be drawn.

## 1.10 Chapterization

The main text of the thesis is divided into eight chapters. The Chapter Plan includes the following –

**Chapter One** deals with the introductory part of the research work. It contains concepts like definitions, Statement of the Problem, Need for the study, Objectives, Hypothesis, Research methodology, Scope and limitations, etc.

**Chapter Two**is limited to the review of literature in the researcher's field of study. It seeks to divide the main topic under study into various sub-topics with a review of research undertaken in these fields and conclusions derived from the same.

**Chapter Three** deals with the process of Accreditation in engineering college libraries. It elaborates on the need, benefits and history of Accreditation and seeks to understand the process of Accreditation in various countries along with the pre-requisites and process of Accreditation by the NBA.

**Chapter Four** portrays a brief history of engineering education in the state of Maharashtra as well as in the region of Mumbai. It presents a brief profile of all the engineering colleges affiliated to the University of Mumbai. It provides details about the establishment of each engineering institute, details about the library, its facilities and services as well as details of its Accreditation status.

**Chapter Five** presents the results of the data obtained from the questionnaire and interview. The results are analysed and systematically presented in accordance with the objectives of the research. It describes the findings arising from the results of the survey. It also explains the consequent suggestions in accordance with the research topic.

**Chapter Six**features a proposed model for the preparation of Accreditation in the context of engineering college libraries.

**Chapter Seven** emphasizes on the conclusion and future areas of research.

## 1.11 Conclusion

The **National Knowledge Commission** in its Report to the nation in 2006, stated that "the rapid growth in higher education, particularly in the private sector, has created a strong need for empowering students and parents with reliable information from a credible accreditation process". Such a system can be supplemented with the creation of internal self-checking bodies in the higher education system and the freedom to seek recognition voluntarily from different Accrediting bodies.

The process of institutional self-study, evaluation visit and team report form the core of Accreditation. This process provides the regulating body with a comprehensive report on which to mark the level of quality of the institution. But besides this, Accreditation also provides an opportunity to assess both institutional and departmental strengths and weaknesses, to rethink their mission and goals and to outline various steps culminating in a transformational change and resulting in a 'Quality Institution'.

The explosion of information, its need and role coupled with the fast paced revolution in technology and information seeking tools, has raised fundamental issues not just for the library but also for the very process of learning. It is in this context that the process of Accreditation and its impact on engineering college libraries has to be identified and understood.A librarian must be willing to take up the process of Accreditation as a challenge and an opportunity to improve the quality both of the library and of the library staff. In this ever changing world of information growth and technological advancements, an engineering college library and librarian has to change with the times.

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# CHAPTER 2

# REVIEW OF LITERATURE

## 2.1Introduction

A literature review is one of the most important aspects of any research. Before the researcher embarks on his topic of research, he tries to read all related and relevant literature in his field of study. Sometimes it is this reading itself that provides him with his topic of study. During the course of research, the investigator reads up a number of books and articles in scholarly journals. He also browses the Internet for information related to his area of study.All this literature is then reviewed based on the existing research at hand.This forms the basis of literature review.

A literature review is thus a critical and evaluative report of the information found in the literature related to the researcher's area of study.The literature review often describes in brief, creates a summary of the main ideas , evaluates the ideas and concepts explained in the literature and sometimes provides clarification with regard to the topic at hand. A literature review is thus a source from where research ideas are drawn, explored, analysed, developed into concepts and finally into theories. The current chapter provides a review of the relevant literature on the impact of Accreditation on Engineering college libraries in Mumbai. The analysis of literature reveals what research has been done and what had not yet been undertaken in this field. This sort of evaluation also constitutes a reasonable framework for discussing the issues which have been accomplished in the field of study.

In the context of 'Impact of Accreditation on Engineering College Libraries', a study was made of different primary, secondary and tertiary sources of literature. Besides this various books, journal articles, research papers, conference proceedings, governmental reports etc. relevant to the topic of study were identified and analysed in detail. In this digital era, the researcher has also consulted a number of resources like the Internet, various online databases like Library and Information Science Abstracts (LISA), IEEE, Sciencedirect, Proquest, and also Google Scholar. Various library and information science journals like Library Trends, Library Philosophy and Practice, Annals of Library and Information Science have also been consulted. Besides thesis databases like Shodhganga, Vidyanidhi etc. have been referred by the researcher in the course of his study.

The information collected from all these sources has been thoroughly researched and segregated into different parts. The literature review was then divided into a number of sections leading to the topic of study. These are -

1. Quality and Quality Assurance in libraries
2. Measurement of Quality in libraries
3. Accreditation – its need and role in college libraries
4. Impact of Accreditation on college libraries
5. Innovation and Best practices in college libraries.

A number of authors have researched and analysed the role of Accreditation with regard to academic libraries in general and engineering college libraries in particular. The review of literature demonstrates the importance of accreditation, the indicators of quality assessment as well as the difficulty in the measurement of quality with regard to libraries.The review of literature is explained on the basis of each sub topic.

## 2.2 Quality and Quality Assurance in libraries

The word ‘Accreditation is often associated with quality, quality assessment and quality assurance. Here an attempt has been made to understand these concepts, their relationship to each other and their differences with each other.

In recent times, the term **‘quality’** has assumed great importance in the context of Higher Education. From the 1990s onwards, in India, most institutions, government agencies and stake holders have been stressing on this concept. However Quality is a much more complicated term than it appears to be. Quality has many definitions, many dimensions and many areas of concern.

In this context the most meaningful and thought provoking definitions of quality are seen in the paper ‘Dimensions of quality in higher education :Some insights into quality-based performance measurement’. Here the author **Ioana Maria Diana Şandru** aims to analyze the meaning of quality in the field of Higher education and establish to what extent quality related higher education can lead to better performance.

The author asks some very relevant questions –

- How can one define quality in the educational setting?
- Is it associated with the input ?
- Is it linked to rules and standards?
- Is it connected to fulfilling stakeholders' needs and expectations?
- Is it about the higher education institution assuming accountability?
- Is quality really one of the key factors that leads to performance, competitiveness, and afterwards to excellence?
- What is the evidence to show that quality generates performance?

How is quality defined within higher education?

**Şandru,(2008)** uses the following terms of definition

(1) Quality as exceptional (out of the ordinary i.e. high standards)

(2) Quality as consistency (100% compliance with standards and norms i.e. zero defects)

(3) Quality as fitness for purpose (fitting customer specifications)

(4) Quality as value for money (as efficiency and effectiveness) and

(5) Quality as transformative (an ongoing process that includes empowerment and enhancement of customer satisfaction).

The model of Quality and its related concepts which form the basis of Accreditation has been defined in many ways and by many authors, as has been seen in the review of literature.

**Natarajan,(2000)** who was the Chairman of the AICTE until 2004, in his paper examines the nature and scope of quality and perception of quality. He has aptly explored the definition of quality when he emphasises that 'Quality is not a destination but rather a journey to improvement'. He describes how an old Mafatlal advertisement proclaimed: "Quality needs no definition. You know it when you see it." That is why one considers the I.I.T's as models of quality. In the context of engineering institutions in Mumbai it is often mentioned that certain institutions have a high standard of quality and are seen as a benchmark for others.

**Yang,(2011)** reiterates thatQuality education is multi-dimensional education; it means not only to enlarge students' scope of knowledge but also **train their innovative abilities**.

**Vyas,(2009)** has quoted Joseph Juran as saying that the 21st century is devoted to Quality whereas the 20th century was for Production. Deming states that the customer's definition of quality is the only one that matters. So, who is the customer? Who are the customers for higher education? is the pertinent question.

The library is a no-profit organization providing services to its customers. Here the 'user' is the customer, the institution is the company and the library as a service organization. Hence from a concept which was connected with industry and its products, quality and quality assurance have now been viewed in the academic context with relation to 'customer or user satisfaction'

It can thus be inferred that Quality in higher education is a **multidimensional concept,** which should embrace all its functions, and activities: teaching and academic programmes, research scholarship, staffing, students, buildings, faculties, equipment, services, society and the academic environment.

While stating that quality is primarily the responsibility of higher education itself, **Hedge and Shyamasundar,(2008)** imply that each institution offering higher education should develop an efficient Internal Quality Assurance System, where students, staff and management are satisfied that pre- determined control mechanisms are working to maintain and enhance quality.

**Naik,(2006)** while explaining the Quality assurance system in higher and technical education states that Quality circle is a mechanism to involve all from bottom to top. Vision statement is essential. **Solving problems is not the answer to improving quality**. The solution lies in understanding the process, to identify the problems and continuously improving the process that gives rise to such problems.

**Seniwoliba and Yakubu,(2005)** undertook a study to examine the implementation challenges of quality assurance in public universities in Ghana. The study revealed that various issues like staffing and offices, quality culture, physical and financial resources, commitment and support and absence of a current strategic plan. It is recommended that an environment for information dissemination on quality assurance through workshops and seminars be conducted for all staff. This will enhance the idea of building a quality culture

in the University. The availability of a strategic plan of the Directorate will provide a sense of direction for the growth and enhancement of quality in the university.

**Narkhede,(2015)** has statistically argued that The Confederation of Indian Industry (CII) and the Boston Consulting Group (BCG) have pointed out in a recent report that the mismatch between educational standard and suitability for employment will result in a 'talent gap' of five million soon and a shortfall of 750,000 skilled workers in the next five years. He visualizes Education to be the next big area of economic growth in the country and states that the country should invest in people and train them to work in Indian companies that have global standards.

**Bhasin and Parrey,(2012)** in their paper on "Quality interventions in HR practices : A case of Higher education" state that Higher Education Institutions leverage knowledge to spur innovation. They should comply with all the necessities, standards and requirements of quality education needed by students. The Accreditation process and the law is not a solution for the problem, instead the **involvement of the stakeholders** in every step is imperative. The tangible facilities like class setup, digital labs and libraries, quality and reliability of the infrastructure and other assured facilities do influencethe image of excellence.

**Neelaveni and Manimaran,(2015)** in their paper on "A study on students' satisfaction based on quality standards of accreditation in higher education" state that in order to excel in quality of standards and administrative practices, students' output and satisfaction is more important. There is lack of quality because all the policies and standards are adopted to the maximum in terms of mission and vision only and the process of quality achieved is not adequate and permanent. **Excellence** is the appropriate term to mention the degree of quality.

**Rao and Singh,(2007)** in their article state that private aided institutions have become a mirror image of the government run institutions. This has serious repercussions on the future of higher education in India. In order to encourage full participation of private education providers **the regulatory bodies have to play the role of facilitators and not regulators**. Review of the existing structure shows that the procedures are extremely burdensome and

counter-productive. Overall, the system works towards standardization in higher education and not for maintenance of standards.

**Radharamanan,(2003)** provides an overview of how best the quality principles, quality tools, and ISO-9000 standards could effectively be used in improving the quality of engineering education. The "outcomes assessment" model concepts of EC-2000 were applied in two manufacturing courses at the Mercer University School of Engineering (MUSE) for continuous improvement in students' learning. The documented information over a period of four years, the results obtained through statistical analysis, and a comparison on outcomes in students' learning between these two courses are presented and discussed.

**Jain, Sahney and Sinha,(2012)** conducted a study to gain a better insight of the dimensions that determine students' perceptions of service quality of higher education in India. Seven factors were taken into consideration; the first factor labeled 'academic facilities' included access to information including libraries and was found to be significantly important in gauging student perceptions.

**Saif, Tobi and Duque,(2015)** have compared the different approaches to Quality Assurance as applied in the Sultanate of Oman and the Philippines. Their analysis proves that Internal quality assurance is an important step towards achieving accreditation therefore efforts towards setting up HEIs IQA should be given top priority. Also every person has a pre-conceived notion of quality therefore it is important to make sure that the people involved in setting the Internal quality assurance are clear on the aspect of what quality means to them.

**Kavitha,(2015)**has conducted a study that focuses on the higher education system and the problems faced by students as well as institutions during this process . It explains how the gaps are to be fulfilled by using revised SERVQUAL model which was originally developed by Parasuramanet.al. (1985). The researcher has recommended the SERVQUAL model to measure the service quality and fill the gaps in all areas of service.

**Bank and Popoola,(2014)** have, through their case study at a University of Technology attempted to understand quality assurance with respect to the quality, standards and relevance of the services in higher institutions and particularly in the context of the Vaal

University of Technology. Their paper also examines the advantages of the three elements to institutions of higher education.

**Sonde,(2010)** in his paper brings out the stimulating role that R&D can play in Engineering education in India to enhance its quality, standards, relevance and excellence. With regard to developing and providing state-of-the art facilities in the context of the library, the author suggests regular updating of the library, adding new books and journals in print and electronic form, other learning materials as deemed necessary , broadband Internet connectivity etc. He also suggests setting up a suitable mechanism to maintain, monitor and utilize these facilities for R&D activities.

The results demonstrate that Quality refers, in higher education, to a high evaluation accorded to an educative process, where it has been demonstrated that, through the process, the students' educational development has been improved ; not only have they achieved the particular objectives set for the course but, in doing so, they have also realized the general educational aims of autonomy, of the ability to participate in reasoned discourse, of critical self-evaluation, and of coming to a proper awareness of the ultimate contingency of all thought and action. However they conclude that higher education is at a crossroads and that the quality of education is being questioned.

**Poll,(2003)** examines ways of assessing the economic value of library services, the social value of libraries, and the outcome on information literacy, information retrieval, and academic and professional success. Most libraries today present their data as statistical input and output. However one needs to assess the outcome on users as a means of assessing the quality of libraries.

**Khan, Omar et al.,(2013)** This paper highlights the fact that incorporation of ISO 14001 requirements into the existing Accreditation program will not only help in bridging the gap between institutional approaches but also make all the programs in conformity with international programs and then graduates will have better prospects of success in industry. In the context of libraries some essential requirements include conducting Gap Analysis on availability of books and journals, and display of student and staff responsibilities at strategic places.

**Bhatia and Dash,(2011)** in their paper include the comparative study of components of value based higher education system of six countries -UK, China, USA, Australia, Brazil and South Africa with India. The paper recommends educational reforms and explains the critical aspects of managing, and delivering superior value of the higher education system in India. This study gives a complete view of the need of value in the higher education system in India.

**Hernon, Altman, and Dugan,[2](2015)** state that Service quality, a complex phenomenon, is composed of the content of the service itself and the context in which the service is rendered. It is also affected by the quality of the information supplied and used, and the expectations that customers have for the service in the library. Service quality is both individual and collective; the collective determination of service quality and satisfaction creates the library's reputation in the community and for the administrators who fund the library.

Traditional library performance measures do not reflect service quality. Their focus is primarily on expenditures for resources rather than on delivery of service. For these and other reasons, library managers must look for much better ways in order to measure and describe the quality of their services, and toprove that the institution deserves the type of recognition and funds due to it.

## 2.3 Measurement of Quality in Libraries

A much debated and discussed topic is the way **quality based outcomes are quantified** and the way the effects generated by the relationship quality-performance are measured. But how does one measure quality? Various quality related terms like quality assessment and quality assurance come into the picture. **Quality assessment leads to quality assurance and culminates in Accreditation.** It establishes a standard and provides a label of quality.

It has been observed that various researchers have specified different methods of evaluating the quality of libraries – through services, products and more recently, through outcomes. This segment focuseson research associated withthe different models of quality assessment in libraries.

**Porter,(2003)** insists that Performance measurement in a service which is associated with people must be more than just a collection of statistical data , although data collection will be a part of it. He has outlined various input, output and outcomes. The quality measurement plan includes collecting and analyzing statistical data and then converting it into general statements which will influence the decision making process of the library.

**Poll and Payne,(2006)** state that from an academic library service perspective, measuring the impact of services is difficult to achieve as it moves us from traditional views of service quality, based on statistics and satisfaction surveys, to looking at the deeper issues like our contribution to learning, teaching and research.

**Broady-Preston and Lobo,(2011)** explored the role and relevance of external standards in demonstrating the value and impact of academic library services to their stakeholders. Four themes were identified - (1) service reputation and status; (2) service delivery and standards; (3) staff morale; and (4) the customer experience. The paper concludes that recognising the relationship with models of services marketing, and employing these in measuring the impact in a library service environment may serve to strengthen performance measurement and evaluation in academic libraries.

**Zhou,(2012)** in his paper on 'Service Quality measurement at University's libraries'developed a new AHP approach to measure the services of University libraries. The proposed method produces a mechanism where various first level and second level **indexes** of service quality have been set. The questionnaire is designed in such a way that the users' minimum service level, desired service level and perceived service level can be obtained via the investigation. Thus one can effectively ascertain what the user wants and what he gets.

**Sohail and Raza,(2012)** in their study aim to measure the perceptions of the users of Dr. Zakir Husain Library as they relate to quality in service and to determine how far the library has succeeded in delivering such service to its users. The questionnaire reflected on six determinants of quality service, namely reliability, responsiveness, assurance, access, communications and tangibles. The results showed that because of the lack of identifying the most important aspects of service quality in their customers' ideas, the efforts for providing customer satisfaction has failed to a great extent. Service quality means being able

to view services from the user's point of view and then meeting the customer expectation for service.

**Upadhyaya,(2009)** tried to develop an ISO Quality management system for the library in order to streamline processes and thereby deliver quality products and services. Any Library is a service sector where all the processes are customer centric. The library acts as the information hub of the organization and hence the regulatory bodies are interested in knowing about the requirements and the usability of the library. The difference between output and outcome in satisfying user expectations is explained. A process model for a library is explained while emphasizing that the system might not be an ideal system but it should be a workable system.

**Nimsomboon and Haruki,(2003)** undertook a research project on the 'Assessment of Library Service Quality at Thammasat University Library System in Japan'. The concept of the 'Zone of Tolerance' was applied to investigate the problems users had encountered when involved in library service. Three dimensions of service quality - effect of service – organizational directives and collection and access were considered. Several insights gained from this study showed that all the users desired expectations are not met. The most problematic issues are about insufficient and non-updated collection.

**Kaur,(2010)** in her paper 'Service quality and customer satisfaction in academic libraries Perspectives from a Malaysian university' describes the results of a study to examine the perception of academic staff on the quality of academic library services. The results suggest that, although the academic staff use library services, their perception of the quality of library services is ''average''. Yet academicians are aware that the library has a positive impact on their teaching, learning and research. Prompt service in the main library is also appreciated by the academic staff. However it should be of concern that the courtesy and knowledge of the library staff is also perceived as average.

**Rajev and Sriram,(2014**)attempted to identify the impact levels of the various staff support services and promotional activities of the library on user satisfaction. From the above analyses, it is evident that staff expertise has the highest impact on library users. This is mainly because of direct contact. The staff helpfulness has got the second highest impact followed by Orientation programs, library timings and finally Web page.

**Fredericks, Lattuca,et.al,(2007)** undertook a research that uses a conceptual model to examine the influence of a change in accreditation standards on a representative national sample of 203 engineering programs at 40 institutions. The study investigates the differential impact of the change in accreditation standards on programs reviewed in different years during the period of transition. The evidence demonstrates a surprisingly uniform level of student experiences and outcomes. These findings suggest that engineering accreditation is beginning to accomplish its quality assurance goals.

**Ambut,Biton,Go et.al,(2012)** have demonstrated the impact of accreditation by comparing the situation before and after Accreditation using various documents, compliance reports, observations and interviews. With regard to the library it was seen that there was a marked difference in the Collection development policy, Book Fairs were held, library upgrading was prioritized, and library facilities were improved. The authors determine that Accreditation evaluates the capabilities, provides a measure of standard and provides a sense of direction for continuous evaluation and improvement.

**Dole, Liebst, and Hurych,(2006)** tried to assess whether Beck's research method and instruments, which were carried out in 2002 in larger and more research-based libraries, are applicable to academic libraries of other types and sizes. (Beck, 2004*) , "The extent and variety of data-informed decisions at academic libraries: an analysis of nine libraries of the Association of Research Libraries in the USA and Canada", Proceedings of the 5th Northumbria International Conference on Performance Measurement in Libraries, 28-30 July, 2003, Emerald Publishing Group, Bradford.*found that the ARL library directors believe that one of the most important core competencies needed today is the ability to measure the libraries' impact on higher education and to incorporate assessment data into decision-making processes. This study supported the same views.

**Sayeda, Rajendran, and Lokachari,(2010)** in their paper intend to explore the adoption of quality management practices in engineering educational institutions (EEIs) in India from management's perspective. The findings highlight 27 critical factors/dimensions of quality management, which analyzed the relationship between TQM dimensions and institutional performance, which has been formulated using five dimensions. Positive and significant relationships among the TQM dimensions and institutional performance have been

observed. The paper proposes a model for achieving institutional excellence. Two critical factors, i.e. healthy innovative practices and feeder institution partnership have been identified as key enablers in the paper.

**Babalhavaeji,Isfandyari-Moghaddam, Aqili, and Shakooii,(2010)** in their paper on 'Quality assessment of academic libraries' performance with a special reference to information technology-based services' aim to explore which criteria exert a significant relationship with the academic libraries' performance quality; identify a set of criteria that appears to be useful for assessing the quality of academic libraries ; and use these criteria to develop evaluation checklist to oversee the quality of academic libraries.

**Tikam,(2011)** in her book on 'Measuring Value of Academic Library: Few Examples' truthfully states that academic libraries spent less time on ROI (Return on Investment) measures, as they enjoyed a high level of tacit acceptance of the value of libraries among their executives. Today, with increasing demands for proving the usefulness of what they do on institutional scale, even academic libraries have to increase their focus on documenting their value proposition and prove their accountability to its stakeholders. The author describes steps involved in a "Measuring Academic Library Value Project". It guides the users about importance of measuring library value and factors affecting the same.

**Al-Zubi and Basha,(2010)**through theirpaper help to apply scientific and systematic upgrading strategy to have a better service to meet the needs of the users and also helps to find out the solutions for complaints and problems. To evaluate "users satisfaction" and to develop the "quality" of the library, it is mandatory to bring a new innovation. To develop the library and to provide maximum users' satisfaction, it is necessary to implement Six Sigma in Libraries. In such a way this study aims to implement Six Sigma to provide better service and full satisfaction to the library users.

## 2.4 Accreditation – its need and role in college libraries

The concept of Accreditation as a "measurable quantity of quality" is discussed in many parts of the reviewed literature. However the term is applied differently in many countries.

Accreditation is the common system in India, USA, UK, Pakistan, Hong Kong, Finland, Nigeria, Germany, Japan, Philippines, Portugal, North and South America. Accreditation can be internal or external, regional, institutional or program based.

**Sanyal and Martin,(2007)** in their paper on "Quality Assurance and the role of Accreditation: an overview" have discussed three quality assurance mechanisms: quality audit, quality assessment and accreditation. Many examples of good practices are provided in each category. The paper then describes the accreditation process, including general and specific criteria, means of verifying that academic institutions meet the criteria using quantitative and qualitative data, the decision-making process, the outcome report and follow-up actions.

The **Accreditation Board for Engineering and Technology, Inc.**, (**ABET)** is a non-governmental organization that accredits post-secondary education programsinapplied science, computing, engineering, and engineering technology. ABET is a federation of 32 professional and technical member societies representing the fields of applied science, computing, engineering, and technology. As an accrediting organization, ABET defines quality standards for engineering programs and accredits only those that meet these standards.Most accrediting procedures in other countries, including ours, follow the ABET framework.

The **National Board of Accreditation (NBA)** defines Accreditation as follows -
Accreditation is a process of quality assurance and improvement , whereby a programme in an approved Institution is critically appraised to verify that the Institution or the programme continues to meet and exceed the norms and standards prescribed by AICTE from time to time. Accreditation provides Quality Assurance that the academic aims and objectives of the Institutions are being pursued and effectively achieved by the resources currently available.

The **National Assessment and Accreditation Council (NAAC)** is an autonomous body established by the University Grants Commission (UGC) of India to assess and accredit institutions of higher education in the country. Assessment and Accreditation is broadly used for understanding the "Quality Status" of an institution. The accreditation status indicates that the particular Higher Educational meets the standards of quality as set by the

Accreditation Agency, in terms of its resources, performance, financial well-being and student services.

The definition of accreditation in engineering education is most commonly adopted from the **European standing Observatory for the Engineering Profession and Education (ESOEPE):**

"Accreditation is the primary quality assurance process to ensure the suitability of an educational programme as the entry route to the engineering profession. Accreditation involves a periodic audit against published standards of the engineering education provided by a particular course of program. It is essentially a peer review process, undertaken by appropriately trained and independent panels comprising both engineering teachers and engineers from industry."**(ESOEPE 2005)**

**Rajaee and Husinet.al.,(2013)** reaffirm that in engineering education, Accreditation is the most essential **benchmark** to ensure the quality of the engineering programmes offered by any higher learning institution. Accreditation is the most widely used method of external quality assurance.

**Paliwal,(2010)** explains that the word 'Accreditation' is derived from the Latin word 'credito' which means 'trust'. Accreditation means recognition and guarantee of minimum quality.

**Asogwa, Asadu and Ezeme,et.al.(2014)** in their paper assess the quality of services to users in academic libraries in developing countries using ServQUAL model. The purpose was to expose the service areas where the desires of library users' are not met, ascertain the causes, and suggest corrective measures. The paper revealed that in developing countries: all the service indicators evaluated were negatively marked. There is significant difference between the perceptions and expectations of library users; academic libraries are not satisfying users' expectations; while tangibility and empathy were the highest and lowest dimensions in developing countries, reliability and tangibility were the order in developed countries; factors such as lack of modern facilities, poor funding, and weak e-leadership quality were negatively affecting the quality of library services. Greater efforts should be channeled toward closing the gaps between the perceptions and the expectations of library users.

**Akomolafe,(2009)** provides a very meaningful insight when he states that Accreditation is both a status and a process. As a status, accreditation provides public notification that an institution or programme meets standards of quality set forth by an accrediting agency. As a process, accreditation reflects that in achieving recognition by the accrediting agency, the institution or programme is committed to self-study and external review by one's peers in seeking not only to meet standards but to continuously seek ways in which to enhance the quality of education and training provided.

**Palpandi and Rao,(2006)** in their paper on 'Challenges and Perspectives in Higher Education' assert that Quality in engineering education is not expensive but it needs hard work, commitment and dedication.

**Mane,(2015)** in his paper on 'NBA and NAAC Accreditation of UG Engineering Programmes/Colleges in India: A Review' studies the commonalities and differences between NBA and NAAC accreditation for engineering institutions in India. NBA accreditation for engineering institutions is more objective in nature and includes mapping and use of rubrics which is not called for in the NAAC process.

**Brahadeeswaran and Hakeem,(2012)** have presented a comparison of the revised system of accreditation of the NBA with the earlier system. A new focus of outcome approach can be viewed in the revised system compared to the resource and process approach in the earlier system. Also more weight is given for students' outputs and faculty contributions in Research and Development projects, Research publications, IPRs, consultancy work and interactions with outside world in the revised system of accreditation.

**Burris,(2008)** based his doctoral dissertation on 'An analysis of accreditation processes, quality control criteria, historical events, and student performance'. The purpose of the study was to determine to what extent student performance has been influenced by historical events, legislative mandates, and accreditation processes. He concluded that an appropriate model of accreditation is important to the continuous improvement of an educational institution and student performance outcomes. Also Legislation can be supportive towards promoting equal opportunities for students and is should not the based on hasty judgments or misinterpreted data.

**Darlymple,(2001)** says that all Accreditation processes perform two primary functions – Quality assurance and Institutional improvement. We need to focus on the latter and the former will take care of itself.

The reviewed literature explains that Quality Assurance varies from Accreditation, in the sense that the former is only a prerequisite for the latter. In practice, the relationship between the two varies a great deal from one country to another. Both imply various consequences such as the capacity to operate and to provide educational services, the capacity to award officially recognized degrees, and the right to be funded by the state. Quality assurance is often considered as a part of the quality management of higher education, while sometimes the two terms are used synonymously.

On the other hand **Naik,(2006)** in his paper states that Quality goes beyond Accreditation. It is with this background of understanding Quality and Accreditation and understanding the relationship between the two that that this study has been undertaken.

### 2.4.1Need for Accreditation in Academic Libraries

Accreditation, its needs and objectives have been mentioned in most of the reviewed literature in great detail. In India, the proliferation of various core and overlapping areas of higher education, particularly in the case of engineering education, has resulted in huge demands on the monitoring of its quality. This has put a lot of pressure on the regulatory bodies and hence the need for Accreditation.

The need for Accreditation is explained by **Paliwal,(2010)** when he expresses concern that some private institutions are offering degrees without the requisite approval from the concerned regulatory authorities. The only solution is to have a system of assessment, accreditation and recognition for the institution of higher education.

**Altbach and Davis,(1999)** state that Academic institutions and systems have faced pressures of increasing numbers of students and demographic changes, demands for accountability, reconsideration of the social and economic role of higher education, and the impact of new technologies, among others. The authors also argue that the expansion of the private sector brings up issues of quality control and accreditation since in many parts of the

world there are few controls as yet on private sector expansion. This seems to be true in our country also. Demands by funding sources, mainly government, to measure academic productivity, control funding allocations, etc. is increasingly a central part of the debate on higher education. Accountability is a contemporary watchword in higher education.

**Vrat,(2008)** identifies the quality related issues in Higher technical education in India due to exponential growth in the number of colleges. He identifies Accreditation as the best Quality enhancement strategy. It is interesting to note that he too, like Natarajan speaks of Accreditation in terms of Quality improvement.

**Prados, Peterson et.al,(2005)** in their paper insist that engineering science emphasis did produce graduates but they are not so well prepared in other skills needed to develop and manage innovative technology. While seeking to explain the change in Accreditation criteria of ABET (called EC 2000) they clarify that it now emphasizes learning outcomes, assessment and continuous improvement rather than detailed curricular specifications. Hence ABET now focuses on evaluating and improving the intellectual skills and capabilities of graduates. It now incorporates lessons learned, best practices and innovations.

**Oxnam,(2003)** states that today's engineer needs to have not just the necessary information but should also have the skills of how to obtain it. However engineering curriculum does not require assignments that involve information research.

According to **Chitnis,(1999)**, Quality is also affected by the fact that few students are academically motivated. Most pursue a degree for the status it carries and because it is a required qualification for employment.

While restating that assessment and accreditation of higher education institutions have become necessary exercises in the present context of globalization, **Pasha Mukarak,(2007)** explains that assessment and accreditation are not just synonyms for quality. The views of stake holders need to be taken into consideration while assessing the quality of an educational institution.

**Vrat,(2008)** says that although in India the process of Accreditation is mandatory through the National Accreditation Regulatory Authority for Higher Educational Institutions Bill and

explicitly explained in the websites of both NAAC (National Assessment and Accreditation Council) and the NBA (National Board of Accreditation) yet there are a number of difficulties associated with accreditation through NAAC and NBA.

The author further clarifies that the percentage coverage of the accredited institutions and programs by NAAC and NBA are a very small fraction of the total number of programs available in the country. The credibility of the Accreditation process itself needs to be established. The author has suggested a National Quality Award model as an alternative route to promote Accreditation. Accreditation in higher education as a quality enhancement strategy needs to be nurtured. Adopting best practices, bench marking and using accreditation as a roadmap for quality enhancement needs to be adopted.

**Radharamanan,(2003)** provides an overview of how best the quality principles, quality tools, and ISO-9000 standards could effectively be used in improving the quality of engineering education. The use of quality tools in engineering education as well as a comparison of EC-2000 (which forms the basis for NBA) with ISO-9000 standards are presented and discussed for achieving continuous improvement in the quality of engineering education.

The quality of education will not be met until a quality culture has been developed. Success can only be attained whenall involved in engineering education have the commitment, the motivation, and the means to incorporate the culture of quality in every lecture, every laboratory work that is supervised, or every paper that is written .Self-assessment of qualityin every process and system is essential to promote continuous improvement and eventually customer satisfaction.

In his paper 'Accreditation, Assessment and recognition in the system of higher education' **Paliwal,(2010)** has suggested a two tier system – one for maintenance of standards and the other for promotion of co-ordination. NAAC+NBA system should be integrated and modified. First the institution is assessed, funds are given for strengthening the system, then it is recognized. All reports are put up on the institutional website for public viewing i.e. the assessment reports should be made public after consideration by the statutory authority.

**Naik,(2006)** laments the lack of scientific approach in governance with regard to the quality of higher education. Accreditation will become meaningful only if a Quality assurance cell is set up. The author reiterates that inspection does not improve quality. It hurts. Accreditation measures Quality like a thermometer. Quality goes beyond Accreditation. Impressing pre-requisite of quality on the minds of people is necessary.

**Balu and Reddy,(2014)** conducted a survey on the present status of Engineering College libraries in Sri Venkateshwara University area. The researcher collected data from 29 engineering colleges which was analyzed with regard to various factors like acquisition procedure, staffing pattern, library services and physical facilities and the document lending procedures of these libraries. The analysis showed that 41.14% college libraries do not fulfill the norms of AICTE with regard to the subscription of periodicals. With regard to services offered, very few libraries (17.2%) offer bibliographical service and only 6.9% offer inter library loan service. It is recommended that this be changed.

**Sinha and Subramanian,(2015)** identify the noteworthy role played by various statutory bodies constituted and expanded by the Indian Government for the purpose of quality assurance and attainment of sustainable excellence in the Indian higher education system. The implication of accreditation can be well assessed through the recent fashion that **most** employers now prefer to employ job applicants who have gained their education from an institute, college or university with the proper accreditation status. Many employers also look to see that employees have been educated at an appropriately accredited institutions when making decisions about promotions, company advancements, and whether to provide assistance for employees who intend to further their education.

**Coleman,Xiao,Bair, and Chollett,(1997)**This study provides the results of a survey conducted in the fall of 1994 by the Sterling C. Evans Library to measure service quality. This general user survey provided feedback from customers on their minimum, perceived, and desired levels of service from an academic library. The devised measuring instrument is based on SERVQUAL, a service quality survey created by Leonard L. Berry, A. Parasuraman, and Valarie A. Zeithaml. The SERVQUAL survey is designed to measure service quality in five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Survey results showed a discrepancy in the quality of the services provided by the library and those desired by its customers.

### 2.4.2Role of Accreditation in Academic Libraries

The library has always been an important cornerstone in the academic structure, with the library personnel striving hard to meet the expectations of the students, faculty and research scholars through their resources, facilities and services. The role of Accreditation in academic libraries has been explained by a number of authors in different ways.

**Yang,(2011)** asserts that Quality education is multi-dimensional education; it means not only to enlarge the students scope of knowledge but also train their innovative abilities. He also reiterates that libraries are the extension of classroom teaching. Therefore no high quality library means no high quality college education.

**Thakuria,(2007)** reiterates that Quality services means resources and services which **satisfy user expectations** and perceptions. The very existence of libraries is dependable on user satisfaction. A quality service is said to be one which satisfies the user's expectations resulting in a good experience.

**Chandel and Tabah,(2007)** in their paper discuss the various indicators of assessing quality of the library services giving emphasis on input processing activities mainly responsible for quality products. According to them, the quality of input (Collection, products and services, professional attitude) determines the quality of output. (User satisfaction)

**Balu and Reddy,(2014)** affirm that libraries provide support to engineering colleges for achieving the goals and vision of the respective colleges through ensuring quality based library and information support services to students, research scholars and faculty members. Excellent engineering colleges are essential to prepare engineers with good knowledge and skills in engineering.

**Natrajan,(2000)** in his paper on 'The role of accreditation in promoting quality assurance of technical education'focuses on various techniques like SWOT analysis to begin with. The strategy for planning an engineering education system is diagrammatically explained. The essential characteristics of the twostages of evaluation – self assessment and peer evaluation is explained.

**Lotze,(2015)** Vice President and Dean of the School of Education, American Public University System stresses on three emerging factors with regard to accreditation and assessment.The first is Rethinking Accreditation for non-traditional colleges, the second is the technological advancement which allows aggregation of data related to student behaviour and outcomes . The third is the amalgamation of Accrediting bodies – thus specifying newer standards and how to go about acquiring it. He insists that all this will have a tremendous impact of Institutions and subsequently libraries.

**Brito, Castro and Vergueiro,(2013)** discuss the thematic view of customer-centered quality in academic libraries and contribution to the importance of quality evaluations based on the perception of their customers for thespecifictype of library. It highlights a specific methodology, the LibQUAL. From the analysis of LibQUAL+® assessment procedures, the article aims to present the benefits that can be achieved from the application of this methodology as well as it intends to verify the possibilities of using it in academic libraries in Brazil. It concludes that the methodology presents aspects which can support the academic library management, as identifying strong and weak points of the services, becoming closer to the library´s customers' needs, comparing the library performance with other libraries and defining the best practices in the field, besides contributing to a more professional management of the libraries.

**Kuh and Gonyea,(2003)** examined the nature and value of undergraduate students' experiences with the academic library. They conclude that the emphasis a campus places on information literacy is a strong predictor of students becoming information literate, librarians should redouble their collaborative efforts to promote the value of information literacy and help create opportunities for students to evaluate the quality of the information they obtain.

**Adeola,(2014)** This paper examines the process of an accreditation exercise at Fountain University, indicating the role of the library in the exercise, in compliance with the National Universities Commission's definition of accreditation. Emphasis was on the library holdings, quantity and quality of materials and their currency. The accreditation exercise indicates that the institution maintains clearly specified educational objectives that are consistent with its mission and appropriate to the degrees it offers. Based upon reasoned judgment, the process stimulates evaluation and improvement, while providing a means of

continuing accountability to the public. This study seeks to provide an insight into the accreditation exercise at Fountain University, Osogbo, with a view to sharing experiences of the library as the integral part of the institution. The paper thus concluded that the statement of Fountain University accreditation status with the NUC is also an affirmation that the institution is persistently committed to the Commission's principles and philosophy of accreditation.

## 2.5 Impact of Accreditation on Academic Libraries

This research study focuses on the impact of Accreditation in engineering college libraries. It seeks to understand the changes in the college library before and after Accreditation. It strives to recognize the effect of the process of Accreditation on various dynamics associated with the library like collection development, infrastructure, staffing, library products and services etc. Also associated with all the above mentioned factors is another important element – the librarian itself. This study also aims tocomprehend the impact of Accreditation on the librarian itself, their role and responsibilities and their move towards building a quality library providing excellent service to users.

**Lindauer,(1998)** in a relevant article identifies important institutional outcomes to which academic libraries contribute; describes specific performance indicators whose measures of impacts and outputs provide evidence about progress and achievement; and offers a conceptual framework of assessment domains for the teaching–learning library.

The author asks some very pertinent questions –

- What is the difference between performance measures and indicators?
- What is meant by "valued institutional outcomes"?
- Is the evaluation of library effectiveness the same as library quality?

The author rightly concludes that sometimes librarians are so involved in daily operations that collecting and providing evaluative information on a regular basis takes a low priority. Only a scheduled accreditation visit causes a change in priorities. One of the main points to be drawn from this article is that the assessment of library performance should be defined and shaped by its connections and contributions to institutional goals and desired educational outcomes.

According to **Darlymple,(2001)**, the change in the role, value and organizational structure of Accreditation provides an opportunity for the library community to develop new ways to demonstrate their importance and worth.

Each library model, regardless of its location, or context, or size, can strive towards excellence. Librarians should establish the centrality of the library in the assessment of quality in higher education. New knowledge and skills may be required for this.

**Poll,(2003)** states that assessing the outcome of libraries means assessing the effect of library services on users. According to ACRL (1998) outcomes are the ways in which library users are changed as a result of their contact with library resources and programs. A number of short term and long term results of using library services are explained. Assessment of library outcome is briefly explained along with some possible methods of assessing library outcomes like academic success, Information Literacy, social impact and economic value. The importance of the library in information seeking is stressed. Satisfaction on the part of the user is an outcome.

**Truessell,(2004)** states that the shift in ABET accreditation criteria gives librarians and enhanced opportunity to partner with engineering faculty to document ethics instruction , which in turn can facilitate documentation for Accreditation reports.
Engineering students bring with them different information seeking patterns and different attitudes about the necessity and use of information. Engineering librarians have enjoyed a long standing tradition of facilitating information access to engineers. Today librarians have moved from becoming collectors and disseminators to becoming teachers. Criteria 3 and 4 of ABET stresses on professional and ethical responsibility. Librarians and faculty can work together to develop course content. The author has also included a list of topics for discussion and instruction.

According to **Rao and Singh,(2007)** the environment in which librarians work is changing in terms of greater access to a range of information, increased speed in acquiring information, greater complexity in locating, analyzing and linking information, constantly changing technology and adaptation, lack of standardization of both hardware and software, continuous learning for users and staff, management of financial investment for technology.

**Sarkhel,(2004)** has written a very contemporary paper in which hehas traced the genesis of NAAC and highlighted the processes involved in the assessment and accreditation of colleges. The author has discussed the seven criteria used for this purpose by NAAC and has also demonstrated how the college library and library staff can play an effective role in the entire process. The author has also explained in detail how to prepare the college library for assessment by NAAC. He has also explained the assessor's views and showed how the library can aid students in the transaction of curriculum. He has explained what documents constitute a complete library profile. It is perceived that because of the compulsion of NAAC's periodic review every 5 years, there will be an emphasis on continuous development and subsequent enhancement of the quality of higher education.

**Sornam, Priya, and Prakash,(2013)** have made an attempt to study the faculty perception on Library faculties in Autonomous Arts and Science Colleges in one of the biggest cities in Tamil Nadu. The study used a questionnaire and the results revealed that faculty have a low perception on the collection, services, ICT facilities, manpower and infrastructure facilities of libraries in these colleges. The researchers recommend that it is essential to conduct periodic user surveys to identify the current needs and problem of users in accessing and retrieving library facilities enabled collection and services.

**Chen and Chengalur-Smith, (2015)** in their longitudinal study investigate various factors influencing undergraduates' prior, current, and continued use of a university library Web portal using a credit-bearing course infused with information literacy. The authors examined direct influences of user satisfaction, voluntariness, and competing resources on portal usage, as well as relationships among current use, user satisfaction, and continued use. The results indicated that the positive effect of user satisfaction on use increased and the unfavorable impact of voluntariness of use became non-significant after the intervention. The outcomes signify that integrating Information Literacy components into credit courses could be a strategy to facilitate library portal use.

**Dhanavandan, Mohammed Esmail and Nagarajan,(2011)** in their study aim to analyse the use and availability of Information Communication Technology infrastructure facilities in self-financing engineering college libraries in Tamilnadu. This study traces out the nature of electronic resources, besides other aspects of ICT.

The findings showed that out of the 140 sample institutions, more than half of the colleges have been accredited by the ISO and NBA. However only 29 libraries have access to international e-journals and 28 libraries have access to Indian e-journals. Out of 12 libraries in Vellore zone only one library has on-line access and that too for only one international journal and Indian e-journal.

**Urst and Leonard,(2007)** report the results of their research which used citation analysis of students' term papers to determine the effectiveness of a library instruction session. Two sections of the same class received instruction while a third did not. Bibliographies of the students' papers were examined and it was observed that students receiving library instruction were more likely to cite library journals and scholarly resources than those not receiving any library instruction. Just because today's undergraduates are skilled at surfing the web, it is assumed that they will be equally proficient in locating data for their assignments. But this is not so. Students only use resources that they know about and the results of the survey strongly point to the power of even a single librarian-led session. It is suggested that librarians and faculty could work together to design an assignment to include components that encourage library research. This is a chance to make Information Literacy a reality.

**Fernandes and Patil,(2015)** in their paper on "Impact of Accreditation on Information services of Engineering College libraries" seek to underline the fact that quality assurance, as provided by the process of Accreditation, is actually an on-going process. They have studied the impact of Accreditation on Collection development, print and electronic resources, Digital library and Information Literacy. They conclude that if the library provides both basic facilities as well as value added services to its academic users, it will definitely enhance quality leading to Accreditation.

**Thakuria,(2007)** states that in the current scenario, librarians must manage staff, information in several supports and technical activities to produce quality services. To improve the service quality, the users satisfaction survey is a tool that provides both quantitative and qualitative data. The author has explained the various factors on which user satisfaction depends. Ranganathan's Five laws of library science are oriented towards providing quality services to users and this is very well explained. Various tools and techniques for managing the quality of services are also mentioned in this paper.

**Mohindra and Kumar,(2015)** conducted a study to assess library service quality associated with user satisfaction of A.C Joshi Library, Panjab University. The study considered a number of critical elements of service quality assessment. It was found that library environment and library services significantly predict user satisfaction.

**Zhang, Goodman and Xie,(2015)** researches students in a first-year engineering course who receive library instruction by using a newly-developed online module and attending optional in-person tutorials. It aims to evaluate the outcomes of library information literacy instruction using this module combined with in-person help. Results show a significant improvement in information literacy skills from a pre-test to a post-test quiz. Focus group and survey data indicate that most students preferred the self-paced learning style of the online module and that the content of the module helped them to conduct library research for the course. This study also considers best practices for online library instruction. A blended instruction approach provides students with the flexibility to learn from a variety of formats at their own pace and also reduces library staff workload, especially for a large course.

**Pandian and Selvaraju,(2015)** undertook to assess the awareness and implementation of Open Source Software by the LIS professionals working in various engineering colleges in Tamil Nadu. The analysis of data shows that although librarians have knowledge of Open source software, the use in libraries is at a budding stage. It was seen that 94.44 % librarians favour commercial software mainly due to lesser risk, more user friendly, inadequate knowledge and expert dependency Recommendations suggest that for the widespread use of OSS in engineering college libraries, a cooperative and participatory organizational system, positive attitude of authorities and LIS professionals, and proper training provision for LIS professional need to be developed.

An **International Conference on Student Participation in Quality Enhancement (SPQE)** held on 16 -17 September 2006 at Bangalore. In that conference **Anandakrishnan,(2006)** in his paper on ‘Imperatives of Student Involvement in Quality Enhancement’ spoke about students as the highest stake holders in enhancing the quality of teaching and learning processes. He reiterates that wherever there was a structured feed-back from students on the performance of teachers, deficiencies in the academic and

physical infrastructures and short coming in the student services, the institution has benefited by efforts to improve the quality.

In that same conference **Dr. Stella Antony,(2006)** who is currently the Audit Director at the Australian Universities Quality Agency (AUQA). And was earlier with NAAC has put forward the concept of 'Quality Literacy' Creating awareness about the use of quality related data among the stakeholders, understanding the information needs of the stakeholders and ensuring that the stakeholders actually have the capacity to use QA data have to go hand in hand. The latter has come to be known as 'Quality Literacy'. Student feedback is becoming more important in assessing quality, but there is little standardization in the way it is collected or, what is done with it. Strengthening this aspect will send positive signal to all stakeholders.

**Trussell,(2004)** explains that in the year 2000, heavily modified ABET standards took effect emphasizing qualitative standards as well as quantitative ones. One aspect of the enhanced criteria that is particularly relevant to engineering and technology libraries is "an understanding of ethical and professional responsibility". Librarians have been providing essential instruction in ethics for many years through lessons in Information Literacy. Librarians can assist technological university administrations in adjusting to the emerging standards by partnering with faculty to incorporate lessons of ethical and professional responsibility into curricula.

**Akalpler,(2009)** in his study provides a review of accreditation activities and quality assurance of e-learning providers in North Cyprus in order to reveal achievements, deficiencies and trends. As the result indicates, the accreditation of e-learning courses in North Cyprus is not a common practice yet. This study recommends bridging the gap by developing better learning outcomes to achieve aims such as promoting, standard setting, evaluation and consultation processes, development and maintenance of high educational, ethical and business standards in education and training programs delivered through e-learning.

**Alam,(2006)** has published the results of the Regional Accreditation and Quality of Education Survey in the paper 'Impact of Accreditation on the Quality of Education'. The task of 'measuring' the impact of the accreditation process on the quality of education is

complex and challenging. Key findings demonstrate that while the financial resources for purchasing and upgrading technology, library and other resources have a bearing on the quantity and quality of a school's resources, financial resources are not the lone factor affecting the quality of resources. How these resources are made accessible to teachers and students and the amount and kinds of professional development training for staff in technology also impact the effectiveness of these resources.

**Nkanu and Ebaye,(2014)** set out to present a report on the accreditation of academic programmes of Cross River University of Technology. The study also examines each programme's accreditation status and the relationship between NUC Accreditation Scores and their corresponding library scores. The results showed that while there is no significant relationship between library scores (LS) and accreditation status, there is a significant relationship between the Library Scores and Accreditation Score. Key results indicate that the higher the library scores, the more chances of having full accreditation.

**Ifidon,(1996)** conducted a study of Nigerian university libraries which revealed that government funds allocated to purchasing books were doubled following Accreditation. Several thousand books and hundreds of journal titles were added to each library.

**Sharma,(2006)** speaks of 'Download counts as a new indicator to measure the efficiency of S&T libraries'. This indicator helps the library authorities to measure the usefulness of e-resources subscribed by them. It also helps in selection of books and journals. But strategies of some publishers imposing certain conditions such as journal and book bundling in subject categories, subscribing only in block-years and hidden charges for value-added services exasperate the library and the librarian. These are issues that need to be looked into.

**Martensen and Gronholdt,(2003)** in their article describe the development and application of a structural equation model which allows librarians to quantitatively measure library users' perceived quality, satisfaction and loyalty with a library as well as the degree to which specific elements of a library's services, collections and environment contribute to those perceptions. The article reports the results of a survey among users at five Danish libraries with particular attention to the Copenhagen Business School Library.

**Prasad and Bhar,(2010)** in their paper give an overview of the Indian technical education system with regard to both its quantitative and qualitative scenario and upholds the value of accreditation in quality improvement and quality assurance of educational programmes. The paper presents a comparison of accreditation systems being followed in some important countries, including India, that are signatories or provisional members of the Washington Accord. It also looks into the reasons of the sparse level of accreditation work completed by the National Board of Accreditation (NBA) since its inception. While mentioning strengths of the NBA accreditation system, the paper points out some shortcomings in the policy, self-assessment questionnaire, criteria, weightage assigned to criteria and rating scheme followed by NBA. Some important recommendations have also been made to render the accreditation system more effective and acceptable to various stakeholders of the technical education sector in India.

**Poll,(2003)** asks a pertinent question – 'Are librarians making a difference ? We are challenged to prove it.'The answer to this question will demonstrate the impact of Accreditation in academic libraries.

## 2.6 Innovation and Best Practices in College Libraries.

A 'Best practice' may be innovative and be a philosophy, policy, strategy, program, process or practice that solves a problem or create new opportunities and positively impact the whole organization (NAAC 2006).

The term 'Innovation' is derived from the Latin word 'innovatus', meaning "to renew or change," It refers to the creation of better or more effective products, processes, technologies, or ideas that are accepted by markets, governments, and society. Innovation differs from invention or renovation in that innovation generally signifies a substantial positive change compared to incremental changes.

Significant literature is available with regard to innovation and best practices in academic college libraries. In fact the NAAC has published a booklet on 'Best Practices in Library and Information Services' which proves to be a roadmap for all academic libraries. Unfortunately no such guidelines have been provided by the NBA. But various other authors have stressed on best practices as a move towards quality assurance and quality assessment.

**Prabhu,(2011)** states that **'**Change or Perish' is dilemma faced by libraries today. In today's changing environment, there are several factors that are compelling libraries to adopt innovative practices. The innovation policy needs to be based on sound footing. Best practices can also qualify as innovative practices. This paper takes a brief look at the various factors and measures that can be adopted. The author has explained innovation and its need in academic libraries today and has also provided a roadmap for innovation.

**Kamble and Tikam,(2011)** have described various best practices based on library collection, development and maintenance, promotion as well as library environment. They conclude that developing best practices, analyzing and revising them at a regular interval will lead to continuous improvement in overall performance of the library and the whole institution.

**Fernandes and Chandurkar,(2011)** in their paper 'The era of innovation in the context of engineering college libraries' attempt to throw light on the need for innovation in engineering college libraries in Mumbai. Their paper seeks to underline some of the basic innovative practices that can be utilized by librarians along with encouraging trends for the future. Various innovative measures in routine library work, collection development, infrastructure, marketing and satisfying user needs have been demonstrated.

**Islam,(2015)** in his paper has explained the role of NAAC in college library development. Various best practices in the college libraries have also been discussed in detail.

**Osinulu and Amusa,(2010)** in their paper 'Information Technology, Quality Assurance, and Academic Library Management' discuss various aspects of the library where innovation could be considered. They discuss various quality assurance issues like collections, staffing, facilities, funding automation and Information Technology.

**Gupta,(2012)** in his paper describes the preparation to be made at the institute level for obtaining NBA accreditation for technical education programmes. With regard to the library it is recommended that the institute develops a knowledge management system, encourages library assignments, supports student publications, and maintains and uses a learning resources bank.

**Jotwani,(2008)** while describing the 'Best practices in modern library and information centre in the case of Central library IIT-Bombaydefines the concept and describes the strategy for application of best practices in an organization. The paper reviews attempts made by IFLA, ALA, ACRL and NAAC to develop guidelines for best practices for libraries. The author states that the adoption of well defined, transparent, user focused and technology oriented processes and practices with a flexibility to change and improve can lead that library to be the best. I.I.T is the first academic institution in the country to accept **online submission** of Ph. D **theses** and M.tech dissertations. It has a colourful brochure called 'Know your Library'. Professionals staff undertake shelf rectification at regular intervals. The author states that **'What is best today may not be best tomorrow – set new goals to be the best'.**

**Tank and Italiya,(2009**) while presenting the case study of Library and Learning centre (LLC) of Atmiya Institute of Technology & Science, an Engineering College Library, state that their Library and Learning Centre is one of its kind in the region and is often considered as a model library. This was possible because of properly defined job title, job description, authority, responsibility, proper line of control and updating knowledge and skills.
Some of the best practices described included designing of the library keeping in mind the growth criteria, students' involvement, each section of the library designing their own web page after training, improving Presentation skills of the library staff etc.

**Waghmode,(2013)** while describing the Best practices in SonubhauBaswant College Library, Shahapur states that these were developed according to NAAC guidelines. Some of the important ones include Book Bank facility, library services to external readers, Internet facility, and information about Competitive examinations.

**Ahmed and Pal,(2012)** while illustrating the Best practices with NAAC in College Libraries of Nalbari district, Assam seek to address the questions that arise after NAAC accreditation to the college libraries. The questionnaire seeks to obtain information about various products and services provided by the libraries including ILL, Book Bank and Drinking water facility. Data analysis shows that although libraries are automated, no library has started automated acquisition, serials control, maintenance of budget and admin process. User statistics was also obtained which showed that the libraries had developed a lot after

NAAC visits. The authors admit that NAAC has limitation of power only till assessment; it depends on the management and the library staff to take up the further development of the library.

**Wadje,(2012)** describes best practices through the case study of Indira Gandhi Senior College Nanded. Here Library Science is offered as an optional course and students are posted for internship in various sections of the Library. The library is benefitted by the assistance of students. Guidance is imparted for preparing assignments and project reports. Library Best user award is announced. User feedback is collected through suggestion box and feedback forms.

**Yang,(2011)** asserts that libraries can help students develop study objectives. Libraries can hold multi-level multi subject special lectures. They can exhibit photos and create reader's corner. Libraries improve the ability of independent thinking. They are a kind of self-study education process. Libraries can help in holding small academic research conferences. Take college students as the core objective in management. Create a human reading environment. This will improve the quality of libraries.

**Wright,(2012)** in her paper addresses the practical changes to the library field that continue to take place as technology advances. It also includes best practices to modernize the academic library to best complement a technologically driven university like changing the physical structure of the library. A case study of 'Information Commons' has been presented as an example.

**Kumar,(2012)** stresses on the current challenges faced by the academic libraries, and how it can be overcome by using various best practices like Information Brochures, Web based services and developing a Virtual presence. He concludes that with the adoption of the best practices in academic libraries there will be a continuous improvement and overall performance in the institution.

**Jange,(2009)** states that in view of the complex information needs of society and for better accreditation from NAAC, the library and information centre have to play a greater role in building, developing, and disseminating information products by establishing Virtual Learning Resource Centre (VLRC). Attempts have been made to understand the

significance of this learning resource centre (LRC) in catering to technology based information resources and services to support learning, teaching, and research activities for academics.

**Mollah,(2012)** maintains that a well-equipped library is a pre-requisite of imparting quality education in any institution. The evaluation of quality of services provided by college libraries of Murshidabad district is the main objective of the study assessed on the basis of the success of students in the NET, SET and GATE examinations till December 2011. Results show that many colleges do not have qualified librarians and have very few library staff. Physical infrastructure is poor due to paucity of library funds and space. A majority of students are dissatisfied with the collection and services and even timings. Students wanted more course relevant books. Automation and Internet facility is also not satisfactory. A dismal performance of below 1% in the NET/SET/GATE exams is the reflection of the quality of education being imparted at UG levels. Among many other factors the poor quality of library services is found to be an important factor.

**Oxnam,(2013)** reiterates that the ACRL information literacy standards and competencies co-relate the learning outcome of ABET. The author has stressed on the importance of Information Literacy as an important part of engineering education. If students are to be given opportunities to develop skills and demonstrate learning outcomes, then faculty must bring on these curriculum changes. Integrating Information Literacy into course work and curricula requires partnership and collaboration between both faculty members and Information professionals.

**Mawale,(2013)** in her article on explores new and innovative Library Services designed to increase library use and fulfill patrons' information requests. The 4Ps of innovation are discussed, namely – Product, Process, Position and Paradigm innovation. The author stresses on improving the image of the library within the organization. Some innovative strategies like screening of videos, thematic book displays, book talks, developing library apps etc. have been explained.

**Eleanor and Seiden,(2015)** state that whether the library assessment is driven by external pressure or by an organizationally inspired desire to improve, library managers are expected to be able to plan and implement both comprehensive and targeted evaluations of their

impact, services, resources, programs, virtual and physical spaces, and partnerships. Many librarians have been invited to serve on review teams for other academic libraries, either as part of a reaccreditation process or as part of a general cyclical program review process. There are no blueprints for conducting external reviews and self-studies.

A review of literature shows that although much has been said about accreditation, engineering institutions are not spoken of in much detail. In the context of engineering college libraries, the process of Quality Assurance has only been seen as quantitative rather than qualitative. The studies do not illustrate the impact of Accreditation – whether it is positive or negative to the library and librarians and ultimately to the library user. The review of literature does not demonstrate the impact of Accreditation on various aspects of the academic library like infrastructure, staffing, library products and services. It does not state whether there is any participation of the stake holders in the process. The relationship between the process of Accreditation of engineering college libraries and the role and skills of library personnel is also not clear. It is with these points in mind that this study has been undertaken.

## 2.7 Conclusion

From the literature review, the following facts are visible –

- Education is poised to be the next big area of economic growth in the country. However increase in quantity of engineering institutions has sometimes diluted the quality
- Accreditation is a measure of quality. However it is true that Quality goes beyond accreditation. Quality is not a destination but rather a journey to improvement. Hence-self assessment of quality is essential.
- The library is an important component of the Accreditation process of an engineering institution. However sometimes library performance measures do not always reflect service quality. Their focus is primarily on expenditures for resources rather than on delivery of service
- Libraries need to focus on and strengthen their efforts towards preparing to measure quality and achieve excellence. The NAAC has prepared and published a detailed manual on ‘Best Practices for libraries’ as an effort in this direction. However no such guidelines are given by the NBA.

- The relationship between the process of Accreditation of engineering libraries and the role and skills of library personnel is not distinct. Librarians should establish the centrality of the library in the assessment of quality in higher education. They need to ascertain their role and move towards a quality library.

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# CHAPTER 3
# PROCESS OF ACCREDITATION IN ENGINEERING COLLEGE LIBRARIES

*"Quality means doing it right when no one is looking."*

*Henry Ford*

## 3.1 Introduction

Higher education in India today has grown and multiplied at an amazing pace. It has also expanded and diversified in micro areas and overlapping areas which were not heard of before. The demand for higher education coupled with this alarming expansion pose a number of challenges for the regulatory bodies in the context of maintaining and enhancing quality. It is a well-known fact that Quality being a multidimensional concept, several mechanisms for quality assurance and management of quality are needed. It is perceived that various systems of accountability and accreditation are essential for sustaining and improving quality.

Quality assurance in higher education is today the top priority of the agendaof planners and policy makers at the governmental levels. It is to this end that 'The All India Survey on Higher Education (AISHE)' was initiated by the government in 2011 during which statistics related to Higher Education for the year 2010-11 was collected. The survey was obligatory as none of the sources of data on Higher education prevalent so far were able to provide a complete picture of higher education in the country. Also, there were many important parameters on which data was required for policy making but either no data was available or it was incomplete. So for the first time all the major Stakeholders in Higher Education such as University Grants Commissions, All India Council for Technical Education, Medical Council of India as well as State Governments participated in this data collection exercise. The data was analysed and various findings came to light.

Some important findings of the survey related to this research study have been enumerated as follows –

- A majority of the Colleges, (73%) are privately managed. Out of which, 58% are private-unaided and 15% are private-aided.

- The maximum number of colleges specialized in Engineering and Technology (9.2%)
- The highest numbers of students are seen enrolled at Under Graduate level (79%) across India.
- Maharashtra is one of the top six states with regard to college density.

With such statistics it is but imperative that Quality has to be the concern of all engineering institutions in the country and in the state of Maharashtra. The monitoring of this quality is the concern of the regulatory authorities while the need for the same has to be felt voluntarily by the individual institution as well. It is apparent that excellence will flow from good quality institutions and appropriate governance structures so as to impact the individual as well as society as whole.

## 3.2 Accreditation

The word 'Accreditation' represents a process at the end of which a certificate of competency, authority, or credibility is presented. Accreditation is of many types and has many functions. In the context of Higher Education in general and engineering colleges in particular, Educational accreditation is a quality assurance process under which services and operations of educational institutions or their individual programs are evaluated by an external body in order to determine if certain applicable standards are met. If these pre-determined standards are met, then the institution or its educational programeis granted an "Accredited" status by the appropriate agency.

### 3.2.1 Definition of Accreditation

There are many definitions for the term 'Accreditation' in the educational context. Some of the more relevant definitions are mentioned below –

**According to ABET** (Accreditation Board for Engineering and Technology, Inc.) – "Accreditation is a review process to determine if educational programs meet defined standards of quality. Once achieved, accreditation is not permanent—it is renewed periodically to ensure that the quality of the educational program is maintained."

**According to CHEA** (Council for Higher Education Accreditation) – "Accreditation is a process of external quality review used by higher education to scrutinize colleges, universities and higher education programs for quality assurance and quality improvement."
**According to NAAC** (National Assessment and Accreditation Council) – Assessment and Accreditation is broadly used for understanding the "Quality Status" of an institution. In the context of Higher Education, the accreditation status indicates that "the particular Higher Educational Institutions (HEI) – a College, a University, or any other recognised Unit therein, meets the standards of quality as set by the Accreditation Agency, in terms of its performance, related to the educational processes and outcomes, covering the curriculum, teaching-learning, evaluation, faculty, research, infrastructure, learning resources, organisation, governance, financial well-being and student services."

**According to NBA** (National Board of Accreditation) – "Accreditation is a process of quality assurance and improvement, whereby a programme in an approved Institution is critically appraised to verify that the Institution or the programme continues to meet and exceed the Norms and Standards prescribed by AICTE from time to time."

It needs to be clarified that the process of Accreditation does not aim to replace the system of award of degree and diplomas by the constituent Universities or autonomous Institutions. However what Accreditation seeks to undertake is to provide an assurance that the academic aims and objectives of the Institution are being pursued in the right manner and this is effectively being achieved by the resources currently available. It also implies that the Institution has demonstrated certain capabilities in order to ensure the effectiveness of their educational programmes, over the validity period of the Accreditation process.

## 3.3 Need for Accreditation

In the context of Higher Education, the insistence on regulatory bodies to undergo the process of Accreditation is because of one or more of the following purposes

**3.3.1 Quality assurance of the educational program–** It is essential that before a student gains admission into an institution of Higher Education, he should be in a position to evaluate the institution that is going to shape his career in terms of the quality and standard of its infrastructure, facilities and services. Accreditation is that tool that provides this

assurance. The main purpose of accreditation is to certify that the educational program fulfils the basic function of providing an education within certain pre-determined parameters.

**3.3.2 Recognition of professional qualifications –** The recognition of the 'Bachelor of Engineering' degree at the end of four years provides a gateway to good job placements or admission for further studies. The process of Accreditation assures both students as well as their prospective employers that graduates of an accredited institution have reached a certain minimum level of competence in their designated field of study.

**3.3.3 Transfer of creditsand student mobility -** At some point in their education, many students wish to transfer to a new college or university. When a student moves across institutions, states or countries, they usually provides their academic transcripts which lists the course taken, grade and other attributes from each institution they attended. Accreditation provides credibility and demonstrates that the institution has met the necessary requirements with regard to infrastructure, faculty and curriculum in adherence to set standards. It also makes similarity of courses across institutions easier to identify.

**3.3.4 Provision of Financial aid–**The websites of various governmental funding agencies cite Accreditation as one of the pre-requisites in order to request for funding. The stamp of quality seeks to assure the funding agency that the institution under consideration provides a pre-determined minimum level of resources to its students and therefore financial aid it provides will be used in the right direction to raise the level of quality still higher.

**3.3.5 Accountability of institutions to stake holders –** The providers, the regulators and the beneficiaries all form a part of the academic eco-system and are all partners and stake holders in the educational process. Accreditation of an engineering institution provides an assurance of quality to students, parents, employers, publishers, and to ociety at large.

## 3.4 Benefits of Accreditation

The stamp of Accreditation acknowledges a level of organizational competence that is comparable to other organizations accredited by the same accrediting body. The process of Accreditation benefits all the associated stake holders in a number of ways –

### 3.4.1 Benefit to institutions -

The preparatory documentation for the process of Accreditation helps the institution and its constituent departments to understand their strengths, weaknesses and opportunities. It introduces innovation and converges on self-improvement and team work. The process thus creates an atmosphere of motivated and focused employers, employees and stake-holders. Accreditation provides the institution with a new sense of direction and identity of where they are and where they want to be in the educational arena.

### 3.4.2 Benefit to students -

Accreditation provides integrity both to existing as well as prospective students about the quality of infrastructure, resources and facilities with regard to curriculum, faculty and various support services. Current students realize the advantage of obtaining a degree from an accredited institution with regard to their future prospects. Potential students scan the websites of institutions looking for the stamp of Accreditation as a decisive factor for gaining admission into institutions of good repute.

### 3.4.3 Benefit to employers –

Accredited institutions provide employers with the assurance that a neutral, external regulatory body has reviewed the quality of education provided and has found it to be satisfactory. This allows them to recruit higher quality graduates and enhances the employability of the students.

### 3.4.4 Benefit to governmental and regulating bodies -

The process of accreditation provides governmental and regulatory bodies with documentary evidence of various parameters related to facilities and services. All this paperwork and documentation enables governmental bodies to prepare statistical reports which are useful for further policy and decision making.

### 3.4.5 Benefit to society–

Accreditation provides society with reliable information on the quality of educationoffered by the educational institution.It helps them to base their judgement and future prospects on this stamp of credibility. The process of Accreditation contributes to the social and economic development of the country by producing high quality technical manpower.

## 3.5 Types of Accreditation

In the context of educational institutions, accreditation can be of the following types –

**3.5.1 Institutional Accreditation -** This refers to the accreditation of an entire institution, including all its programmes, sites, and methods of delivery, without any implication to the quality of the study programmes of the institution.

Institutional accreditation means that the college or university operates with a high level of quality in all its aspects especially in areas such as administration,human resources and faculty, curriculum and teaching-learning process, student services, as well as financial well-being. This type of accreditation is held in high regard in the world of education.

Institutional accreditation organizations can be further categorized into two sections - Regional and National accreditation organizations. They each have particular functions and specific geographical areas that they cover. **National** accrediting agencies look at institutions across the country while **Regional** accrediting agencies review only institutions in a specific geographical area.

**3.5.2 Specialized or Programme Accreditation –**This refers to the accreditation of individual programmes like engineering by certain specialized or 'programme accrediting bodies' applying specific standards for curriculum and course content. It focuses on particular aspects of the department, program, or college's identified academic field of study.

## 3.6 History of Accreditation

The history of Accreditation is the history of quality, its understanding, its value and its acceptance. The process of educational Accreditation developed because officials and students felt the need to devise a systematic process in order to define which educational campuses met the standards of educational quality. There was also evolving a growing need to develop national standards for the easy transfer of credits between U.S. schools and foreign institutions across the world.The process of Accreditation so designed, gradually advanced along three parallel paths, commonly referred to as the Triad, involving Institutions, Legislation and Government.

In the 1880s, some of the first accrediting agencies in the country were formed which were essentially regional ones. Later, national accreditation organizations were developed to set up minimum standards of quality throughout the country. It was in 1912, that 23 private career schools created the National Association of Accredited Commercial Schools; this was one of the first national accrediting bodies in the United States. In 1918, the American Council on Education (ACE) was formed which sought to include more schools and improve the effectiveness of the accreditation process. In 1975 the Council on Postsecondary Accreditation (COPA) was created to further enhancethe process of accreditation .

In 1996 COPAwas replaced by the Council for Higher Education Accreditation (CHEA).It is the largest education membership organization in the United States. Simultaneously Accreditation widened its scope and embraced various regions, countries and subjects of study across the world.

## 3.7 Legislation associated with Accreditation

Although the history of Accreditation all over the globe is tagged with governmental legislations, the researcher would like to lay emphasis on three important documents instrumental in shaping the need, methodology and process of Accreditation. These are 'Washington Accord', 'Bologna Process' and 'Network of Accreditation bodies for Engineering Education (NABEEA)'

### 3.7.1 Washington Accord

The historic Washington Accord, which was signed in 1989, is an "international accreditation agreement among various bodies responsible for accrediting professional engineering degree programs". The main aim of the Washington Accord is to encourage and facilitate the mobility of engineering graduates and professionals at the international level.Itseeks to recognize the equivalency of programs accredited by those bodies. This implies that graduates of accredited programs in any of the signatory countries are recognized by the other signatory countries as having met the academic requirements for entry to the practice of engineering in that country.The membership of Washington Accord is an international recognition of the quality of undergraduate engineering education offered by the member country. It is a type of 'Education sans Frontiers'

**Signatories** have full rights of participation in the Washington Accord. India becomes the permanent signatory to Washington Accord on June 13, 2014 in meeting held at International Energy Alliance (IEA), New Zealand.

The following are the signatories of the Washington Accord.

1. Australia - Represented by Engineers Australia (1989)
2. Canada - Represented by Engineers Canada (1989)
3. Chinese Taipei - Represented by Institute of Engineering Education Taiwan (2007)
4. Hong Kong China - Represented by The Hong Kong Institution of Engineers (1995)
5. Ireland - Represented by Engineers Ireland (1989)
6. Japan - Represented by Japan Accreditation Board for Engineering Education (2005)
7. Korea - Represented by Accreditation Board for Engineering Education of Korea (2007)
8. Malaysia - Represented by Board of Engineers Malaysia (2009)
9. New Zealand - Represented by Institution of Professional Engineers NZ (1989)
10. Russia - Represented by Association for Engineering Education of Russia (2012)
11. Singapore - Represented by Institution of Engineers Singapore (2006)
12. South Africa - Represented by Engineering Council of South Africa (1999)
13. Sri Lanka - Represented by Institution of Engineers Sri Lanka (2014)
14. Turkey - Represented by MUDEK (2011)
15. United Kingdom - Represented by Engineering Council UK (1989)
16. United States - Represented by Accreditation Board for Engineering and Technology (1989)
17. India -Represented by National Board of Accreditation (2014)
    (Applies only to programmes accredited by NBA as Tier 1 institutions.)

### 3.7.2 Bologna Process

The Bologna Declaration, was signed in June 1999 by ministers in charge of higher education from 29 European countries.Today, it includes 47 countries.The Process is regional based and seeks to synchronise standards of educational quality assurance throughout Europe. The aim of the Bologna Process is to create a European Higher Education Area (EHEA) based on international cooperation and academic exchange for students and staff from other parts of the world.It involves not only the European Commission, the Council of Europe and UNESCO-CEPES, but is a collective effort of public authorities, universities, teachers, and students, along with various stakeholder

associations, employers, quality assurance agencies, international organisations, and institutions.

It is often because of widely differing education and training systems in Europe that it becomes difficult for Europeans to make use of the qualifications they have gained in one country to apply for a job or a course in another one. The Bologna declaration aims to overcome this. Also it would help to make European universities and colleges more competitive and appealing to the rest of the world.

### 3.7.3 Network of Accreditation Bodies for Engineering Education in Asia (NABEEA)

The NABEEA was formally established on August 8, 2007 at the first General Assembly meeting in Penang, Malaysia. It is a network of accrediting bodies, aimed to exchange information and thus encourage engineering education, realize similarities and dissimilaritiesand develop mutual cooperation towards better accreditation systems in Asia. This regional network is based in Asia and has on its Board, accreditation agencies and engineering education bodies who play an important role to improve the quality of engineering education through accreditation. Together with the associate members they strive to dedicate their knowledge and services for the betterment of the engineering profession and thus make a difference in the training of the future engineers in Asia.

**Full Member (Accreditation Bodies for Engineering Education)**

1. Korea - Accreditation Board for Engineering Education of Korea
2. Bangladesh - Board of Accreditation for Engineering and Technical Education
3. Thailand - Council of Engineers, Thailand
4. Malaysia - Engineering Accreditation Council
5. Taiwan - Institute of Engineering Education, Taiwan
6. Singapore -The Institution of Engineers, Singapore
7. Japan - Japan Accreditation Board for Engineering Education
8. Pakistan - Pakistan Engineering Council
9. Philippine - Philippine Technological Council
10. India - National Board of Accreditation

**Associate Members (Engineering Professional Bodies)**

1. CTAEMC - Chinese Taipei APEC Engineer Monitoring Committee

2. KPEA - Korean Professional Engineer Association
3. IEM - The Institution of Engineers, Malaysia
4. IPEJ - The Institution of Professional Engineers, Japan
5. mSET - Malaysian Society for Engineering and Technology
6. PATE - Philippine Association for Technological Education

## 3.8 Accreditation of Engineering Education in different countries

Accreditation of engineering programmes is now identified in many countries of the world but historically Europe has been in the forefront. Formal accreditation started in France due to a law dating back to 1934 established the Commission des Titres d' Ingénieur (CTI). Slowly the desire for Quality and the measurement of this quality spread to other countries in Europe and then across the world. Today most countries recognise Accreditation in some measure or the other.

**3.8.1United States of America –** Here the Accreditation Board for Engineering and Technology (ABET) is responsible for the specialized accreditation of educational programs in engineering and its related fields. However Accreditation is voluntary and it is the responsibility of the institution seeking accreditation of an engineering program to demonstrate clearly that the program meets the required criteria of ABET known as EC2000.

**3.8.2United Kingdom -**In this country, Higher Engineering accreditation is governed by the non-governmental Engineering Council (EC), which acts as an umbrella organization for all the individual engineering professional bodies, including the Institute of Electrical Engineers, the British Computer Society, and the Institute of Mechanical Engineers. Operating under a Royal Charter, the Engineering Council is in authority for setting the standards of competence and commitment that individuals must demonstrate in order to become registered as professional engineers and technicians.

**3.8.3 Australia -** In Australia, the onus to practice engineering programs is the responsibility of Engineers Australia, and is normally carried out on a five-yearly cycle. Engineering graduates of an accredited program are assured membership with Engineers Australia at the relevant career grade, and enjoy reciprocal privileges by equivalent professional bodies overseas. The Engineers Australia Accreditation Management System is

built on outcomes based approach to educational design. The accreditation process considers inputs, process and content as well as sampling outcomes.

**3.8.4 Canada –**Here, undergraduate engineering programs are accredited by the Canadian Engineering Accreditation Board (CEAB), which in turn, is a committee of the Engineers Canada Board which is the national organization of the 12 engineering regulators that license the country's 280,000 members of the profession. Only licensed engineers can practice engineering in Canada. The country follows a three criteria accreditation system for their engineering colleges where curriculum content, programme environment and general criteria are the components.

**3.8.5 Korea -** In Korea, the Accreditation Board for Engineering Education of Korea (ABEEK) is the accreditation agency for engineering programs. The board follows a seven criteria system for the assessment of programmes (ABEEK, 2003). Programme performance is analyzed in terms of various criteria like students, curricular objectives, achievement and evaluation of the programmes, curricular contents, faculty, facility & funding and program accreditation standards.

**3.8.6 Japan –**Here**,**theAccreditation Board for Engineering Education (JABEE) specifies the standards of engineering education in terms of six criteria. They are - establishment and disclosure of learning and educational objectives curricular requirements, educational methods and students level of achievement.

## 3.9 Accreditation Board for Engineering and Technology, Inc., (ABET) -

At the forefront of Accreditation of engineering institutions all around the world stands ABET. It is a nonprofit, non-governmental organization founded in 1932 as the Engineers' Council for Professional Development (ECPD), and recognized by the Council for Higher Education Accreditation (CHEA). It is a professional body committed to the education, accreditation, regulation, and professional development of engineering professionals and students in the United States. ABET is a federation of 32 professional and technical member societies and accredits programs in the fields of Applied Science, Computing, Engineering and Engineering Technology. It is a founding member of the Washington Accord.

### 3.9.1 Engineering Criteria 2000

In 1997, after nearly ten years ofrevision and development in the area of engineering accreditation, ABET adopted Engineering Criteria 2000 (EC2000), which was considered at the time a revolutionary approach to accreditation criteria. EC2000 focused on outcomes – "what is learned, rather than what is taught". At the very fundamental level, it upheld the importance of institutions establishing clear objectives and assessment processes in order to warrant that each program provides graduates with the technical and professional skills demanded by employers. These criteria have a positive impact on graduates who have such essential 21st century skills as the ability to work in teams and communicate effectively.

One of the important aspect of ABET accreditation is that it is purely voluntary and the request for accreditation has to be initiated by the institution seeking it. Another important feature is that Accreditation is given to individual programs within an institution and not to the institution as a whole. Yet another characteristic is that accredited programs must request re-evaluation every six years in order to retain accreditation. This ensures continuation of quality assurance. It is because of ABET's involvement that engineering curricula are regularized and standardized at the degree level, thus ensuring that graduates of any ABET-accredited program have some minimal skill sets necessary for themselves and for society.

## 3.10 Accreditation in India

Under the Indian Constitution education is free and compulsory to children from the ages of 6-14 years. This is followed by Higher Education in various professional fields offered by both the government as well as private bodies. In the area of engineering education it is seen that private partnerships far outweigh governmental ones. The Ministry of Human Resource Development (MHRD) is responsible for supervising the functioning of all the universities in India .Accreditation for higher learning is overseen by autonomous institutions established by the University Grants Commission. These include –

- All India Council for Technical Education (AICTE)
- National Assessment and Accreditation Council (NAAC)
- Indian Council of Agricultural Research (ICAR)
- Bar Council of India (BCI)
- Distance Education Council (DEC)

- Medical Council of India (MCI)
- Pharmacy Council of India (PCI)
- Indian Nursing Council (INC)
- Dental Council of India (DCI)

## 3.11 National Assessment and Accreditation Council (NAAC)

The NAAC is an autonomous body established by the UGC in September 1994 at Bangalore in order to evaluate the performance of the Universities and Colleges in the Country. It was established as an outcome of the recommendations of the National Policy in Education (1986). The main aim of NAAC is to work towards assessment and accreditation of institutions of Higher learning so as to assist them to strive to improve the quality of education in the country.

## 3.12 National Board of Accreditation (NBA)

The NBAwas established by the AICTE in 1994 to evaluate technical institutions and programs of Higher Education based on the norms and standards laid down by the AICTE. It was recognized as an autonomous body in 2010 and is empowered to accredit institutions of higher learning in the fields of Engineering and Technology, Management, Architecture, Pharmacy and Hospitality.

It must be underlined that NBA accreditation differs from AICTE approval. The approval of the AICTE as a regulatory body ensures that the institution meets the initial requirements of functioning as a technical education provider while the NBA monitors whether the institution has proved its ability to sustain and improve upon assessment criteria and has earned credibility by the users of the system i.e students.

### 3.12.1 Objectives of NBA –

The following are the broad objectives of NBA -

1. To periodically conduct evaluation of technical institutions or programs
2. To develop quality conscious systems of technical education
3. To dedicate to build a robust technical education system for the country
4. To provide quality benchmarks targeted at global and national level in all fields of technical education

### 3.12.2NBA AccreditationCriteria and Parameters -

The NBA has evolved a framework of quality assurance containing a robust process thus certifyingthehighest degree of transparency and credibility - with little scope of discretion and subjectivity.

#### 3.12.2.1 Accreditation Criteria -

The criteria that are considered by NBA during Accreditation of a programmeare as follows -

**Table 3.1: Accreditation criteria of NBA**

| Criteria No | Criteria | Weightage |
|---|---|---|
| **Program Level Criteria** | | |
| 1 | Institutional Vision, Mission and Program Educational Objectives | 60 |
| 2 | Program curriculum and Teaching-Learning process | 120 |
| 3 | Course outcomes and program outcomes | 120 |
| 4 | Students' performance | 150 |
| 5 | Faculty information and contributions | 200 |
| 6 | Facilities and technical support | 80 |
| 7 | Continuous improvement | 50 |
| **Institute level criteria** | | |
| 8 | First year academics | 50 |
| 9 | Student support systems | 50 |
| 10 | Governance, Institutional support and Financial resources | 120 |
| | **TOTAL** | **1000** |

#### 3.12.2.2 Accreditation Parameters -

The parameters adopted by NBA for accreditation of programmes are called 'Graduate Attributes' and are based on the outcomes desired by the profession concerned. The following are the Graduate Attributes for an Under Graduate Engineering Programme:

1. Engineering Knowledge
2. Problem analysis
3. Conduct investigations of complex problems

4. Modern Tool Usage
5. The Engineer and Society
6. Environment and Sustainability
7. Ethics
8. Individual and Team Work
9. Communication
10. Project Management and Finance
11. Life-long learning

It is important to realise the vision of the NBA in adopting Graduate Attributes with a view to making engineers self-reliant, with formidable skill sets poised to enter the Indian industry and make their mark. It is also valuable to note that a number of these attributes can be attained through the assistance of the library and library professionals connected with the institute of Higher Education.

## 3.13 Process of Accreditation through NBA

The NBA has developed certain accreditation principles and policies on the basis of the important role that educational processes play in determining educational outcomes. The NBA has a two-tier system of accreditation for Technical Programmes . Tier - I is applicable to engineering programmes offered by autonomous institutions and by university departments and colleges , while Tier-II is pertinent to institutions affiliated to a university.

### 3.13.1 General Policies of Accreditation by the NBA

The following general policies are the guiding principles for accreditation through NBA –

1. The institution and its individual programs should have the approval of the AICTE
2. NBA accredits only individual programs and not the institution as a whole
3. At-least two batches of students have to pass out before the institution considers going in for Accreditation
4. The institution should voluntarily make a written request to the NBA for the same
5. The requisite accreditation fees will have to be paid by the institution.
6. The institution has to send the complete filled-in Self-Assessment Report (SAR) in the prescribed format to the NBA.

7. The final decision that is made by the NBA will be conveyed to the institution, along with comments depicting strengths, weaknesses and scope for improvement.
8. Accreditation is provided for a fixed duration of time generally 5 years
9. If there is any uncertainty or weaknesses, then provisional accreditation may be granted for two academic years.
10. If a programme is not accredited, reasons for the decision will also be given to the institution.
11. After accreditation, the institutions are expected to submit their annual self-assessment report to e-NBA online.

### 3.13.2Fee structure for NBA Accreditation

The registration fee amount is Rs. 1,00,000.00/- (One lakh only).The processing fees to be paid by the Engineering institutions for NBA Accreditation of programmesis as follows –

**Table 3.2 :Fee structure for NBA Accreditation**

| No. of Programmes to be Accredited | Total payment to be made with application |
|---|---|
| 1 | Rs. 5,00,000.00/- |
| 2 | Rs. 7,00,000.00/- |
| 3 | Rs. 9,00,000.00/- |
| 4 | Rs. 11,00,000.00/- |
| 5 | Rs.13,00,000.00/- |

### 3.13.3Awarding Accreditation -

Programme seeking accreditation under Tier -II have to score a minimum of 750 points in aggregate out of 1000 points along with a minimum score of 60% in mandatory fields (criterion 1 and criteria 4 to 8) in order to gain accreditation for 5 years.

In case a programme has obtained a minimum score of 600 points in aggregate out of 1000 points, then shall be eligible for provisional accreditation for two years under Tier-II system.

## 3.14 NBA requirement of Library data in the Self Assessment Report (SAR)

The fact that no engineering institution can obtain approval or be allowed to operate withoutthe existence of a library, is already established by the AICTE. Therefore the measurement of quality of the institution through the process of Accreditation includes a measurement of the quality of its library as well.

With regard to the Self-assessment report of the NBA, the data that is required from the library as well as the points allocated for the same, has changed slightly over the years. This can be depicted as follows -

**Table 3.3: NBA requirement of library data in the Self-Assessment report**

| Year 2000 | Year 2004 | Year 2009 | Year 2012 | Year 2015 |
|---|---|---|---|---|
| **POINTS ALLOTED= 25**<br><br>Library – seating capacity, working hours<br><br>Books and journals acquired for last 5 years<br><br>Book Bank<br><br>Library expenditure<br><br>Departmental library<br><br>http://www.nbaind.org/En/1065-archives-accreditation-documents.aspx | **POINTS ALLOTED= 25**<br><br>Library timings<br><br>Library staff<br><br>Information about tiles and volumes of books<br><br>Information about users<br><br>Facilities available<br><br>Departmental library<br><br>http://www.nbaind.org/Files/Manual%202004.pdf | **POINTS ALLOTED = 25**<br><br>Library space and ambience, timings and usage (5)<br><br>Availability of qualified librarian and other staff<br><br>Library automation, online access, networking (5)<br><br>Variety of titles and the volumes per title (5)<br><br>Journal subscription and internationally acclaimed titles (5)<br><br>Digital library (5)<br><br>http://www.nbaind.org/Files/SAR%202009.pdf | **POINTS ALLOTED = 20**<br><br>Library space and ambience, timings and usage, availability of a qualified librarian and other staff, Library automation, online access, networking (4)<br><br>Titles and volumes per title (4)<br><br>Scholarly journal subscription (4)<br><br>Digital library (4)<br><br>Library expenditure on books, magazines/journals, and miscellaneous contents (4)<br><br>http://www.nbaind.org/files/engineering-programs.pdf | **POINTS ALLOTED = 20** (forLibrary and Internet together)<br><br>**Library data** (Indicate whether zero deficiency report was received for all assessment years.<br><br>Effective availability/ purchase records and utilization of facilities/ equipment etc. to be documented and demonstrated)<br><br>Quality of learning resources (Hard/Soft) (10)<br><br>Relevance of available learning resources including e-resources Accessibility to students<br>Support to students for self learning activities<br><br>http://www.nbaind.org/Files/sar-ug-t-ii-final-ver-06.pdf |

## 3.15 Conclusion

Higher education especially Engineering education has reached a top priority in recent years due to the demand, availability and choices of interest. The rapid development in technology has also helped this phenomenon . India has been one of the pioneers of this development. Quality assurance in higher education is today the top priority of the policy agenda. As a measure of quality assurance India established accreditation agencies to aid the quality assurance process.

Accreditation as a measure of Quality assurance is undertaken both by NAAC and by the NBA. Although they are two different bodies, there is basic similarity in structure and functions. However in the context of accreditation related to the engineering college library, it is ascertained that NAAC provides detailed guidelines and indicators for assessment as well as self-improvement.

Accreditation is both a **process** and a **status**. It is the process of reviewing colleges, universities, institutions and programs to judge their educational quality – how well they serve students and society. The result of the process, if successful, is the award of "accredited status."However it must be emphasised that Accreditation is not an award system. It is not an investigation of a complaint. It is not a regulatory Process or an audit although we tend to associate it with that. Accreditation is not even a ranking system.

According to the NBA, the process of Accreditation assures program quality in Higher educational institutions.

According to Natarajan (2000), Accreditation must help the Institution of Higher education to seek answers to the following questions –

- What are our goals, aims and objectives?
- Why do we do what we are doing?
- Is the program designed in the context of the realization of the goals?
- Is the program functioning properly?
- Are we monitoring and controlling the input, the process and the output?
- Do we have the right performance indicators?
- The outcome of the self-assessment must lead to improvements, and, if necessary, to reformulation of the goals.

The Indian higher education system has expanded and will further expand. This is due to the increasing demand for higher education. However, it must be noted that the major stake holders in this processes are the private institutions. Although the AICTE has granted approval to so many engineering institutions to conduct admissions and award degrees , it is noticed that in many places the quality of facilities andteaching learning process is far from satisfactory. An assessment andaccreditation of all engineering institutions is deemed important in order to ensure quality in higher education.

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# CHAPTER 4

# PROFILE OF ENGINEERING COLLEGE LIBRARIES IN MUMBAI

*Engineering or Technology is the making of things that did not previously exist, whereas science is the discovering of things that have long existed.*

*- David Billington*

## 3.1 Introduction

Technology and engineering are products of fundamental discoveries in basic sciences. The 19th century has witnessed the birth of many branches of engineering and technology in addition to the classical ones of civil and mechanical. India has a long history of organized education and technical education is imparted at various levels such as craftsmanship, diploma, degree, post-graduate and research in specialized fields. Indian universities today constitute one of the largest higher education systems in the world. However the booming growth in the number of technical institutions has led to particularly acute issues and concerns for the engineering sector, graduates are failing to find employment and regulators are under pressure to improve standards.

Engineering colleges have been springing up like wild mushrooms in India in the last few years. Their number has gone up from 1511 colleges in 2006-07 to 3345 colleges in 2014-15.Paradoxically 20-33% out of the 1.5 million engineering graduates passing out every year run the risk of not getting a job at all. Whether it is the below-par quality of education provided by private colleges or the decreasing demand for the number of engineers needs to be investigated.

## 3.2 Engineering Education in Maharashtra

The State of Maharashtra, which is a pioneer in technical education, contributes more than 50% to the educational achievement of the nation's technological sector. Since the establishment of a School of Engineering in 1854 at Pune, the growth of technical education has been amazing in Maharashtra. Today the state has a total of 350 engineering colleges with a total intake of 1,46,116 seats. Engineering institutions in Maharashtra come under the purview of the **Directorate of Technical education** (D.T.E.).

The following table gives an idea about development of technical education in Maharashtra State with regard to degree courses in Engineering and Technology.

**Table 4.1: Progressive increase in the number of institutes and sanctioned intake**

| Sr. No | Year | No. of Institutes | Sanctioned Intake |
|---|---|---|---|
| 1 | 1978 | 16 | 2,642 |
| 2 | 1988 | 76 | 14,275 |
| 3 | 1995 | 94 | 22,740 |
| 4 | 2000 | 129 | 38,939 |
| 5 | 2005 | 154 | 46,325 |
| 6 | 2010 | 309 | 1,14,268 |
| 7 | 2014 | 367 | 1,56,067 |

## 3.3 Engineering Education in Mumbai

There are a total of 66 engineering degree colleges in Mumbai. A number of students from rural or semi-urban areas seek admission to institutes in the Mumbai region. About 80% of the engineering graduates are taught at private engineering colleges. However a ranking of the top fifty engineering colleges reveals only a small percentage of private colleges. More than 90% of the private engineering colleges are affiliated colleges that have little academic autonomy. The existing administrative structure and nature of private colleges results in very little financial autonomy. Engineering institutes are affiliated to the **University of Mumbai**.

The University of Mumbai is one of the oldest and premier Universities in India. It was established in 1857 consequent upon "Wood's Education Dispatch", and it is one amongst the first three Universities in India. The University was accorded 5 star status in 2001 & 'A' grade status in April 2012 by the National Assessment and Accreditation Council. It has been granted University with Potential for Excellence (UPE) status by UGC and PURSE Scheme by DST.

## 3.4 Brief Profile of Engineering Institutions in Mumbai

The following is a brief profile of the engineering institutions in Mumbai. These institutions are all affiliated to the University of Mumbai. Information has been obtained from the college website and after telephonic and personal interaction with the librarian. Specific and detailed information about the Library has also been obtained from the Library web page. The complete list of colleges is provided in the Appendix at the end.

**1. AnnasahebChudamanPatil College of Engineering (DTE code : 3146)**

www.acpce.org

The college was set up by Jawahar Education Trust in 1992. It is unaided, non-autonomous, non minority and not Accredited. The Library is open from 8 am to 6:30 pm and is partially automated using SOUL software. It has a total of 14 staff. It has an area of 525 sq ft and provides access to information through over 3025 books . It subscribes to over 47 journals at national and international level. There are more than 250 online technical e-Journals under the AICTE scheme. The Library is equipped with internet and multimedia facilities. The institute is a member of British library and IIT Bombay, Library . The Library and computer centre extend their services beyond working hours to suit the convenience of all the users.

**2. Anjuman-I-Islam's Kalsekar Technical Campus School of Engineering and Technology (DTE code: 3183)**

www.aiktc.com/engineering

Anjuman-I-Islam, Mumbai was founded in the year 1874 by a small group of devout and progressive Muslims led by Dr. Badruddin Tyabji, Third President of Indian National Congress. The engineering Institution was established in the year 2012. It is unaided, non-autonomous, Religious minority (Muslim), Not Accredited. The Library covers an area of 420 sqmetres. It is open from 8:00 am to 6:00 pm. It has a total of 7 staff. It is fully automated using E-granthalaya software and has a total of 8523 books with 46 National and International journals. It subscribes to a number of e-resources like IEEE, J-Gate and ASTM. It has an Institutional Repository and a Book bank Scheme for students. It has a combined library for Engineering, Architecture and Pharmacy.

**3. A.P. Shah Institute of Technology (DTE code: 3475)**

http://www.apsit.org.in/

APSIT was opened in 2014, and is currently managed by the Parshvanath Charitable Trust. It is unaided, non-autonomous, Religious minority (Jain), Non Accredited. The institution is not yet eligible to apply for Accreditation. The Library covers a total area of 400 sqmetres. The Library functions are automated using Koha library management system. There is a multimedia room with a seating capacity of 25. The Library had two reading rooms, a reference section and an internet surfing section. The Library is well equipped with a large number of books covering 5477 titles. The institute is an associate member of INDEST-AICTE Consortium and subscribes to 56 journals and 12 newspapers. It uses Smart card

technology for member identification and related accounting purposes. It subscribes to a number of e-resources like IEEE, J-Gate and ASTM.

### 4. Atharva College of Engineering (DTE code: 3203)

www.athravaeducation.com

The college was set up by the Atharva Education Trust in 1999. It is unaided, Non-autonomous, non minority, Not Accredited. The Library is located on the second floor Phase – I building. It has an area of 433.92 sqmetres and a total of 7 staff. It is open from 9:00 a.m. to 6:00 p.m. The reading room has a seating capacity of 100 readers. It has more than 31,764 books besides 60 journals, magazines, CDs and project reports. It subscribes to 12 newspapers. The Library is automated using a software developed in-house. Wi-fi connectivity is available in for using laptops. It has a book bank scheme for financially backward students. It has the latest audio visual facilities for interactive learning. It provides membership to British Council Library and Indian Merchant Chambers Library.

### 5. B.R. Harne College of Engineering and Technology (DTE code: 3436)

www.brharnetc.edu.in

The College is established by Jai Shree Siddhivinayak Foundation and began in 2011. It is unaided, non-autonomous, non minority, not Accredited. The college Library serves as a resource centre and aims to develop a comprehensive collection of books and journals useful for faculty and students of the institute. It is open from 8:45 am to 5:10 pm without a break. The huge collection is automated using Soflib software and the books are bar coded. Hence students can browse the Library database through OPAC. It has a wide variety of books and journals – both national and international. The Library provides Current Awareness Service through different modes. CDs are issued to users for overnight use. The college subscribes to ICFAI and DELNET resources.

### 6. Bharat College of Engineering (DTE code: 3351)

www.bharatedu.co.in

LilavatiAwhad Institute of Technology and Management Studies and Research is owned and managed by the Innovative Engineers and Teachers Education Society (IETES). The Bharat College of Engineering was established by IETES in 2010. It is unaided, non-autonomous, non minority, Not Accredited. The college is not yet eligible to apply for Accreditation. The Library provides a stimulating environment within the college. It is open

from 10:00 am to 5:00 p.m. It has a large collection of books and subscribes to a number of newspapers. It has a computerized system for locating and issuing books. It is equipped with National and International journals and e-journals that can be accessed through the Internet.

**7. BharatiVidyapeeth College of Engineering (DTE code : 3189)**

www.bvcoenm.org.in

BharatiVidyapeeth is a deemed university of which the college of engineering is a part and was established in 1990. It is unaided, non-autonomous, non minority, not Accredited. The institution is in the process of applying for Accreditation. The Central Library carpet area is 6500 sq ft. and is located on the 1st floor. The Library is open from 8:00 am to 5:00 p.m. and has 7 staff to cater to the information needs of its users. It is automated with a total book collection of 35, 250 books and over 58 journals. It also has a number of reports and standards. It subscribes to a number of e-resources like IEEE-POP,ASME, J-Gate and Sciencedirect. The Library currently subscribes to over 90% of its journals in online only format. It has a Digital Library and runs a Book Bank scheme for students. The reading area in the Library has been Wi-Fi enabled.

**8. ChhatrapatiShivajiMaharaj Institute of Technology (DTE code : 3477)**

http://www.csmit.in

The college was established in 2014. It is unaided, non-autonomous, non minority, Not Accredited. The college is not yet eligible to apply for Accreditation. The Institute library is well stocked and provides an excellent study base for the students and the teachers alike. The students have free access to a wide variety of study material, encyclopedias and DELNET. Besides this, The Library subscribes to a number of national and international journals and Hindi and English dailies.

**9. Dwarkadas J. Sanghvi College of Engineering and Technology (DTE code: 3199)**

http://www.djscoe.org

The college is set up by Shri Vile Parle Kelavani Mandal, a Public Charitable Trust in the year 1994. It is unaided, non-autonomous, linguistic minority (Gujarathi), Accredited. The Library is named officially as "Manubhai P. Sanghvi Knowledge Centre". The fully air-conditioned library is situated on the 1st floor with an area of more than 7500 sq. ft and has 7 staff. It is open from 8.15 am. to 6.30 pm. on all working days and for 12 hours during exams. The Library has an ever growing collection of about 37,832 books and 102 printed

journals. It has more than 100,000 e-books with 7 e-journals. It is automated using Libsys software and has a separate Home page. The Library has a well equipped Seminar Hall with Webinar and conferencing facility. It also has an institutional membership with IIT, Bombay Library and ASM International, USA.

It is Accredited from January 2013 for 2 years in the branches of EXTC, Computers, Information Technology and Electronics Engineering. It is Re-Accredited from July 2014 for a period of 2 years in the branches of Bio- Medical and Production Engineering.

### 10. DattaMeghe College of Engineering (DTE code : 3187)

www.dmce.edu

The college was established in 1988 by the Nagar YuwakShikshanSanstha. It is unaided, non-autonomous, non minority, Applied for Accreditation to the NBA.The area of the Library is 680 sqmetres. The Library is open from 9:45 am to 5:45 pm. It is partially automated using Autolib software. It has a separate Home page. It has a huge collection of more than 26,000 books. It has a number of CDs of Indian Standard Codes and Indian Roads Congress. It has a Book Bank facility. The Library is proud to be a member of I.I.T., Mumbai as well as British Council Library.

### 11. Dilkap Institute of Engineering and Management Studies (DTE code: 3353 )

www.driems.in

The institution was established by Suman Educational Trust in the year 2010. It is unaided, non-autonomous, non-minority, Not Accredited.The college is not yet eligible to apply for Accreditation. The college library has an area of 437 sq ft and has 4 library staff. It is open from 9:00 am to 5:00 pm The Library is open on Sundays and Public holidays before and during examinations. It is partially automated using VLib library software. It has over 5000 books and has subscribed to over 399 journals through J-Gate. It provides reprographic facility and Internet facility to students. Latest additions to the Library are listed monthly in the loose paper file kept at the Reference counter.

### 12. Don Bosco Institute of Technology (DTE code : 3208)

www.donboscoit.ac.in

The college was set up in the year 2001 by the Salesians. It is unaided, non-autonomous, Religious minority (Roman Catholic), not Accredited. The college is in the process of

applying for Accreditation to the NBA. The DBIT Library is an important Learning Resource center and is open from 8:30 am to 5:30 pm. There are over 10,000 books, 59 print Journals of which 31 are of International and 28 National. The Library has an online subscription to more than 20 IEEE & ACM Journals. A separate collection of more than 1000 CDs', Floppies and DVDs' Ekalavya online tutorials, Workbooks, Project Reports, Manuals, Hand Books and Newspapers are also available. The Library services are automated using Koha software and users have a separate Web page. The Library subscribes to a number of e-resources. It has an Institutional Repository, a Digital library and a Book Bank scheme for students.

### 13. Finolex Academy of Management and Technology (DTE code : 3200)

www.famt.ac.in

The institute was set up by HOPE Foundation and Research Centre in 1996. It is unaided, non-autonomous, non minority, not Accredited. The college is in the process of applying for Accreditation. The Finolex Academy Library is open from 9:00 am to 5:15 pm. It is automated with the help of SOUL software. It has 27,676 volumes of books and over 99 print journals besides 500 national and international e-journals. It also has a number of project reports. Latest additions are listed monthly in the loose paper file kept at the reference counter.The Library has a book bank for students as well as subscribes to NPTEL resources. It also subscribes to Springer Inverti journals.

### 14. Fr. C. Rodrigues Institute of Technology, Vashi (DTE code: 3197)

www.frcrit.ac.in

The Agnel Ashram Fathers – a group of Catholic priests established the college in 1994. It is unaided, non-autonomous, Religious minority (Christian), Accredited. It is the first library to have Automated Library Resources Management System in Navi Mumbai. It has a state-of-the-art collection of print as well as non-print resources that includes: books over 33000 Volumes, 132 National and International Journals, 1273 Bound Volumes of Journals along with Non-Print media CD-ROMs, DVDs, Conference and seminar proceedings, Synopsis and Project Reports. The Library has an area of 750 sqmandis divided into two floors. A separate resource centre is located on the fourth floor. It has a total of 14 staff and remains open for 15 hours a day.

It is Accredited from August 2012 for2 years in the branches of EXTC, Computers, I.T. Electrical and Mechanical Engineering.

### 15. Fr. Conceicao Rodrigues College of Engineering Bandra (DTE code: 3184)

www.frcrce.ac.in

Fr. Conceicao Rodrigues College of Engineering (CRCE) was established in 1984 as part of Fr. Agnel Technical Complex at Bandra, Mumbai by the Society of St. Xavier, Pilar. It is unaided, non-autonomous, Religious minority(Christian) , Not Accredited. The college is in the process of applying for Accreditation. The Library covers a total area of 472 sqmetres. It has a seating capacity for 100 readers and a total of 6 library staff. It is fully automated using Libsuite software. It is open from 8:00 am to 7:00 pm. It has a total of 28,000 books with 49 National and 42 International journals. It subscribes to a large number of e-resources like IEEE, ASME, Science –direct, J-Gate and Delnet. It has a digital library and a dedicated Internet centre for its users.

### 16. G.M.Vedak Institute of Technology (DTE code: 3447)

www.gmvit.org.in

The G. M. Vedak Institute of Technology was established in the year 2011 under the flagship of Shri GopinathMahadeoVedak Trust. It is unaided, non-autonomous, non minority, Not Accredited. The college is not yet eligible to apply for Accreditation. The Library covers an area of around 400 sqmetres and has two library staff. The collection includes more than 1250 title and 6250 volumes. There is internet facility for E-Library through which students as well as teachers can access various national and international journals, books, magazine etc and keep updated with various research papers, technologies and ideas globally.

### 17. G.V. Acharya Institute of Engineering and Technology (DTE code: 3224)

http://leelaeducationsociety.org/gvaiet/Default.aspx

The institute was founded by in 2009 by Leela Education Society, a registered trust established in 2006 by Prof. Manjunath V. Acharya, his family and friends. It is unaided, non-autonomous, non minority, not Accredited. The institution is in the process of applying for Accreditation. The central Library has more than 450 sq m built up space and is stocked with relevant books which is approximately about 7723 volumes, 17,211 non-books (CDs) and about 67 National and International Journals. A separate Reading hall is created for general reading and an Open Access Reference section is provided for more serious work.

Provision of Multi Media section and high speed Internet browsing is also available for instant access to the internet.

### 18. Gharda Institute of Technology (DTE code: 3216)

www.git-india.edu.in

The college was established by the Gharda Foundation in 2007. It is unaided, non-autonomous, non- minority, Not accredited. The college has applied for accreditation to the NBA.The Central Library is one of the Best Resource Centre in the region. It is supported by a large well-ventilated two floored reading-room. The Library is open from Monday to Sunday 8:00 am to 9:00 pm. It has a collection of 17,000 volumes and 56 journals. The Central Library provides online access to science and engineering abstracting database services. The collection is automated using SLIM21 software. It has a separate Web page for its users. It also has an Institutional repository.

### 19. Ideal Institute of Technology (DTE code: 3465)

http://www.idealwada.com/Index.aspx

The Ideal Foundation is a charitable trust backed by the Ideal Group and the college was established by them in the year 2013. It is unaided, non-autonomous, non minority, Not Accredited. The college is not yet eligible to apply for Accreditation. The Library covers a substantial area and has 3 staff to satisfy the information needs of the students and faculty. The Library is open from 9:00 am to 5:00 pm. The collection includes a small number of books, journals and e-resources since it is a new Institute. The Library activities of this institute have not yet been automated.

### 20. K. J. Somaiya College of Engineering, VidyaVihar (DTE code: 3181)

www.somaiya.edu/vidyavihar/kjsce

The college was established by the Somaiya Trust in 1983. It became the first Self-financed (private) Engineering College affiliated to University of Mumbai to get "Academic Autonomy" from the academic year 2014-15. It is unaided, autonomous, Linguistic minority (Gujarathi), Accredited. The KJSCE Library is located in the new building and is spread across four floors over 1140 sq. meters, with a seating capacity for 150 students. The Library is open from 9:30 am to 6:00 pm assisted by 12 staff while the reading section is open upto 9:00 pm. The Library is fully automated and has over 34,500 volumes and 110 journals. It also subscribes to a large number of e-resources and also provides access to

NPTEL. Its users can gain access to the collection of IIT library and British Council Library.

It is Accredited from November 2013 for 2 years in the branches of EXTC, Electronics and Mechanical Engineering. It is Accredited from April 2014 for 2 years in the branches of Computer Engineering and Information Technology.

### 21. K. J. Somaiya Institute of Engineering and Information Technology, Sion (DTE code: 3209)

www.somaiya.edu/kjsieit

The Institute was established by the Somaiya Trust in the year 2001, at Ayurvihar campus, Sion. It is unaided, autonomous, Linguistic minority (Gujarathi), Not Accredited. The college is in the process of applying for Accreditation to the NBA. The KJSIEIT library has built-up area of approx. 350 sq meters with a sitting capacity of 110 students. The Library is fully automated with 1400 learning resources and 40 journals.The Library subscribes to IEEE and ASME e-resources. It also has a book bank facility for students. It also has a membership of IIT Bombay, IETE and DELNET.

### 22. K. C. College of Engineering (DTE code: 3210)

www.kccoe.org

The college is set up by Excelsior Education Society and was established in the year 2001. It is unaided, non Autonomous, Linguistic minority (Punjabi) , Not Accredited.It covers an area of 402 sqmetres. There are only two staff in the Library for around 1200 users. The Library is open from 9:00 am to 6:00 pm. The Library is partially automated and the process of Bar coding is going on. The Library is planning to have a book bank scheme for students. It has a large number of books and journals.

### 23. Konkan Gyanpeeth College of Engineering (DTE code: 3198)

www.kgce.org

The college is situated in Karjat and was established in 1994 by Konkan Gyanpeeth, a Public Charitable Trust. It is unaided, non-autonomous, non minority, Not Accredited. The Library has an area of 812 sqmt. It has a huge collection of 24, 877 volumes of books with 41 national and 30 international journals. It subscribes to IEEE seminar proceedings. Its users can gain access to the collection of IIT library and British Council Library. It also has

a book bank scheme for its users. There are a total of 5 staff in the Library to cater to the information needs of its users.

### 24. LokmanyaTilak College of Engineering (DTE code: 3196)

www.ltce.ltjss.net

The college was established in 1994 by the LokmanyaTilakJankalyanShikshanSanstha. It is unaided, non-autonomous, Linguistic minority (Hindi), Not Accredited. The college is in the process of applying for Accreditation.The Library, located on the fifth floor, provide a silent space for study as well as recreation. Spread over 5000 sq. ft. area library has a very good collection of over 30,700 books, 70 journals, CDs, DVDs, project reports, university question papers, e-resources, etc. The multimedia room with advanced features like internet connectivity, headphones, scanner, web camera, etc. is available for all members. There are 7 staff in The Library. It subscribes to e-resources like Science direct and Springer. The Library is automated using Koha software. There is a separate page for Web OPAC.

### 25. M.E.S Pillai's Institute of Information Technology, Media Studies and Research (DTE code: 3207)

www.piit.ac.in

It was established by the Mahatma Education Society (MES)in the year 1999. It is unaided, non-autonomous, Linguistic minority (Malayalam), Accredited. The PIIT Library has a huge and varied collection which includes 22,643 volumes of books, 103 journals, 607 project theses and over a 1000 CDs. It covers a total area of 623 sq ft and has a total of 8 staff. The Library is automated using Koha software. It is open from 8:00 am to 6:00 pm on normal working days and stays open until 8:00 pm during exams. It has subscribed to ACM, ASME, DELNET and INDEST. It is a member of IUCEE Indo US Collaboration for Engineering Education, I.I.T. Mumbai Library and British Council library.

It is provisionally accredited for two years in four courses namely Electronics, Computers, Automobile and Mechanical Engineering in the year 2015.

### 26. M.E.S. Pillai HOCL College of Engineering and Technology (DTE code:3223)

www.phcet.ac.in

The college is located at Rasayani in Khalapur and was established in 2009 by Mahatma Education Society. It is unaided, non-autonomous, Linguistic minority (Malayalam), Not Accredited. The college is not yet eligible to apply for Accreditation. The Library has

created a learning environment by establishing Online Public Access Catalogue Searching area, Internet browsing area for accessing e-resources, Laptop with Wi-Fi facility and specialized workstations like discussion rooms for users. The Library is automated using Koha software. It has over 11542 volumes of books and 127 journals. It has very detailed library web pages. It subscribes to a large number of e-resources like IEEE, Springer, ASME, Science direct, as well as NPTEL. There are 9 staff in The Library. The Library is open from 9:00 am to 6:00 pm.

### 27. M.G.M's College of Engineering and Technology (DTE code:3175)

www.mgmmumbai.ac.in/mgmcet

The college is governed by Mahatma Gandhi Mission, a Charitable Trust, and was established in 1986. MGM CET is awarded with ISO- 9001-2000 Certification by RINA for providing technical education in Engineering field as per the guidelines of University of Mumbai. It is Unaided, Non-autonomous, Non-minority, Accredited. The institute has a well stocked library with a selected collection of over 32,738 books with over 8357 titles. The Library functions from 8:00 a.m. to 8:00 p.m. on all working days. The collection is automated for easy access. It has a total of 4 staff. The Library is a member of IEEE and IIT library. It also has a Book Bank facility for students. It subscribes to NPTEL video lectures. It is Accredited from May 2007 for 3 years in the branches of EXTC, Computer, Civil and Bio-medical Engineering.

### 28. Metropolitan Institute of Technology and Management (DTE code:3440)

www.mitmindia.in

The college has been promoted by the JayawantiBabu Foundation, and was established in 2011. It is unaided, non-autonomous, non minority, not Accredited. The college is not yet eligible to apply for Accreditation. The Library is fully computerized using e-granthalaya software and is a veritable storehouse of information with ample text and reference books, national and international periodicals & journals. The Library provides latest research and reference material in print as well as e-journals, CDs, Project Reports, Government Publications, Reports and Newsletters. It has a total of 3 staff and remains open for 8 hours.

### 29. M.H. SabooSiddik College of Engineering (DTE code: 3183)

www.mhssce.ac.in

The Institute owes its existence to the munificence of late Mohammed, son of Haji SabooSiddik. It is managed by the Anjuman-I-Islam as the sole trustee. It is unaided, non-autonomous, Religious minority (Muslim), Accredited. The Library, housed in a separate building, has an area of 573 sqmetres and has a total of 5 staff. The Library is open from 8:30 am to 5:00 pm. It is fully computerized using SLIM21 software. The Library contains 26,202 volumes of books having 11,565 titles with 48 national journals and 18 international journals. It also contains a number of e-books. The Library subscribes to a number of e-resources like ASCE, ASME, ASTM, SCIENCE DIRECT, IEEE, J-GATE, and NPTEL.
It is Accredited from March 2012 for 3 years in the branches of Computers, Information Technology, Civil and Automobile Engineering.

### 30. New Horizon Institute of Technology and Management (Women's College) (DTE code: 3471 )

www.nhitm.org/

NHITM is the only Women's college of engineering under Mumbai university. It was established in the year 2014. It is unaided, non-autonomous, non minority, not Accredited. The college is not yet eligible to apply for Accreditation. NHITM is facilitated with a spacious, sprawling and well-furnished library with a rich collection of books pertaining to all available disciplines of technology To disseminate information at a faster pace The Library is also enriched with numerous online journals and periodicals. The reading area of the Library is colossal and airy endowing a tranquil, serene and quiet environment suitable for intense study for the students.

### 31. Padma BhushanVasantdadaPatilPratishthan's College of Engineering (DTE code: 3188)

www.pvppcoe.ac.in

The college was founded in 1990 as a humble tribute to Late Padmabhushan Vasant Dada Patil. It is unaided, non-autonomous, non minority, Accredited. The Library covers an area of 460 sqmetres. There are 5 staff in The Library. The Library is open from 8:30 am to 8:00 pm. The reading room is open upto 9:00 pm. The Library is automated using e-granthalaya software. The Library has a huge collection of over 34,511 volumes of books with 7200 titles and 127 journals both national and international. It also subscribes to a number of e-

journals like IEEE, McGraw Hill, J-Gate , Elsevier and ASTM. It has a separate library web page. The Library is also a member of IIT Bombay and British Council library.

It is Accredited from March 2012 for 3 years in the branches of EXTC, I.T. Computers and Electronics Engineering .

### 32. RajaramShinde College of Engineering (DTE code: 3191 )

http://www.mandaredusoc.org/collOfEngg.htm

The college is founded by the Mandar Education Society in 1993 and located atChiplun. It is unaided, non-autonomous, non minority, Not Accredited. The college has applied for Accreditation to the NBA.A well-stocked and regularly updated, air-conditioned library provides students with a reference base for scholarly research. The Library covers an area of 631 sqmetres. It is automated in order to provide better service to students. It has a collection of more than 3265 titles and 11,385 volumes and more than 40 national and international journals. The Library also contains some LAN connected systems for digital library access, with internet connectivity. The e-library consists of more than 5000 journals.

### 33. Rajendra Mane College of Engineering and Technology (DTE code: 3202 )

www.rmcet.com

The college is founded by the PrabodhanShikshanPrasarakSanthaan in 1998 and is located at village Ambav, about 7 km. from Devrukh city, Ratnagiri district. It is unaided, non-autonomous, non minority, Not Accredited.The college has applied for Accreditation to the NBA .The Library is housed in the area of 5000 sq.mt. It consists of Stock room, Audio-Visual computer section, Book Bank facility and Digital facility e.g. e-University Paper with solution, e-syllabus-articles. Departmental Libraries are also established in various departments. The library also provides digital features.

### 34. Rajiv Gandhi Institute of Technology (DTE code:3135 )

www.mctrgit.ac.in

RGIT is one of the ISO 9001:2000 Certified premier educational institutions, established under Manjara Charitable Trust in 1992. It is unaided, non-autonomous, non minority, Accredited. The Library has an area of 800 sqmt. It has a total of 10 library staff. The Library is open from 8:15 am to 4:00 pm. The Library is automated using SLIM21 software. It has a separate library web page for its users. The Library has a collection of

over 22,321 volumes with 7631 titles and a total of 124 journals. The Library subscribes to a large number of e-resources like IEEE, Springer, EBSCO and J-Gate.

It is Accredited from July 2014 for 2 years in the branches of Computer Engineering, Electronics and Telecommunications and Mechanical Engineering.

### 35. RamraoAdik Institute of Technology (DTE Code :3174)

www.rait.ac.in

The institute is in Navi Mumbai and was set up in 1983 in the campus of Dr. D. Y. PatilVidyapeeth. It is unaided, non-autonomous, non minority, Accredited. The Library has a total area of 778 sqmetres with 6 staff. It is open from 10:00 am to 5:00 pm. It is automated to provide easy access to the collection. It has a large collection of books and journals and subscribes to a number of e-resources like IEEE, Springer and Science direct. The RAIT library is air conditioned and provides excellent ambience to read and study. The Library can accommodate about 100 students at a time.

It is Accredited from March 2012 for 2 years in the branches of Electronics Engineering and Electronics and Telecommunication engineering.

### 36. Rizvi College of Engineering (DTE code: 3201)

http://eng.rizvi.edu.in/

The College was established in 1998. It is unaided, non-autonomous, Religious minority (Muslim), not Accredited. The institute is in the process of applying for Accreditation to the NBA. The Library is located on the 3rd floor and is open from 8:30 am to 5:00 pm. It has 5 staff. It has a huge collection of over 29,000 books and over 50 national and international journals. It also subscribes to a number of e-resources like IEEE, Springer, ASTM and ASCE. The collection is automated using e-granthalaya software and has a separate and detailed library web page to cater to the information requirements of its users. It also has a digital library. The Library is a member of the British Council library and IIT library.

### 37. Saraswati College of Engineering (DTE code: 3154)

www.sce.edu.in

The foundation of Saraswati College of Engineering was laid on 17th Sept 2004 . It is unaided, non-autonomous, non minority, not Accredited. The college is in the process of applying for Accreditation to the NBA. The Library is open from 8.00 am to 8.00 pm providing all the facilities of the Reading hall, Reference section and Stack room to the

users. The Library collection includes more than 25,928 volumes of books with 112 journals and 1880 CDS. This collection is semi computerized right from its inception and provides Bar-code based Issue and Return facility for its users. The Library provides OPAC, Internet, Reprographic and CD-ROM facility to all users. Besides this users can access PRO QUEST, EBSCO and DELNET. It also provides access to McGraw Hill e-books.

**38. Smt. AlamuriRatnamala Institute of Engineering and Technology (ARMIET) DTE code:3219)**

www.kvctarmiet.com

The institute was set up by the KotiVidya Charitable Trust in 2008 and is located in Sapgaon about 6 kms from Asangaon Railway Station. It is unaided, Non-autonomous, Linguistic minority (Hindi), Not Accredited. The college is not yet eligible to apply for Accreditation. The Library has an area of 502 sqmetres. It has a total of 18814 volumes of books covering 4372 titles with 72 National and 30 international journals. It also has a Book Bank scheme for students.

**39. S.I.E.S. Graduate School of Technology (DTE code:3211)**

http://www.siesgst.net/

Instituted in the year 2002, SIES Graduate School of Technology is certified by ISO 9001:2008 for providing quality technical education and has also been accredited by Tata Consultancy Services (TCS). It is unaided, non-autonomous, Linguistic minority (South Indian), Accredited. The GST library offers a fine collection of books, reference books and technical journals and magazines. The Library is situated on the 2nd floor and has an area of 458 sqmetres. It has a total collection of over 14,500 volumes of books. It also subscribes to 50 journals. It is automated using e-granthalaya software and has a bar-coding system. It has a dynamic CD library and a Digital Library. It has set up an Institutional Repository using Dspace.

It is Accredited from August 2012 for 3 years in branches of Electronics and Telecom Engineering, Computers and Information Technology.

**40. Sardar Patel Institute of Technology (DTE code:3215)**

www.spit.ac.in

BharatiyaVidyaBhavan's SPIT was set up in 2005. It is Unaided, Non-autonomous, Non minority, Accredited. SPIT library is a knowledge resource center providing effective

information services to patrons using SLIM library management software. The Library has a collection of more than 19000 books and subscribes to National and International periodicals. SPIT Library subscribes to IEEE- ASPP, ACM, DELNET and NPTEL. The Library also has an audio-visual room for students to view its large collection of CBT courses where 40 students can sit at a time. CCTV installed here is fruitfully utilized for sharing lessons, conference proceedings, college notices etc.

It is Accredited from November 2013 for 2 years for the branches of EXTC, Electronics, Computers and Information Technology.

**41. Shah and Anchor Kutchhi Engineering College (DTE code:3148)**

http://www.shahandanchor.com/metsmartcampus/

Mahavir Education Trust established Shah & Anchor Kutchhi Engineering College in 1985 in Chembur. The college has been awarded "A grade" by the DTE. The college is an ISO 9001:2008 certified institute. It is unaided, non-autonomous, Linguistic minority (Gujarathi Jain) , Accredited. The college has a very good, spacious, well ventilated and well furnished library with a huge reading hall, and more than 17,740 books related to the curriculum The Library subscribes to a number of national and international journals. It subscribes to IEEE-ASPP, ASTM, Springer, Science direct, J-Gate, McGraw Hill, and EBSCO database as well as IEL online and ABI / Inform complete databases. It is also a member of IIT Mumbai library.

It is Accredited from August 2014 for 2 years in the branches of Computer and Electronics engineering.

**42. S.S.P.M's College of Engineering (DTE code:3206)**

www.sspmcoe.com

The SindhudurgShikshanPrasarak Mandal (SSPM) started its engineering college on 10th July 1999, under the steward of hon'ble Ex- Chief Minister of Maharashtra Shri. Narayan Rane. It is Unaided, Non-autonomous, Non minority, Not Accredited. The college is in the process of applying for Accreditation. The college has an excellent library which contains a well classified extensive collection of books. It contains total 3023 titles and 20,830 volumes. The Library also subscribes to a large number of e-resources like Science direct, ASTM, IEEE, INDEST, SPRINGER, IEL and Wiley.

**43. Sardar Patel College of Engineering (DTE code:3014)**

www.spce.ac.in

BharatiyaVidyaBhavan's SPCE was established in 1962. It was granted Academic Autonomy by the UGC in June 2010. It is Government aided, Autonomous, Non- minority, Accredited. The fully computerized Central Library of SPCE has a huge collection of around 45,000 books; more than 400 e-books (McGraw-Hill, Pearson, Proquest) and 3,500 bound volumes of journals both national and international subscribed by the college over the years. The Library has good collection of CBT(Computer Based Tutorials) and NPTEL video lectures made available through CD-ROM Server. It provides Article Indexing of Research Journals and has set up an Institutional repository. All these valuable resources are well organized in the 6000 sq. ft area, supported by 7 library staff, where more than 150 users can sit at a time and they are monitored by CC TV cameras.

It is Accredited from January 2004 for 3 years in the branches of Civil, Mechanical and Electrical engineering.It is Re-accredited from January 2007 for 3 years in the above three branches. The college is in the process of applying for re- Accreditation and is awaiting the NBA team visit.

**44. Smt. Indira Gandhi College of Engineering (DTE code:3192)**

www.sigce.edu.in

The institute was established in 1993 and is managed by Jawaharlal Nehru Institute of Education, Science and Technological Research Trust, Nanded, under the dynamic leadership of Honorable Shri V. M. Jadhav, former member of parliament (Rajya Sabha). It is unaided, non-autonomous, non minority, not Accredited. The Library supports the teaching-learning program of the institute with an excellent collection of text books, reference books, journals and magazines, data sheets, audio visual materials and other reading material. The carpet area of the Library is 4000 sq. ft. and the reading hall accommodates 100 students at a time the Library uses SOUL software package for automation. The software also extends the facilities of Web-OPAC. The Library subscribes to IEL online journals and also IEEE-ASPP package.

**45. St. Francis Institute of Technology (DTE code:3204)**

www.sfitengg.org

The college was established in 1999 by the Franciscan brothers. The institute is certified for meeting the Quality Management System Standards ISO 9001:2008. It is Unaided, Non-autonomous, Religious minority(Roman Catholic) , Accredited. The SFIT Library is located on the 2nd floor with an area of 482.39 sq.m It is partially automated and operates using LibSuite Enterprise. The Library collection of more than 20,000 books can be searched online through the WebOPAC. The Reading Room is Wi-Fi enabled and Internet access is provided. The Library has a blog of its own – sfitlibrary.blogspot.in. Also in the Digital Library@SFIT, 10 terminals are available with internet connection is provided. It also provides access to E-packages such as IEEE, Science Direct, DELNET and more than 2600 CDs. In addition access is also provided to the Institutional Repository .

It is Accredited from August 2012 for 2 years in the branches of Electronics and Telecommunication Engineering, Computers and Information Technology. The institute has applied for Re-accreditation and the process is on.

**46. St. John College of Engineering (DTE code:3218)**

www.sjcet.co.in

St. John College of Engineering and Technology (SJCET) was started by Aldel Education Trust in 2008 and is located at Palghar. It is unaided, non-autonomous, Religious minority (Christian) , not Accredited. The institution is not yet eligible to apply for AccreditationIt has a well-stocked library and adequate national journals and international periodicals aimed at satisfying the information needs of the faculty and students.

**47. Shivajirao S. Jondhale College of Engineering Dombivli (DTE code: 3193)**

www.ssjcoe.co.in

The Samarth Samaj started Shivajirao S. Jondhale College of Engineering at Dombivli (East), from the academic year 1994-95. It is unaided, non-autonomous, non minority, not Accredited. The institution is in the process of applying for Accreditation to the NBA.It has a centralized library. The Engineering College Library is situated in central Administrative Building with a separate reading room for the students and staff. It has books of different titles, text books, Foreign technical Journals and Indian technical Journals. The Library is a regular member of III library.

**48. Shivajirao S. Jondhale College of Engineering and Technology Asangaon (DTE code: 3217)**

http://shivajiraojondhalecoe.org.in/

The college was set up in 2007 and is managed by Vighnaharata Trust. It is located in Shahapur .It is unaided, Non-autonomous, Non minority, Not Accredited. The college is in the process of applying for Accreditation.The Library is spacious and contains a large number of books and periodicals. It provides various products and services for its users.

**49. Shree L.R. Tiwari College of Engineering (DTE code: 3423)**

www.slrtce.in

The college was set up under the Rahul Education Group in 2010. It is un-aided, non-autonomous, Linguistic minority(Hindi), Not accredited.The college is not yet eligible to apply for Accreditation.The Library is open from 9:00 am to 5:00 pm and caters to the information needs of the students and staff. The Library can accommodate upto 100 students at a given time. It has more than 9000 books ,besides various journals and periodicals. It also has a tutorial video viewing area, newspapers, etc.

**50. Terna Engineering College (DTE code: 3190)**

www.terna.org

The College was established in 1991 by the 'Terna Public Charitable Trust' It has an 'A' Grade from Maharashtra Government and ISO 9001 quality management system. It is Un-aided, Non-autonomous, Non- minority , Not accredited. The institution has applied for Accreditation to the NBA.The Library has an area of 697 sqmt. and is open from 9:00 am to 7:00 p.m.The Library collection includes more than 21,604 volumes of books, 88 journals and 750 CDs. It also subscribes to IEEE, Springer, ASTM, J-Gate, Science direct and McGraw Hill. The Library runs SOUL Software and Web OPAC facility is provided. It offers User Guidance Service, Weekly display of recent additions of periodicals and books including e-mail distribution of these lists to users, Bibliographic Service and Reprography. The Library has two Servers, ten computers and other accessories adequate to cater to the needs of users.

**51. ThadomalShahani Engineering College (DTE code : 3182)**

www.tsec.edu

Established in 1983, ThadomalShahani Engineering College is founded by the Hyderabad (Sind) National Collegiate Board.It is un-aided, non-autonomous, linguistic minority (Sindhi), not accredited. TSEC Library is located on the 4th floor of the old building with an area of 465 sq. m. The reading room is well lighted and airy with a seating capacity of around 100. The Library remains open from 8:00 a.m to 8:00 p.mThe collection includes more than 31674 technical books covering more than 8000 titles and 55 national and international journals and 6 online databases. The College has also joined e-resources through INDEST AICTE consortium essentially to facilitate academic research in the campus.

**52. Thakur College of Engineering and Technology (DTE code: 3176)**

www.tcetmumbai.in

The institute was established in 2001 by the Thakur Group. It is un-aided, non-autonomous, Linguistic minority (Hindi), Not accredited. The Library is located on the 4th floor with 825 Sq. m. built area. The collection includes more than 22,847 Books, 81 journals and 7 e-journal databases. LRC is highly modular. Additional library facility is created on the 5th floor of Thakur Mall as library extension and 78 students can use the premises upto 9.00 p.m. and as per request of students, timings can be extended upto 10.00 p.m. during examinations. Library Management is through Libsuite Software. There is an audio Visual Room with a seating capacity of 20 and a 5" X 6" wide screen with LCD projector. The digital Library has 24 PCs connected on LAN and allows access to e- resources.It also has a CD mirror server.

It is Accredited from September 2011 for 3 years in the branches of Electronics and Telecommunication Engineering, Computers and Information Technology. The Re-accreditation of these courses is in process. The institute also applied for accreditation of Electric engineering programme. It has also applied for the permanent affiliation of four programmes EXTC, I.T, Computers and Electrical engineering and the result is awaited.

**53. Theem College of Engineering (DTE Code: 3222)**

www.theemcoe.org

The college is promoted by the H. J.Theem Trust, located at Boisar (East) and was established in 2009. It is un-aided, non-autonomous, Religious minority (Muslim), not accredited. The college is not yet eligible to apply for Accreditation.There are a total of 7 staff in The Library. The Central Library with an Automation facility functions from 9:00

am to 6:00 pm on all working days. The Library has a huge collection with more than 3900 titles and 15,000 volumes of books. It has a total are of 12000sq ft with a total seating capacity of 460 students. It has a separate AV room where 60 students can be accommodated at a time. The Library subscribes to a large number of e-resources like IEEE, Springer, ASME and ASTM.

**54. Universal College of Engineering (DTE Code : 3460)**

www.universal.edu.in

The college is established by VidyaVikas Education Trust's Technical Campus in and is situated Diva-Vasai railway line. It is un-aided, Non-autonomous, Linguistic minority (Gujarathi), Not accredited. The college is not yet eligible to apply for Accreditation. Archivia, The Library is a treasure house of thousands of Books, Reference Titles, Annual Reports, Market Studies, National & International Newspapers, National &International Journals, Electronic Journals, eBooks &iTunes U Podcasts. Faculty and students use The Library as an invaluable resource for business information and as a quiet place to study, alike. The Library has more than 2500 books, various conference proceedings, many National and international journals and newspapers. Archivia has a digital library corner with 7 computers for access to electronic resources.

**55. VPM's MaharshiParshuram College of Engineering (DTE Code : 3462)**

www.vpmmpcoe.org

The college was set up in 2012 by VidyaPrasarak Mandal, Thane and is situated at Velneshwar Tal-Guhagar, Dist –Ratnagiri. It is un-aided, non-autonomous, non minority, not accredited. The college is not yet eligible to apply for Accreditation.The well equipped library contains over 4000 books and is open from 7:00 am to 11:00 pm. It has a seating capacity for 150 students. The collection includes books, journals and e-resources with access to National and International data bases. It has a Digital Repository. The Library has a multimedia centre and Wi-Fi facility and provides access to the Internet.

**56. Vidyalankar Institute of Technology (DTE Code : 3139)**

www.vit.edu.in

The engineering college was set up as an offshoot of Vidyalankar classes in 1999 and is located at Wadala(East). It is un-aided, non-autonomous, non minority, not accredited. The college has applied for Accreditation. The Central Library has more than 450 sq m built up

space and is stocked with relevant books which is approximately about 17,211 non-books (CDs) and about 67 National and International Journals. The collection includes more than 26,000 books and subscribes to a number of e-resources like IEEE, J-Gate and EBSCO.A separate Reading hall is created for general reading and an Open Access Reference section is provided for more serious work. Provision of Multi Media section and high speed Internet browsing is also available.

**57. Vidyavardhini's College of Engineering and Technology(DTE Code : 3194)**

www.vcet.edu.in

The college was set up in July 1994 by Vidyavardhini Trust. It is un-aided, non-autonomous, non minority, Accredited. The total collection of library books is 26923 (with 10000 titles) in a short span of 19 years. 54 national and international journals/magazines are currently available in The Library. 6 newspapers are on display stands. New arrival of books and magazines are immediately displayed on the display racks. The Library has 14 computer terminals. The Library collection of CD's is more than 800. The department of social welfare of Government of Maharashtra has sanctioned to students belonging to SC/ ST/ NT category grants which have been utilized for the purchase of books for financially backward students. The Central Library has a Digital Library and subscribes to e-resources published by IEL and ASME online. Central Library timings are 9.00 am to 8.00 pm during exam period, normally it closes at 6.00 pm.

It is Accredited in March 2012 for 3 years in the branches of EXTC, Computers, Mechanical and Instrumentation Engineering. Re-accreditation is in process.

**58. Vishwatmak Om Gurudev College of Engineering (DTE Code : 3445)**

www.vishwatmakengg.in

The college is set up by JangliMaharaj Ashram Trust in 2011 and is located at Mohili–Aghaii. It is Un-aided, Non-autonomous, Non minority, Not accredited. The college is not yet eligible to apply for Accreditation. The Institute houses a well-stocked library with more than 5000+ books, reference books, National & International Journals of repute. It has also Journals like ASME, IEEE, J-GATE, Magazines, CD's and Multimedia Tools pertaining to the academic expectations.

**59. Vivekanand Education Society's Institute of Technology (DTE Code: 3185)**

www.vesit.edu

Vivekanand Education Society was established in 1959 under the able leadership of Shri. HashuAdvani. The college was established in 1984 and is located in Chembur. It is un-aided, non-autonomous, Linguistic minority (Sindhi), Not accredited. The Library has a carpet area of 528 sqmt. It is open from 8:30 am to 6:00 pm. During examinations it is open upto 7:00 p.m. The Library contains over 48,747 books, E-journals-IEEE, Springer, McGrawHill, ASTM, I-Gate, Science Direct, 400+ seating capacity. Along with technical updates via latest journals, students can also keep themselves abreast with the latest happenings in the world via News Paper, Magazine & Internet facility.

**60. Viva Institute of Technology (DTE Code: 3221)**

http://www.viva-technology.org/

Late Shri Vishnu Waman Thakur Charitable Trust was formed in the year 1988 under the president-ship of Shri Hitendraji Thakur, MLA of Vasai Taluka. VIVA Institute of Technology was started in 2009.It is un-aided, non-autonomous, non minority, not accredited. The college is not yet eligible to apply for Accreditation. To support the knowledge needs of the students, there is a fully computerized library with more than 11110 books, international journals and e-journals and several national journals.

**61. Vishwaniketan's Institute of Management Entrepreneurship and Engineering Technology (DTE Code : 3467)**

www.vishwaniketan.edu.in

Vishwaniketan, conceived out of the extensive experience of educationists and industry /corporate/ entrepreneurs has initiated an engineering college titled Institute of Management Entrepreneurship and Engineering Technology [iMEET] on Mumbai-Pune Expressway. It is un-aided, non-autonomous, non minority, not accredited.The college is not yet eligible to apply for Accreditation.The Library has a large collection of print and electronic resources including ASME,ASTM, IEEE, J-Gate, Wiley and Elsevier.

**62. VeermataJijabai Technological Institute (DTE code : 3012 )**

www.vjti.ac.in

The Institute was given its present title on 26th January 1997. Founded in 1887, it was then known as Victoria Jubilee Technical Institute..The institute was granted financial and academic autonomy from June 21, 2004. It is Government aided, Autonomous, Non minority, Accredited. The Library consists of 2 Levels. It is open from 9:00 am to 5:30 p.m.

Offers tea / coffee, snacks, sandwiches, etc at a cost. The VJTI Library is the key resource for information and library staff are ready to help and advisestudents . It is currently open into the early evening and at weekends during the term time.The Library has a large collection of books, journals and e-resources.

It is Accredited in September 2011 for 5 years in the branches of Civil and Production Engineering and for 3 years in the branch of Textile Technology.It is Accredited in July 2014 for 2 years in the branches of Computers, Electrical and Mechanical Engineering.

### 63. Watumull Institute of Electronics Engineering and Computer Tech (DTE Code: 3212)

www.watumull.edu

The Hyderabad (Sind) National Collegiate Board was managing the National College. The Institute switched over to the four – year B.E. degree Course in Engineering from the year 2002-03. It is un-aided, non-autonomous, Linguistic minority (Sindhi), not accredited. The Library is housed on the fifth floor of the college building, facing scenic beauty of Worli seaface. It can be accessed from 9.30 a.m. to 8 p.m. and on Saturdays 10 a.m. to 5.30 p.m. The Library collection comprises 15400 books, 42 journals, 7 newspapers, reference material, CBTs / NPTEL video lectures / Educational CDs / E resources of IEEE. Subject strength consists of Engineering, Management, Personality Development, Pure sciences, Mathematics, etc. A computerized Library operation facilitates readers to access a large number of products and services.

### 64. Xavier Institute of Engineering (DTE Code : 3214)

www.xavierengg.com

The college is managed by the Society of Jesus and was set up in 2005. It is un-aided, non-autonomous, Religious minority (Roman Catholic), not accredited. The institute is in the process of applying for Accreditation.The XIE Library is automated using SLIM 21 Library Software. It is spacious, airy and well-lit. There are tables for general study, partitioned tables for serious study and a separate section for project discussion. The library has more than 12,277 books along with a large collection of Journals CDs, newspapers and e-resources. A Digital Library enables students to gain access to a number of online resources – both open access and subscribed. The library has uploaded the syllabus, question papers and assignments on to the XIE Moodle server for 24/7 access. The Library is planning to set up an Institutional repository.

**65. YadavraoTasgaonkar College of Engineering and Management(YTCEM) Chandai (DTE code:3220)**

www.tasgaonkartech.com

Saraswati Education Society is a public charitable trust which was formed on 10 Oct 2003 by Dr Nandkumar Y Tasgaonkar. The SES started YadavraoTasgaonkar College of Engineering & Management (YTCEM) in 2009. The YTCEM campus is located at Chandai, near Karjat. It is un-aided, non-autonomous, non minority, not accredited. The institute is not yet eligible to apply for Accreditation. The institute library is an integral part of the campus central library. It has an excellent collection of books, journals and non-book material on Science, Engineering, Technology, Humanities, Social Science and Management. It has a huge collection of reference books, Bound volumes of journals and CDs. The collection includes more than 7585 books, and 67 journals.

**66. YadavraoTasgaonkar Institute of Engineering and Technology, (YTIET) Bhivpuri (DTE code: 3147)**

www.tasgaonkartech.com

YTIET was founded in 2007 and is a part of the Saraswati Education Society It is located on Bhivpuri Road, Karjat of Raigad district. It is un-aided, non-autonomous, non - minority, not accredited. The Libraryhas more than 15000 books & wide range of National & International periodicals dedicated to the Engineering, Technology, Humanities, Social Science & Management. Various CD ROMs have also been added to the collection. The salient features of The Library are Book Exhibition, Book Pocket Display, Internet Access, Open Access for Periodicals, Spacious Reading Room, Book Bank Scheme, IIT and , IEEE Membership etc. Considering the students demand, the Reading Room remains open from 8.00 a.m. to 12.00 p.m.

## 3.5Conclusion

Engineering education in India contributes a major share to the overall education system and plays a vital role in the social and economic development of our nation. India has some very bright spots of excellence in its technical education sector. However, with an average of one new engineering college opening its doors every month, the AICTE appears to be struggling to maintain the standards of excellence set by India's top institutions.

As the U.R. Rao Committee report has pointed out, the AICTE needs to focus on ensuring that its standards are met at already existing institutions, new institutions are opened in areas that need them, substandard institutions are closed and that faculty shortages are reversed by investing in postgraduate education and encouraging talented students to remain in India to pursue careers in academia.

With regard to engineering college libraries it is seen that facilities and services with the scope of the study are diverse and varied. While some libraries provide many different services, others provide just the basic ones. Many face the problem of inadequate staff or resources or finance. However sometimes motivation is the key. Engineering libraries have to harness the power of ICT in the given set of circumstances in order to satisfy the information needs of the engineering community. Librarians must continue to play the role of an 'Agents of Change' in a fast changing electronic engineering world.

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# CHAPTER 5
# DATA ANALYSIS

*"The interpretation of facts in a certain way*
*stimulates other scientists' thoughts."*

*Robert Barany*

## 5.1Introduction

A survey was conducted in order to ascertain the impact of NBA Accreditation on engineering college libraries in Mumbai. A detailed questionnaire was sent out to the librarians of various engineering colleges affiliated to the University of Mumbai. All the 66 engineering colleges that were covered in the scope were selected.

The respondents were queried on various facets of the library infrastructure, library staff, library facilities, collection development, library products and services, value added services etc. The respondents were also asked about the impact of Accreditation on infrastructure, staffing, collection, library services and value added services. The analysis of data received from the respondents has been presented in the following paragraphs through various tools like tables and graphs.

## 5.11Methods of Data Collection

The research methodology used consisted of a questionnaire sent out to librarians of all engineering colleges affiliated to the University of Mumbai. The researcher first obtained the list of all the Engineering institutes within the specified scope through various websites and a network of colleagues in the field. The information was cross checked from the web sites of the AICTE and the DTE and with academicians and experts in the field.

It was found that the following institutes had either applied for closure or were not accepting admissions due to various issues with the governing bodies.

1. LeelavatiAwhad Institute of Technology Management Studies and Research, Badlapur
2. Narayan NaguPatil Engineering College, Pen, Raigad
3. Parshvanath College of Engineering, Thane

It was also noted that the following colleges have been modified and re-introduced.

1. Bharat College of Engineering, Badlapur (formerly LeelavatiAwhad Institute of Technology Management Studies and Research)
2. A.P. Shah Institute of Technology (formerly Parshvanath College of Engineering, Thane)
3. New Horizon Institute of Technology & Management (Women's College),Thane
4. ChhatrapatiShivajiMaharaj Institute of Technology, Panvel

## 5.12Pilot Study

The questionnaire was discussed with academicians and practicing librarians and necessary changes were made. The questionnaire was then sent out to six librarians (10% of the total scope) as a pilot study and their views on the questionnaire were ascertained.

The data thus obtained was analysed and no ambiguities were found. The questionnaire was then ready to be sent out to all the librarians within the specified scope of the research study.

## 5.13Population and Sampling

There are 66 engineering institutes affiliated to the University of Mumbai which conduct full time engineering programmes at the Under graduate, Post graduate and Doctoral level. All the 66 institutes were selected for the study. A questionnaire was prepared in order to understand the impact of Accreditation on engineering college libraries in Mumbai.

The researcher then visited the web site of each college and gathered basic information about the institute and their library. Some web sites had information about the library and the librarian but many institutes did not. Through an array of networked information sources, the researcher was able to obtain the contact number and e-mail id of every librarian on the list. The questionnaires were sent out to the 66 engineering college librarians either personally or through post or e-mail.

## 5.14Responses obtained to the questionnaire

The questionnaires were sent out to 66 librarians of engineering college libraries in Mumbai. The table given below shows the details of the responses received by the researcher.

**Table 5.1:Responses obtained to the questionaire**

| Sr. No | Details of responses | Number of colleges | Percentage |
|---|---|---|---|
| 1 | Number of questionnaires distributed | 66 | 100% |
| 2 | Number of responses received | 60 | 90.91% |

The data from the above table demonstrates that the researcher has distributed the questionnaire to a total 66 engineering college librarians and has received back the responses from 60 college librarians (90.91%).Efforts were made to collect the data from the remaining six institutes by contacting the librarians but due to various administrative problems the researcher could not get this data.

## 5.2Data Analysis

After all the questionnaires were completed by the target audience i.e. the librarians of various colleges and received back by the researcher, the data so collected was collated using MS-Word and MS-Excel spreadsheets. This data was then analyzed and interpreted so that deductions could be made and conclusions could be drawn. The analysed data was presented using tables and graphs.

The following is the detailed analysis of data.

### 5.21Accreditation Status

The researcher has tried to find out the Accreditation status of the various engineering colleges affiliated to the University of Mumbai from various sources – first from the DTE website, then from the Institutional web pages and finally from the librarian itself.

In some cases all the three did not synchronise, sometimes the corrected information was not reflected on the web site and therefore the researcher was forced to make additional inquiries or contact experts in the field. Also it was difficult to find out the Accreditation status of engineering institutions since this data kept changing over a period of time. Those colleges which had applied for Accreditation when the data was collected got their result by the time the analysis was complete. However the following is the result at the time of the study.

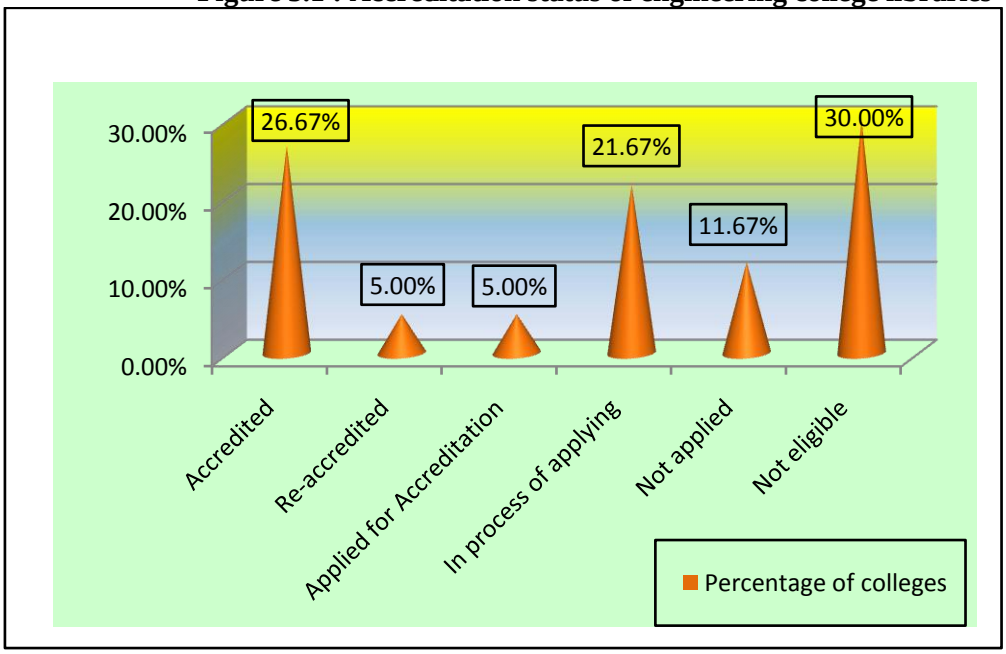
According to the Accreditation policy of the NBA, programmes from which atleast two batches of students have graduated, will be eligible to apply for Accreditation. By this policy, out of the 60 engineering colleges which had filled in the questionnaire and were selected for the study and the following is the result of the Accreditation status.

**Table 5.2: Accreditation Status of engineering college libraries**

| Sr. No | Accreditation status | No of colleges | Percentage |
|---|---|---|---|
| 1 | Accredited | 16 | 26.67% |
| 2 | Re-accredited | 3 | 5.00% |
| 3 | Applied for Accreditation | 3 | 5.00% |
| 4 | In process of applying | 13 | 21.67% |
| 5 | Not applied | 7 | 11.67% |
| 6 | Not eligible | 18 | 30.00% |
| | TOTAL | 60 | 100.00% |

The same can be depicted as follows –

**Figure 5.1 : Accreditation status of engineering college libraries**




The above analysis shows that out 60 colleges which filled the questionnaire, 16 colleges (26.67%) were accredited, 3 colleges (5.00%) were re-accredited, 3 colleges (5.00%) had applied for Accreditation while 13 colleges (21.67%) were in the process of applying for Accreditation. Thus a total of 35 colleges (58.33%) have been through the process of Accreditation or are in the process of Accreditation.

Also 7 colleges (11.67%) have not applied for Accreditation and 18 colleges (30.00%) are not yet eligible to apply for the process of Accreditation as per the norms of the NBA since they were established later than year 2009.

The analysis of data obtained shows that a total of 35 colleges (58.33%) have been through the process of Accreditation or are in the process of Accreditation.

Hence **Hypothesis I that engineering college librarians in Mumbai have been through the process of Accreditation or are in the process of Accreditation** is accepted**.**

## 5.22 Size of sample for data analysis

**Table 5.3: Size of sample for data analysis**

| Sr. No | Details of responses | Number of colleges | Percentage |
|---|---|---|---|
| 1 | Number of questionnaires distributed | 66 | 100% |
| 2 | Number of responses received | 60 | 90.91% |
| 3 | Number of colleges accredited or in process of Accreditation | 35 | 53.03% |

Since the focus of the study was the impact of Accreditation on engineering college libraries in Mumbai, only those colleges which were accredited or were in the process of Accreditation, were considered for data analysis. There are a total of 35 colleges in this category. Hence the researcher has taken only 35 responses for data analysis.

## 5.23 Organisational Information

The respondents were asked some preliminary questions which included basic information about the engineering institution such as name and address, the year it was established, the status of the institution – whether it was aided or unaided, the contact numbers and web site of the institution. With regard to the status of the institution it was found that only two institutions were aided namely VeermataJijabai Technical Institute (VJTI) and Sardar Patel Institute of Engineering (SPIT). They were eligible to receive grants from the Government to run the Institute.

Also two institutions i.e. VJTI and K.J. Somaiya College of Engineering (KJSCE) had "Academic Autonomy" from the University of Mumbai. This meant that the College, while continuing to be affiliated to the University, could award Degrees on its behalf. This not only allowed the institute to design and decide their own curriculum, but also enabled them to bring flexibility in the credit and examination scheme. They would be able to draw their own academic calendar which would enable the students to plan their activities beyond college engagements. All the other institutions were non-aided and run by private trusts.

## 5.24Year of Establishment

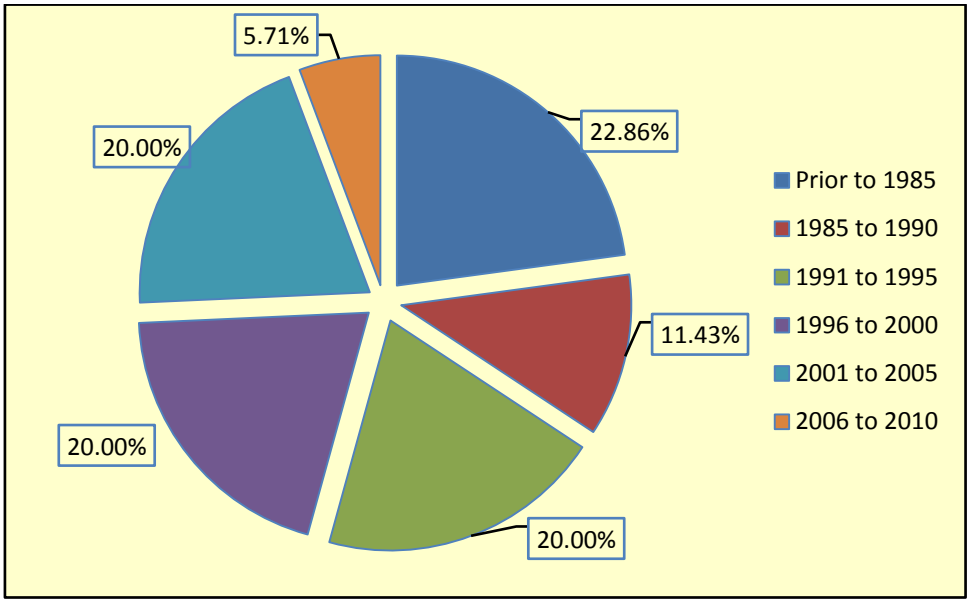
Respondents were asked about the year of establishment of their engineering institute. The following is the analysis of data.

**Table 5.4 : Year of establishment**

| Sr No | Year of establishment | No of colleges | Percentage |
|---|---|---|---|
| 1 | Prior to 1985 | 8 | 22.86% |
| 2 | Between 1985 to 1990 | 4 | 11.43% |
| 3 | Between 1991 to 1995 | 7 | 20.00% |
| 4 | Between 1996 to 2000 | 7 | 20.00% |
| 5 | Between 2001 to 2005 | 8 | 22.86% |
| 6 | Between 2006 to 2010 | 2 | 5.71% |
| | TOTAL | 35 | 100.00% |

The same can be depicted as follows -

**Figure 5.2 : Year of establishment**




With regard to the year of establishment it was found that 8 engineering colleges (22.86%) were set up before 1985; also 4 institutes (11.43%) were set up between years 1985 to 1990, 7 colleges (20.00%) were set up from 1991 to 1995, 7 colleges (20.00%) were established from 1996 to 2000; 8 colleges (22.86 %) were founded in the years between 2001 to 2005 while 2 institutions (5.71%) were set up from 2006 to 2010.

The oldest college is V.J.T.I. (established in 1887) while the most recently established colleges are Gharda Institute of Technology and ShivajiraoJondhale College of Engineering and Technology, Asangaon (both established in 2007)

## 5.25Engineering College courses and Intake Capacity

The researcher has tried to find out the total number of courses offered in engineering colleges in Mumbai and the following is the analysisof the number of courses and intake capacity of the engineering institutions affiliated to the University of Mumbai.

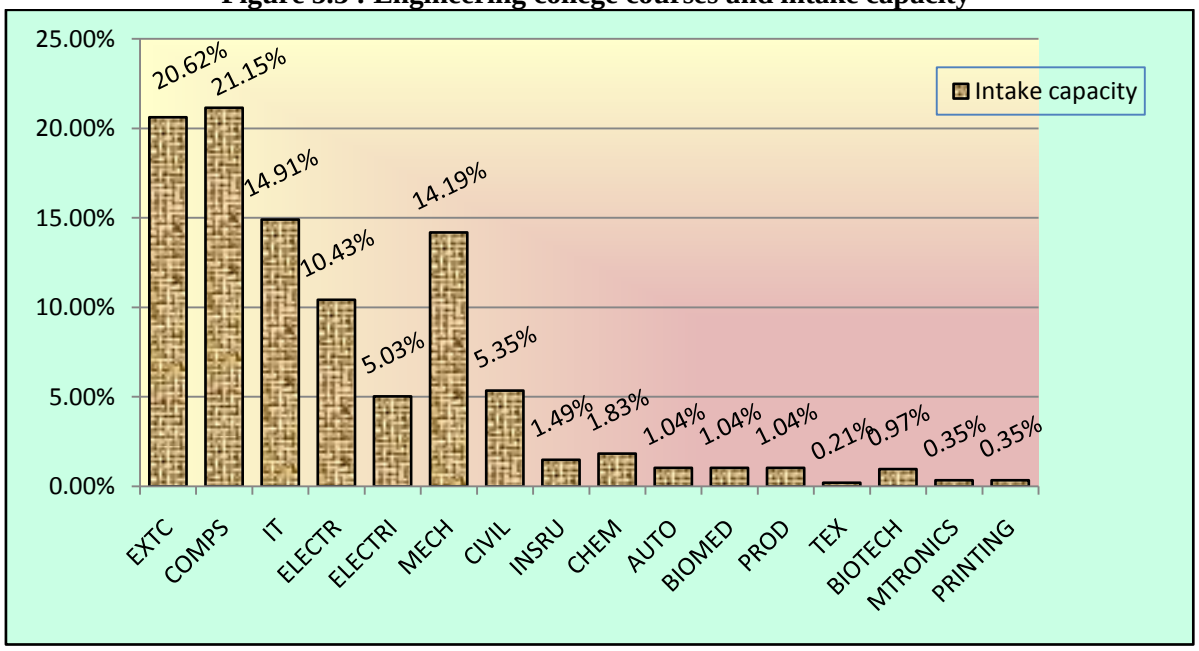
**Table 5.5 : Engineering college courses and intake capacity**

| Sr. No | Courses | Total intake capacity | Number of colleges offering the course |
|---|---|---|---|
| 1 | Electronics and Telecommunications | 3574<br>20.42% | 33<br>94.29% |
| 2 | Computer Engineering | 3666<br>20.95% | 34<br>97.14% |
| 3 | Information Technology | 2584<br>14.77% | 29<br>82.86% |
| 4 | Electronics Engineering | 1807<br>10.33% | 19<br>54.29% |
| 5 | Electrical Engineering | 872<br>4.98% | 10<br>28.57% |
| 6 | Mechanical Engineering | 2459<br>14.05% | 23<br>65.71% |
| 7 | Civil Engineering | 928<br>5.30% | 8<br>22.86% |
| 8 | Instrumentation Engineering | 258<br>1.47% | 4<br>11.43% |
| 9 | Chemical Engineering | 318<br>1.82% | 5<br>14.29% |
| 10 | Automobile Engineering | 180<br>1.03% | 3<br>8.57% |

| | | | |
|---|---|---|---|
| 11 | Biomedical Engineering | 180<br>1.03% | 3<br>8.57% |
| 12 | Production Engineering | 200<br>1.14% | 3<br>8.57% |
| 13 | Textile Engineering | 36<br>0.21% | 1<br>2.86% |
| 14 | Bio-technology Engineering | 228<br>1.30% | 3<br>8.57% |
| 15 | Mechatronics Engineering | 60<br>0.34% | 1<br>2.86% |
| 16 | Printing and Packaging Technology | 60<br>0.34% | 1<br>2.86% |
| | TOTAL | 17330 | |

The same can be depicted as follows -

**Figure 5.3 : Engineering college courses and intake capacity**




- The total number of branches in Engineering in the various institutes within the scope is 16.
- The total intake capacity for all these branches of Engineering is 17,330.
- These include under-graduate, post graduate and doctoral programmes in the various branches of Engineering. Many institutes have only single intake. However some institutes also have double intake.
- The maximum intake capacity is 378 students
- The minimum intake capacity is 120 students.
- The maximum number of courses that any institute offered was 7.
- The minimum number of courses that any institute offered was 2.

## 5.26 Impact of Accreditation on area of the library

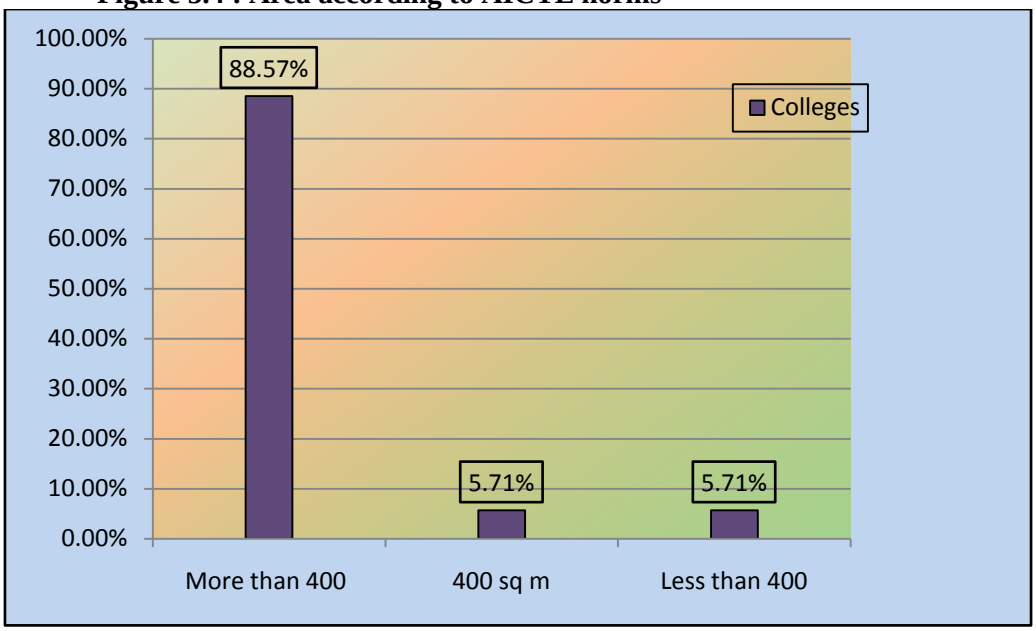
With regard to the AICTE norms the area of the engineering college library should be at least 400 sq metres. The same is upheld by the NBA in its self- assessment report. The respondents were asked about the total area of the library after Accreditation.

**Table 5.6 :Area according to AICTE norms**

| Sr. No. | Area | No. of colleges | Percentage |
|---|---|---|---|
| 1 | More than 400 sq m | 31 | 88.57% |
| 2 | 400 sq m | 2 | 5.71% |
| 3 | Less than 400 sq m | 2 | 5.71% |
| 4 | Total | 35 | 100.00% |

The same can be depicted as follows -

**Figure 5.4 : Area according to AICTE norms**




The study shows that out of 35 colleges, after Accreditation the maximum number of colleges i.e. 31 colleges (88.57%) have a library area of more than 400 sq. metres, while 2 colleges (5.71%) have an area of exactly 400 sq. m and 2 colleges (5.71%) have less than the stipulated area according to the norms of the AICTE.

## 5.27Impact of Accreditation on Library Opening hours

The next question was directed towards gathering data about the working hours of the library with a view to fulfilling Ranganathan's fourth law of library science in providing services to the users. The following is the result of the analysis.

**Table 5.7 :Impact of Accreditation on Library Opening hours**

| Sr. No | Details | No of colleges | Percentage |
|---|---|---|---|
| 1 | Open on Sundays and holidays as a result of Accreditation | 2 | 5.71% |
| 2 | Increase in Opening hours during week days as a result of Accreditation | 2 | 5.71% |
| 3 | No change in timings as a result of Accreditation | 31 | 88.58% |
| | Total | 35 | 100.00% |

The analysis showed that 2 engineering college libraries (5.71%) were open on Sundays and holidays as a result of Accreditation, also 2 libraries (5.71%) showed an increase in Opening hours during week days as a result of Accreditation. However 31 colleges (88.58%) did not show any change in timings as a result of Accreditation.

## 5. 28Impact of Accreditation on Library Infrastructure

The norms of the AICTE as well as the criteria of the NBA focuses on the infrastructure of the library as one of the important pre-requisites for developing a good library and catering to the information needs of the users. Library infrastructure includes area, computers, automation, Digital Library, Library services on Internet/Intranet etc. The AICTE specifies the basic infrastructure required by an engineering college library at the time of the start of the Institution. The onus lies with the management of the engineering Institution, along with the librarian and the library staff to make adequate changes and provide additional facilities to accommodate the increase in intake or the divergence in services according to the changing times.

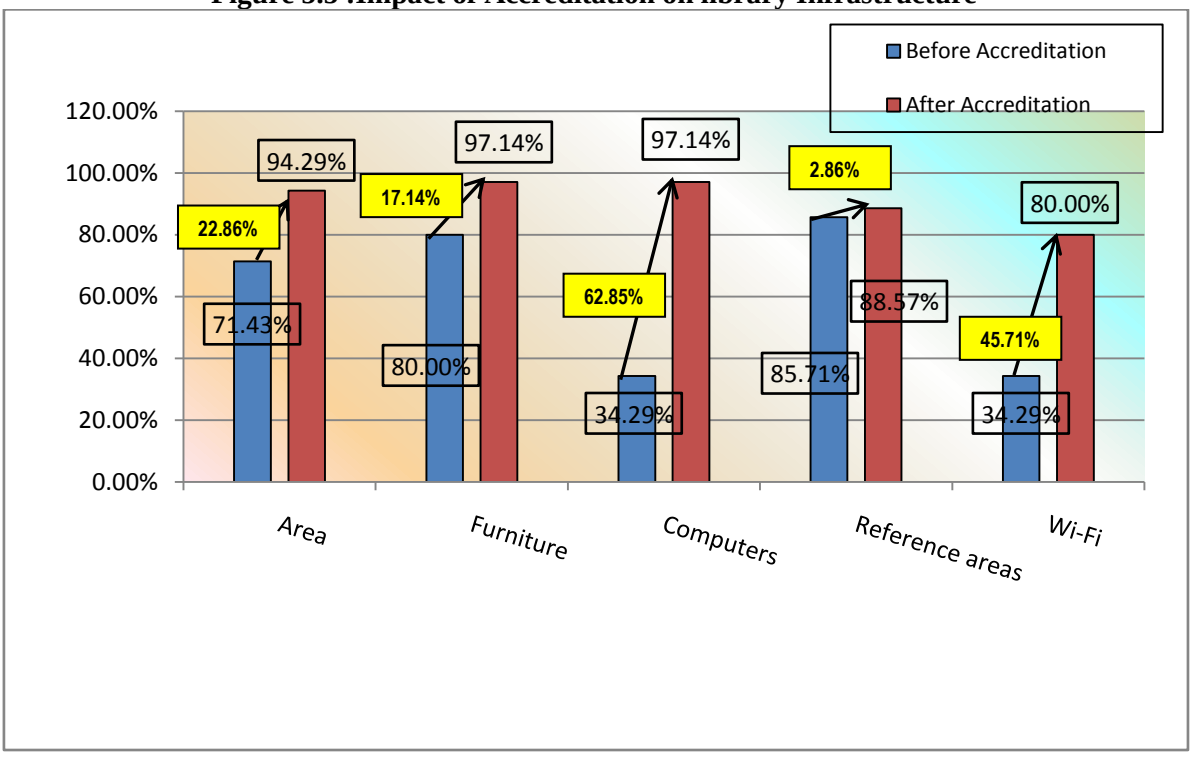
Respondents were queried with regard to area, furniture,computers and modern technologies. The analysis of data with regard to various parameters related to infrastructure development before Accreditation and after Accreditation shows the following impact as seen from the survey.

**Table 5.8:Impact of Accreditation on library Infrastructure**

| Sr. No | Library Infrastructure | Number of colleges before Accreditation | Number of colleges after Accreditation | Increase in number of colleges |
|---|---|---|---|---|
| 1 | Adequate Area | 25<br>71.43% | 33<br>94.29% | 8<br>22.86% |
| 2 | Adequate Furniture | 28<br>80.00% | 34<br>97.14% | 6<br>17.14% |
| 3 | Sufficient Computers and ICT enabled tools | 12<br>34.29% | 34<br>97.14% | 22<br>62.85% |
| 4 | Separate reference and project discussion areas | 30<br>85.71% | 31<br>88.57% | 1<br>2.86% |
| 5 | Wi-Fi facility in the library | 12<br>34.29% | 28<br>80.00% | 16<br>45.71% |

The same can be depicted as follows -

**Figure 5.5 :Impact of Accreditation on library Infrastructure**



### 5.28.1Adequate area for library use

In response to the ever pertinent global question of adequate area for libraries, the analysis shows that before Accreditation only 25 respondents (71.43%) had sufficient area for library use. After accreditation it was seen that 33 libraries (94.29%) had sufficient area for library use.

### 5.28.2Adequate furniture with relation to the number of users

With regard to this, before Accreditation only 28 respondents (80.00%) had sufficient furniture with relation to the number of users. However after Accreditation it was seen that 34 libraries (97.14%) had procured adequate furniture.

### 5.28.3Sufficient computers and ICT enabled tools for users

To this question relevant in the current ICT era, it is seen that before Accreditation only 12 libraries (34.29%) had sufficient computers to satisfy the information needs of an ICT literate information community. After Accreditation it was noted that 34 libraries (97.14%) had sufficient computers and ICT enabled tools for users.

### 5.28.4Separate areas for reference, project discussion, enclosed carrels for scholars/research etc.

With a view to assisting researchers and supporting research, it is a common practice to demarcate separate areas for research scholars and reference work. To this end it was seen that before Accreditation 30 respondents (85.71%) stated that they had separate areas for reference work in their library. After Accreditation it was seen that 31 librarians (88.57%) had separate areas for Reference, Project discussion, enclosed carrels for scholars/research etc.

### 5.28.5Wi-Fi facility available in the library

With regard to this user need and its advantages, before Accreditation only 12 engineering libraries (34.29%) had Wi-Fi facility in the library. However after Accreditation it was noted that 28 librarians (80.00%) had made Wi-Fi facility available in the library.

## 5.29Impact of Accreditation on library automation

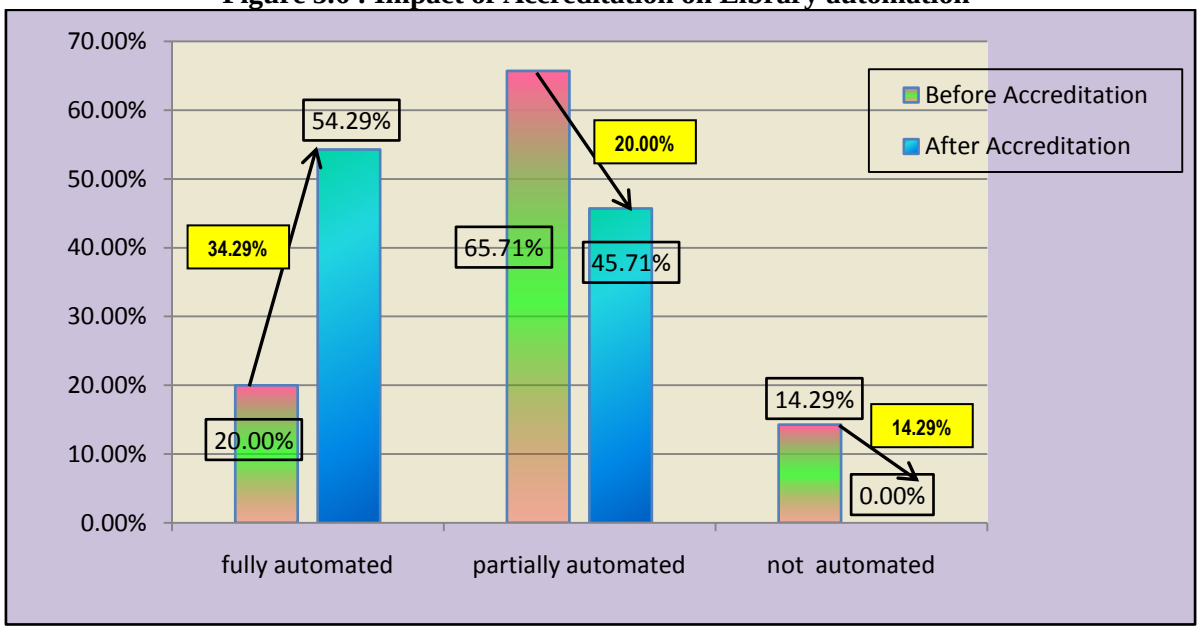
Automation of the library procedures like Circulation and Cataloguing, Acquisition and stock taking makes information collection and dissemination easier, both for the user as well as the Librarian. It has been noted that one of the requirements of the NBA is the automation of the engineering college library, hence the respondents were queried about the same. The researcher has tried to find out the impact of Accreditation on the automation of library facilities and the following is the result.

**Table 5.9 :Impact of Accreditation on Library automation**

| Accreditation status | Before Accreditation | After Accreditation | Increase/decrease as a result of Accreditation |
|---|---|---|---|
| Fully automated | 7<br>20.00% | 19<br>54.29% | 12<br>34.29% |
| Partially automated | 23<br>65.71% | 16<br>45.71% | 7<br>20.00% |
| Not automated | 5<br>14.29% | 0<br>0.00% | 5<br>14.29% |

The same can be depicted as follows –

**Figure 5.6 : Impact of Accreditation on Library automation**




The above analysis shows that before Accreditation, 7 engineering college libraries (20.00%) were fully automated, 23 libraries (65.71%) were partially automated while 5 libraries (14.29%) were not automated at all. However after Accreditation it was noted that 19 libraries (54.29%) were now fully automated, 16 libraries (45.71%) were partially automated and 0 libraries (0.00%) were not automated. This depicts a healthy trend in the aspect of following AICTE norms and embracing new technologies with an aim to providing better services to users.

## 5.30Impact of Accreditation on Digital Library

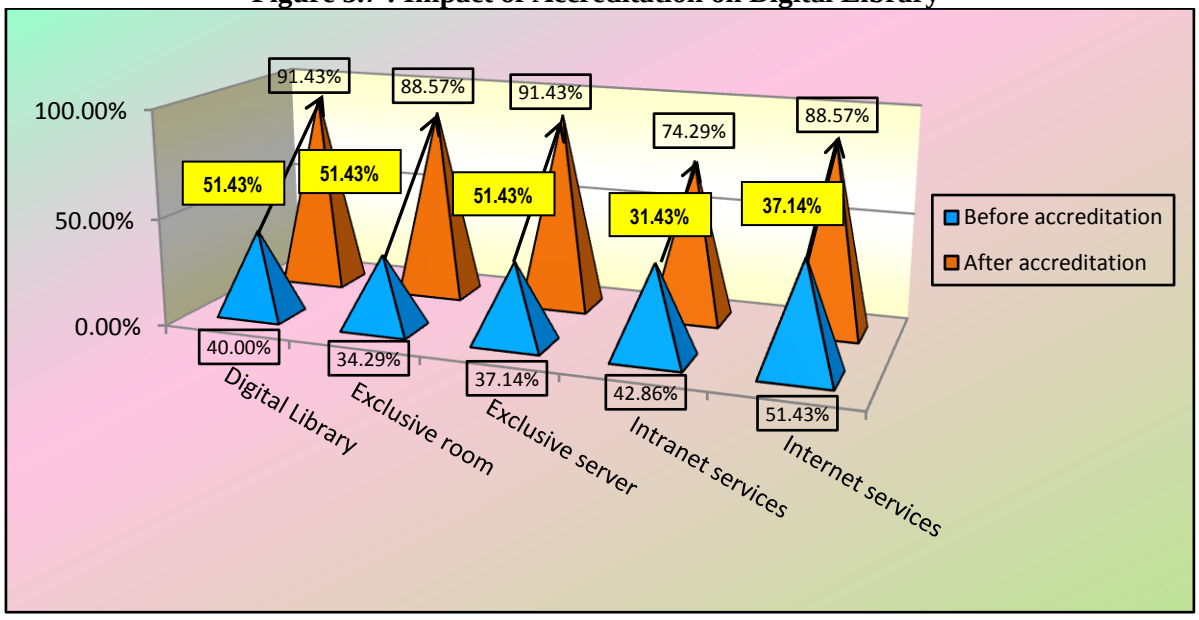
According to the norms of the AICTE and the criteria of the NBA, the presence of a fullfledged Digital Library with multimedia facility is essential for engineering college libraries. Respondents were asked whether they had set up a Digital library. They were also asked various questions like availability of exclusive room for Digital Library, availability of exclusive server for Digital Library and availability of library services on Intranetand Internet.The analysis is mentioned below.

**Table 5.10: Impact of Accreditation on Digital Library**

| Sr. No. | Digital Library Infrastructure | No of colleges before accreditation | No of colleges after accreditation | Increase in colleges |
|---|---|---|---|---|
| 1 | Presence of Digital Library | 14<br>40.00% | 32<br>91.43% | 18<br>51.43% |
| 2 | Exclusive room for Digital Library | 12<br>34.29% | 30<br>85.71% | 18<br>51.43% |
| 3 | Exclusive server for Digital Library | 13<br>37.14% | 31<br>88.57% | 18<br>51.43% |
| 4 | Availability of Library services on Intranet | 15<br>42.86% | 26<br>74.29% | 11<br>31.43% |
| 5 | Availability of library services through Internet | 18<br>51.43% | 31<br>88.57% | 13<br>37.14% |

The same can be depicted as follows –

**Figure 5.7 : Impact of Accreditation on Digital Library**




### 5.30.1Availability of Digital Library

Respondents were asked about the presence of a Digital library on their premises. It was seen that before Accreditation only 14 engineering college libraries in Mumbai (40.00%) had a Digital library while after the process of Accreditation it was noted that 32 colleges (91.43%) had a Digital library.

### 5.30.2Availability of exclusive Room for Digital Library

A separate room – but connected to the Library, provides exclusive area for users to access online resources and also seek assistance of library staff, if necessary. This can be set up to contain all the infrastructure and ICT technologies necessary to function as a Digital Library. Respondents were asked whether their Digital Library was housed in an exclusive room. It was noted that before Accreditation only 12 colleges (34.29%) had an exclusive room for Digital library while after Accreditation 30 colleges (85.71%) showed the presence of an exclusive room for Digital library.

### 5.30.3Availability of exclusive Server for Digital Library

An exclusive server for the Digital Library has its own advantages in providing Web OPAC, downloads of Open Access resources and complete e-books, Institutional Repository and can also be used as a CD server. Respondents were asked whether they had a separate server for the Digital Library. In answer to this query, it was seen that before Accreditation only 13 colleges (37.14%) had an exclusive server for the digital library but after accreditation 31 libraries (88.57%) affirmed the availability of an exclusive server for the digital library.

### 5.30.4Availability of library services on Intranet

ICT tools and technologies can be put to maximum use in satisfying users' information needs. Certain library products and services, like paid subscriptions to e-resources, Moodle server, Institutional Repository etc. can be provided to students and faculty through the Intranet. The respondents were asked whether facilities and services in their engineering library were made available to users through the Intranet. The analysis of data showed that before Accreditation only 15 college libraries (42.86%) made use of the Intranet to provide Digital library services. However it was seen that after Accreditation this number increased to 26 colleges (74.29%)

### 5.30.5Availability of library services through Internet

The Internet is a very powerful ICT tool which allows the flow of information to it and through it. It allows users to access the library products and services 24/7. Respondents were asked if their library services were available to their students and faculty through the

Internet. The analysis of the answers provided by them depicts that before Accreditation 18 colleges (51.43%) used the Internet to provide digital library services while after accreditation 31 colleges (88.57%) made digital library services available to their users through the internet.

## 5.31 Impact of Accreditation on Library Advisory Committee

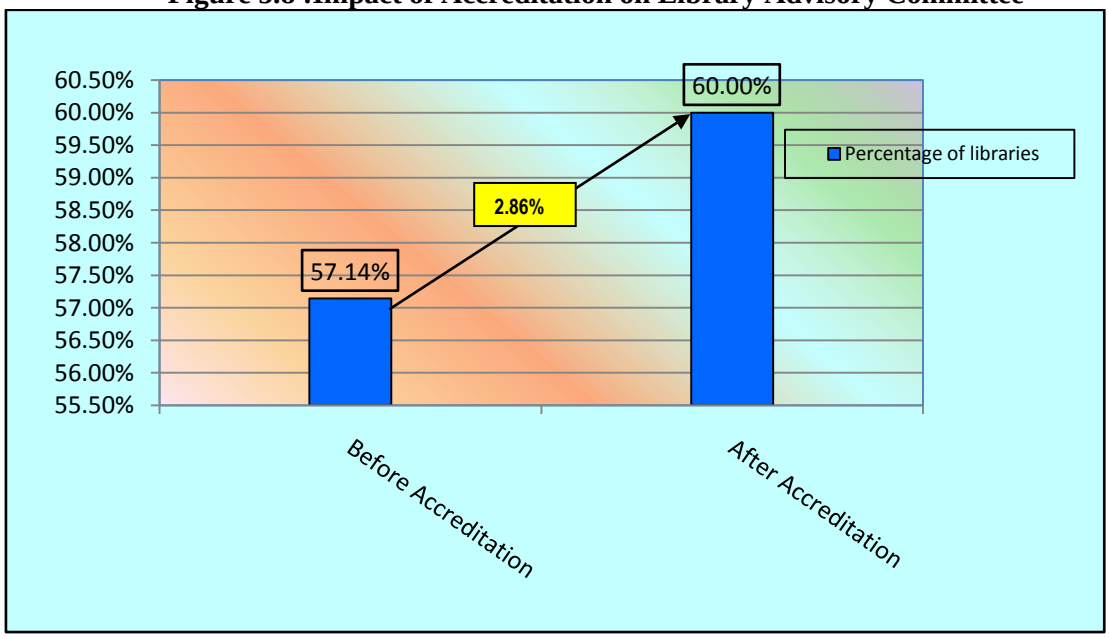
The purpose of the Library Committee is to act as a channel of communication and dialogue between the Management, the library and its users and to give collective advice and views on matters connected with the development of the library. Respondents were asked about the existence of a library committee.

**Table 5.11 : Impact of Accreditation on Library Advisory Committee**

| Sr. No. | Particulars | No of colleges before accreditation | No of colleges after accreditation | Increase in number of colleges |
|---|---|---|---|---|
| 1 | Presence of Library Advisory committee | 20<br>57.14% | 21<br>60.00% | 1<br>2.86% |

The same can be depicted as follows -

**Figure 5.8 :Impact of Accreditation on Library Advisory Committee**




The researcher tried to analyse the impact of Accreditation on the presence of the Library Advisory Committee. It was found that before Accreditation the number of colleges which showed the presence of library advisory committee was 20 colleges (57.14%) However after accreditation this number increased to 21 colleges (60.00%) Thus only one engineering college library (2.16%) formed a Library Advisory Committee because of the Accreditation process.

## 5.32Impact of Accreditation on Human Resources in the library

The human resources in the engineering college library is one of the most important links in the transfer of information from information producer to information user. Every engineering college library has a number of skilled, semi-skilled and non-skilled staff who assists in the smooth functioning of the library.

With regard to the AICTE norms for library staff in engineering institutions, the AICTE approval process handbook (in print form) of 2007 has specified the following staffing pattern for libraries attached to engineering institutions with an annual intake of 300 students. (pg. 332)

**Table 5.12 :AICTE Staffing pattern for engineering college library**

| Sr. No | Post | Number |
|---|---|---|
| 1 | Librarian | One – Full time |
| 2 | Assistant Librarian | Two |
| 3 | Library Assistants | Four |
| 4 | Library Attendants | Two |

However in recent times, private engineering colleges,being unaided,follow a staffing pattern commensurate with the number of users and the needs of the library.Although this is adequate to cater to the information requirements of the users in most colleges, it is sometimes observed that the librarian has only one additional assistant or peon. It is then the onus of the librarian to satisfy the information needs of the users through the current staff strength.

Some basic questions were directed towards obtaining general information about the Librarian such as name, designation, experience, email id and contact number. This information helped to preserve personal data for further clarification regarding the answers provided in the questionnaire and also to maintain better contact for further inter-action and co-operation.

The queries were focused on obtaining information about the number of staff in the individual library. With regard to the responses received from librarians of engineering colleges, the following analysis was seen.

- 2 colleges did not have a Librarian but only Assistant librarians.
- Other than that, all the remaining 33 colleges had librarians
- 11 colleges did not have any Assistant librarian.
- 24 colleges did not have library assistants
- The maximum number of library staff that any library had was 14 which was seen in two colleges
- The minimum number of staff was 2 seen in two colleges

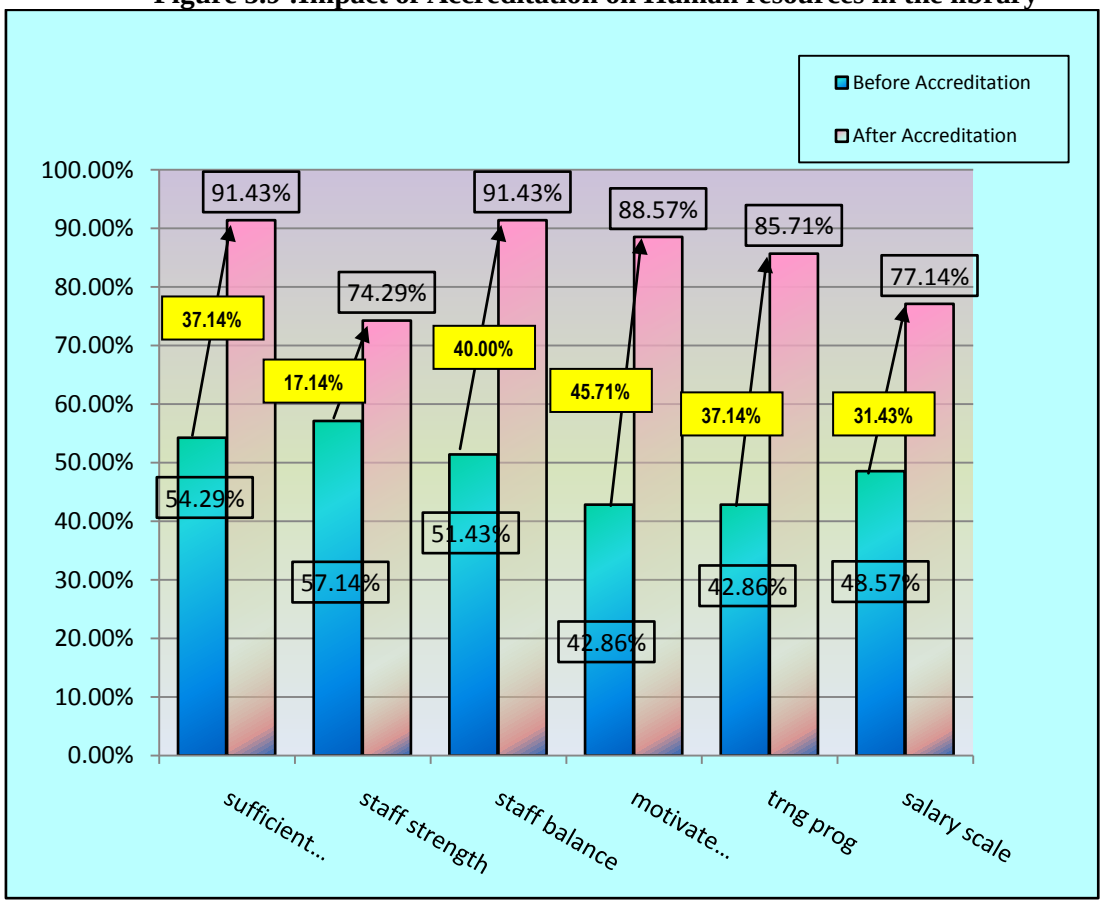
The researcher has also tried to analyse the impact of Accreditation on various aspects of human resources in the library like adequate staff, balancing skilled and non skilled staff and motivation and training of library staff. The following is the analysis of data.

**Table 5.13 :Impact of Accreditation on Human Resources in the library**

| Sr. No. | Queries regarding Library staff | No of colleges before accreditation | No of colleges after accreditation | Increase in number of colleges |
|---|---|---|---|---|
| 1 | Sufficient staff | 19<br>54.29% | 32<br>91.43% | 13<br>37.14% |
| 2 | Satisfy users through current staff strength | 20<br>57.14% | 26<br>74.29% | 6<br>17.14% |
| 3 | Strike a balance between different staff | 18<br>51.43% | 32<br>91.43% | 14<br>40.00% |
| 4 | Motivate staff to use talent and skills | 15<br>42.86% | 31<br>88.57% | 16<br>45.71% |
| 5 | Encourage staff to attend training programmes | 17<br>42.86% | 30<br>85.71% | 13<br>37.14% |
| 6 | Secure for staff proper salary scales | 16<br>48.57% | 27<br>77.14% | 11<br>31.43% |

The same can be depicted as follows –

**Figure 5.9 :Impact of Accreditation on Human resources in the library**




### 5.32.1 Sufficient staff as per AICTE norms

Respondents were asked about the sufficiency of library staff as a result of Accreditation. It was noted that before Accreditation only 19 engineering college libraries in Mumbai (54.29%) had sufficient staff as per AICTE norms while after the process of Accreditation it was noted that 32 colleges (91.43%) had managed to procure sufficient staff to handle the information requirements of their users.

### 5.32.2 Satisfy the information needs of the users through the current staff strength

This is one of the biggest challenges in private engineering institutions. With regard to this it was seen that before Accreditation 20 libraries (57.14%) were able to satisfy the information needs of their users through the current staff strength while after Accreditation this number increased to 26 libraries (74.29%)

### 5.32.3 Strike a balance between professional, qualified, semi-skilled and non-skilled staff

The responsibility of providing the right job to the right person lies with the head of the library. In this matter it was noted that before Accreditation 18 librarians (51.43%) were able to strike a balance between professional, qualified, semi-skilled and non skilled staff while after Accreditation it was 32 libraries (91.43%) which were able to do so.

### 5.32.4 Motivate the staff to utilise their talents and skills for the betterment of the library

The driving force to perform better is related to a number of stimuli; motivation being one of them. Here it was seen that before Accreditation 15 libraries (42.86%) were able to motivate their staff to utilise their talents and skills for the betterment of the library. However after the process of Accreditation it was seen that 31 librarians (88.57%) were able to do so.

### 5.32.5 Encourage the staff to attend training programmes and upgrade their skills

Changing times and ever changing technologies call for continuous training to learn and master the same in order to improve efficiency of services. In this regard it was seen that before Accreditation 17 libraries (42.86%) were able to encourage their staff to attend training programmes and upgrade their skills but after Accreditation it was seen that 30 libraries (85.71%) were successful in doing so.

### 5.32.6 Secure for the staff, salary scales commensurate with qualifications and experience

The financial aspect is one of the most important factors in procuring and retaining the best library staff. With relation to this, before Accreditation 16 libraries (48.57%) were able to secure for their staff , salary scales commensurate with qualifications and experience while after accreditation 27 colleges (77.14%) were able to do so.

### 5.32.7 Increase in library staff as a result of Accreditation

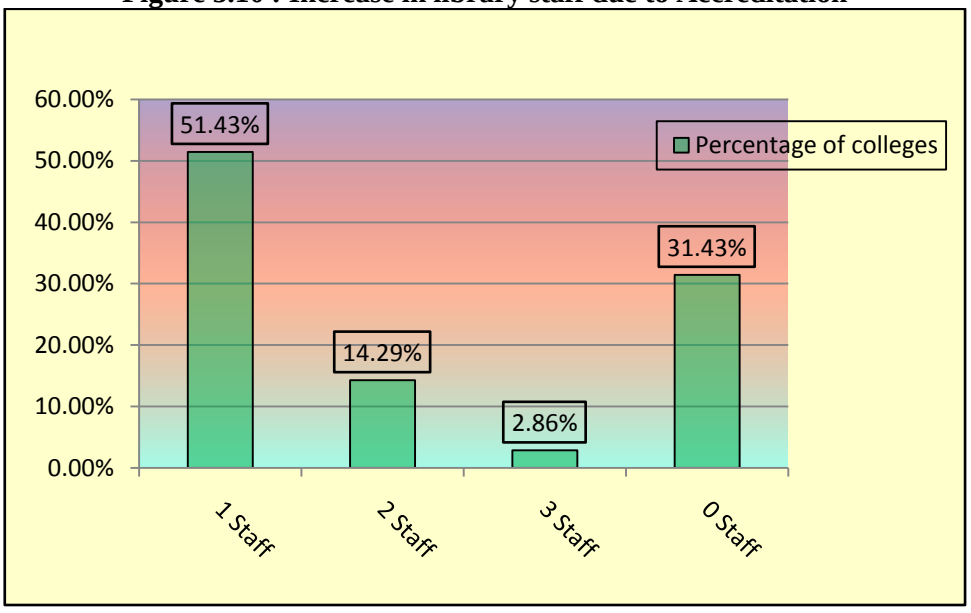
The researcher has tried to find out the increase in library staff as a result of the Accreditation process and the following result was observed.

**Table 5.14 :Increase in library staff due to Accreditation**

| Sr No | Increase in library staff due to Accreditation | No of colleges | Percentage of colleges |
|---|---|---|---|
| 1 | 1 staff | 18 | 51.43% |
| 2 | 2 staff | 5 | 14.29% |
| 3 | 3 staff | 1 | 2.86% |
| 4 | 0 staff | 11 | 31.43% |
| | TOTAL | 35 | 100.00% |

The same can be depicted as follows -

**Figure 5.10 : Increase in library staff due to Accreditation**




The analysis of data showed that due to the process of Accreditation there was a consequent increase in the number of library staff. 18 colleges (51.43%) stated that there was an increase of one staff, 5 colleges (14.29%) said that there was an increase of two staff, one college (2.86%) said that there was an increase of 3 staff while 11 colleges (31.43%) stated that there was no increase in staff as a result of accreditation.

## 5.33 Impact of Accreditation on Library Collection Development

The concept of building the library collection, through careful planning and allocation of resources is called Collection development. This process covers several activities. An assessment of the resources and services of the engineering college library, to see if they meet predetermined norms and standards of the AICTE is carried out by the National Board of Accreditation. A number of criteria of the NBA Self-assessment Report focuses on development of the library collection - both print as well as non-print. Hence it is imperative to find out the impact of Accreditation in this area.

The AICTE has laid down certain norms and standards with regard to books, journals and other library facilities to be adhered to, at the start of the new engineering Institution. It has also specified certain parameters and incremental factors to calculate the yearly addition in the number and type of information resources with each passing year. The following are the rules to be followed by engineering libraries which come under the purview of the A.I.C.T.E.

**Table 5.15: Norms and standards of AICTE with regard to collection development**

| Sr No | Item | Requirement |
|---|---|---|
| 1 | Number of Titles<br>Yearly addition | 100 titles<br>50 titles per course |
| 2 | Number of Volumes<br>Yearly addition | 500 volumes per course<br>250 volumes per course division |
| 3 | National journals | 6 journals × course division |
| 4 | International journals | Desirable |
| 5 | e-books | 25% of total number of titles and volumes each can be in the form of e-books. |
| 6 | Subscription to e-resources | According to Appendix 10 of AICTE approval process handbook |

Respondents were asked about various details of their library collection. They were also queried about whether the process of Accreditation had an impact on various facilities in their library.With the help of the data received from the engineering librarians, the

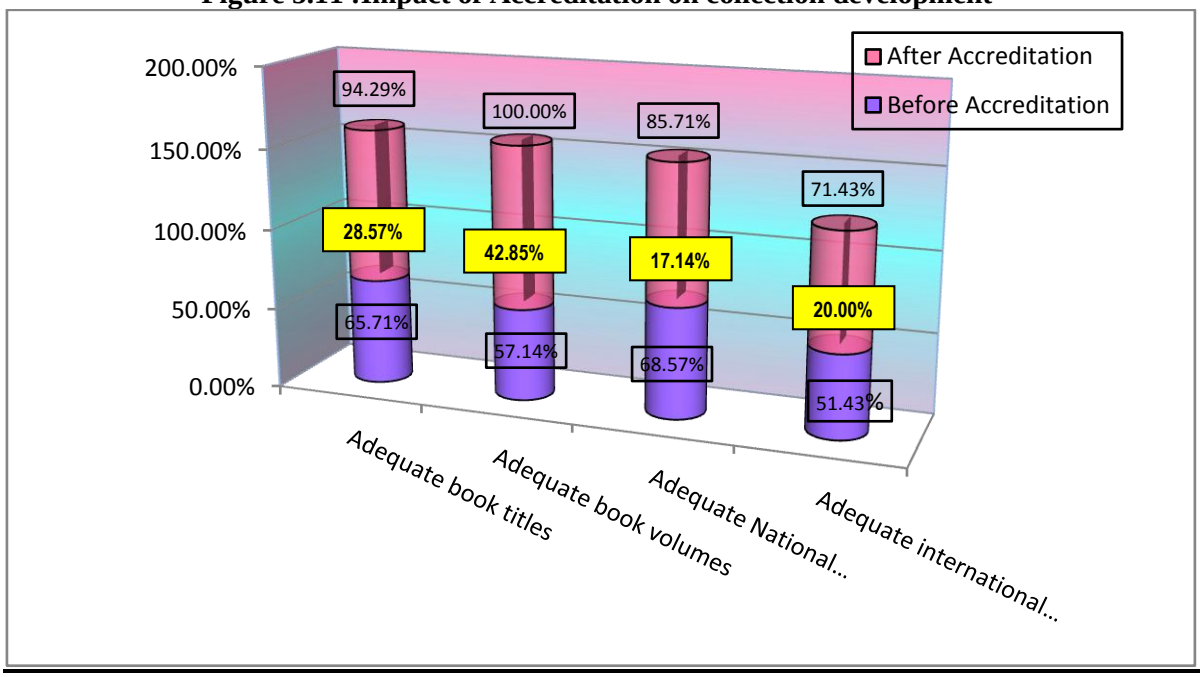
researcher has tried to analyse whether the book and periodicals collection is sufficient for the user community and satisfies their information needs. The following is the analysis of the data received.

**Table 5.16: Impact of Accreditation on collection development**

| Sr. No | Collection | No. of colleges satisfying AICTE norms before Accreditation | No. of colleges satisfying AICTE norms after Accreditation | Increase in number of colleges |
|---|---|---|---|---|
| 1 | Adequate book titles | 23<br>65.71% | 33<br>94.29% | 10<br>28.57% |
| 2 | Adequate book volumes | 20<br>57.14% | 35<br>97.14% | 15<br>42.85% |
| 3 | AdequateNational journals | 24<br>68.57% | 30<br>85.71% | 6<br>17.14% |
| 4 | AdequateInternational journals | 18<br>51.43% | 25<br>71.43% | 7<br>20.00% |

The same can be graphically represented as follows –

**Figure 5.11 :Impact of Accreditation on collection development**




### 5.33.1Adequate titles for the library

Engineering students depend mainly on the library to fulfil their information needs through text books and reference books. It was noted that before Accreditation only 23 engineering college libraries in Mumbai (65.71%) had sufficient book titles as per AICTE norms while after the process of Accreditation it was noted that 33 colleges (94.29%) had managed to procure sufficient titles so as to satisfy the information requirements of their users.

### 5.33.2Adequatebook volumes for the library

It was seen that before Accreditation, only 20 colleges (57.14%) had sufficient volumes of books but after Accreditation it was seen that all 35 colleges (100.00%) had managed to acquire sufficient volumes of books for their library.

### 5.33.3Adequate number of national journals for the library

Periodicals contain a wealth of current information. The analysis of data showed that before Accreditation, 24 libraries (68.57%) had adequate number of national journals as per the norms of the AICTE. However after Accreditation, 30 libraries (85.71%) libraries had sufficient number of national journals.

### 5.33.4Adequate number of international journals for the library

It was seen that before Accreditation, 18 libraries (51.43%) had sufficient number of international journals. However after Accreditation it was seen that 25 libraries (71.43%) had sufficient number of international journals.

### 5.33.5Impact of Accreditation on e-resources

According to the AICTE, the following are the mandatory norms for subscription to e-resources with respect to engineering institutions.

**Table 5.17 : Requirement of e-resources according to AICTE**

| **Appendix 10** | | |
|---|---|---|
| Mandatory Subscription of e-Journal Packages for all Engineering Institutions conducting Undergraduate / Postgraduate Courses | | |
| **Sr. No** | **Publisher** | **Subject areas** |
| 1 | IEEE | Computer Engineering + Computer Science + Electrical and Electronics Engineering + Telecommunications and related disciplines |
| 2 | Springer | Electrical and Electronics and Computer Science Engineering OR |
| 3 | Wiley-Blackwell | Computer Science + Data System+ Telecommunication and related discipline |
| 4 | ASME/Springer/Wiley Blackwell | Mechanical Engineering |
| 5 | ASCE/Wiley Blackwell | Civil Engineering |
| 6 | McGraw-Hill | General Engineering & Reference Access Engineering Library |
| 7 | J-Gate | J-Gate Engineering and Technology (Gateway) |
| 8 | ELSEVIER | Engineering + Computer Science |
| 9 | ASTM Digital Library | Online Dictionary of Engineering Science & Technology |

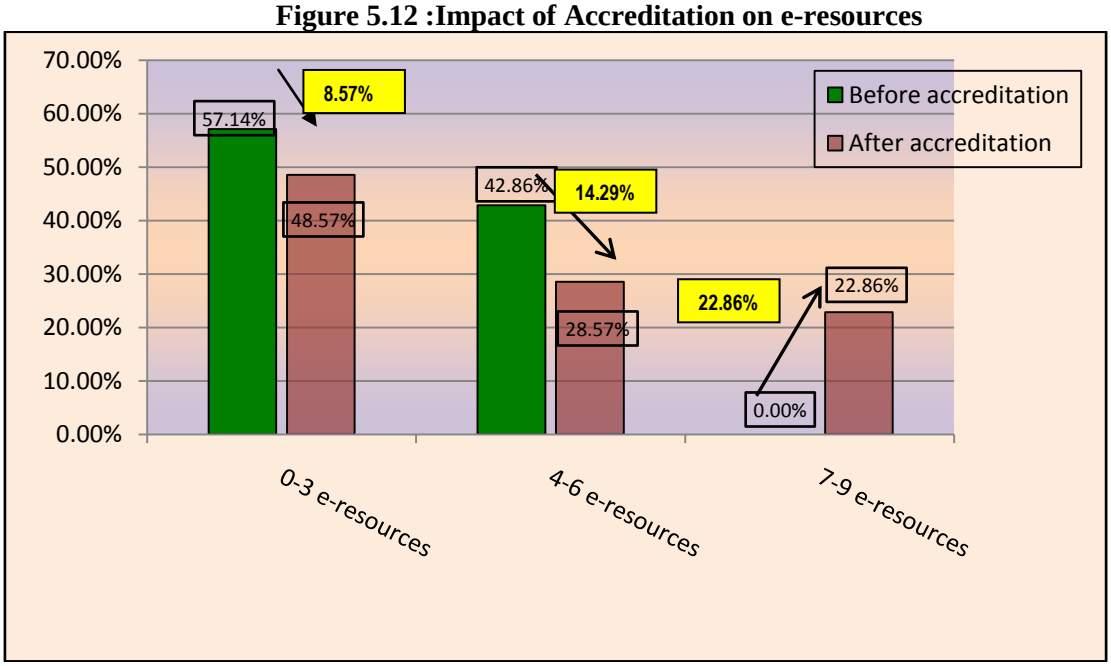
All engineering institutions are expected to follow the above norms with regard to e-resources. With regard to this, the engineering college librarians were asked about the number of e-resources that they subscribed to from the above table. The researcher has tried to find the impact of Accreditation on e-resources subscribed. The analysis of the data obtained through the survey revealed the following-

**Table 5.18 :Impact of Accreditation on subscription of e-resources**

| Sr. No | Number of e-resources | No of colleges subscribing to e-resources before accreditation | No of colleges subscribing to e-resources after accreditation | Increase/ Decrease in number of colleges |
|---|---|---|---|---|
| 1 | 0-3 e- resources | 20 57.14% | 17 48.57% | 3 8.57% |
| 2 | 4-6 e- resources | 15 42.86% | 10 28.57% | 5 14.29% |
| 3 | 7-9 e-resources | 0 0.00% | 8 22.86% | 8 22.86% |

The same can be depicted as follows –

**Figure 5.12 :Impact of Accreditation on e-resources**



It was seen that before Accreditation, 20 colleges (57.14%) subscribed to 0-3 e-resources, 15 colleges (42.86%) colleges subscribed to 4-6 e-resources while 0 colleges (0.00%) subscribed to 7-9 e-resources.However after Accreditation, it was noted that 17 colleges (48.57%) subscribed to 0-3 e-resources, 10 colleges (28.57%) subscribed to 4-6 e-resources while 8 colleges (22.86%) subscribed to 7-9 e-resources.

However many librarians confessed that they were unable to comply with the norms for various reasons – the main one being financial constraints, another being justification of use while another was insufficiency of use for under graduate programmes.
Further interview and discussions revealed that these low figures were often due to high costs of subscription, minimal usage, sometimes non-English and often irrelevancy of information with regard to undergraduate programmes in Engineering. Also some librarians felt that these e-resources did not have much to offer for users undertaking degree programmes in Computer related Engineering courses. Most librarians were unified in stating that they should be allowed to select journals based on relevancy and use rather than be forced to accept the given bundle of journals from the e-publisher.

### 5.34 Impact of Accreditation on Library Services

The accomplishment of the engineering college library can be identified through its services and products resulting in the satisfaction of the user community. The engineering college library provides a wide range of library products to its users based on its print and electronic collection and its services through its human and machine resources.

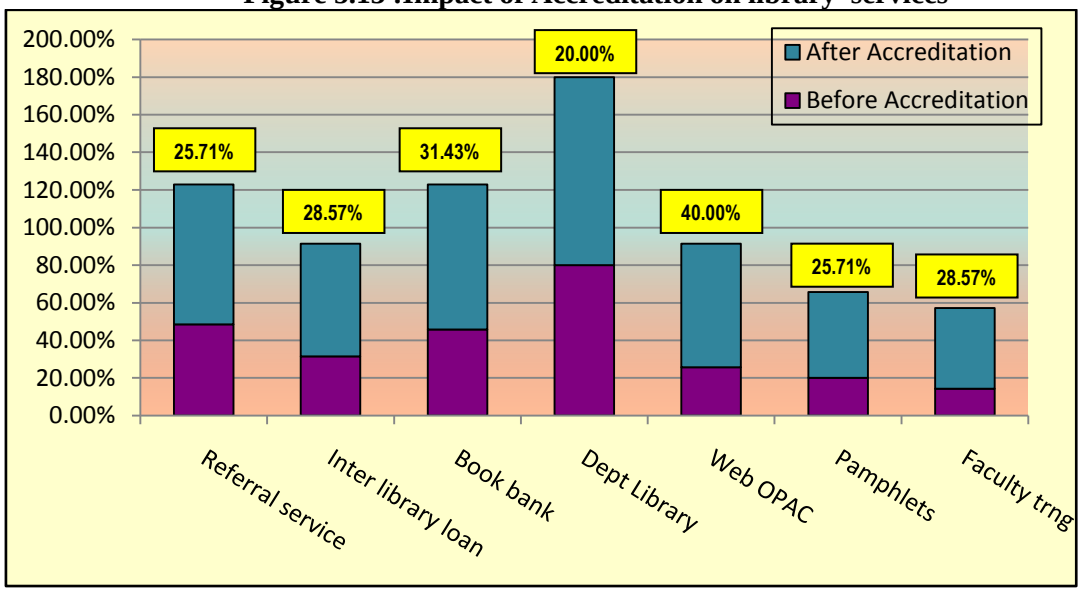
Engineering college librarians were asked a range of questions as to whether they were providing various library services like Referral service, Inter-library loan, Book bank, whether their Institute had Departmental libraries , presence of Web OPAC, pamphlets, guides and hand-outs for library orientation and whether they provided specialized training for faculty.Their answers have been depicted below with detailed information.

**Table 5.19 :Impact of Accreditation on library services**

| Sr. No. | Library services | No of colleges before Accreditation | No.of colleges after Accreditation | Increase in number of colleges |
|---|---|---|---|---|
| 1 | Referral service | 17<br>48.57% | 26<br>74.29% | 9<br>25.71% |
| 2 | Inter library loan | 11<br>31.43% | 21<br>60.00% | 10<br>28.57% |
| 3 | Book bank scheme | 16<br>45.71% | 27<br>77.14% | 11<br>31.43% |
| 4 | Departmental Libraries | 28<br>80.00% | 35<br>100.00% | 7<br>20.00% |
| 5 | Web OPAC | 9<br>25.71% | 23<br>65.71% | 14<br>40.00% |
| 6 | Pamphlets, hand-outs and guides | 7<br>20.00% | 16<br>45.71% | 9<br>25.71% |
| 7 | Faculty training | 5<br>14.29% | 15<br>42.86% | 10<br>28.57% |

The same can be depicted in the graph below –

**Figure 5.13 :Impact of Accreditation on library services**




### 5.34.1Referral service to users

The advantage of a Referral service is that it directs users to obtain information from a person or place outside the library. The analysis of data showed that before Accreditation 17 colleges (48.57%) provided Referral service to their users while after accreditation this number rose to 26 colleges (74.29%).

### 5.34.2Inter-library loan service to users

Inter library loan facility allows users to procure books from other libraries. It was seen that before Accreditation 11 colleges (31.43%) provided Inter library loan facility to their students and staff. However after Accreditation it was seen that 21 engineering libraries (60.00%) now provided Inter library loan facility.

### 5.34.3Book bank facility to students

Book bank facility helps needy students to acquire and retain required books for a longer period of time. It was noted that before Accreditation 16 libraries (45.71%) extended book bank facility to their students. But after Accreditation 27 libraries (77.14%) provided books to their users under the Book bank scheme.

### 5.34.4To create Departmental libraries for faculty use

It was seen that before Accreditation 28 libraries (80.00%) had created Departmental libraries. But after Accreditation all 35 libraries (100.00%) had set up Departmental libraries for faculty use.

### 5.34.5WebOPAC for information dissemination

The Web OPAC is the result of an automated Library Management system and assists the user in getting information about library resources 24/7. The collected data showed that before Accreditationonly 9 libraries (25.71%) had created a WebOPAC while after Accreditation it was seen that 23 libraries (65.71%) provided information to their users through the WebOPAC.

### 5.34.6Pamphlets, handouts and guides for library orientation

It was noted that before Accreditation only 7 libraries (20.00%) provided pamphlets, handouts and guides to users during library orientation in order to help them to use the library resources effectively. However it was seen that after accreditation 16 libraries (45.71%) provided pamphlets to their users.

### 5.34.7To provide training for faculty on library use

It was seen that before Accreditation only 5 libraries (14.29%) undertook training for faculty in the use of library resources. But after Accreditation it was noted that 15 libraries (42.86%) provided training for their faculty.

## 5.35Impact of Accreditation on Value added Services in the Library

Respondents were asked whether they provided any other value added services to their patrons besides the basic services that every library provides. Such services included Library Web page, use of RFID technology, specialized services like CAS and SDI, Bibliographies, information about Open access resources, Institutional Repositories etc.

Respondents were also asked whether they provided additional value added services like assistance to the Training and Placement Cell, assistance to students with regard to job opportunities and placements, presence of a Book Club, Marketing of library services, library publications and use of social media for dissemination of information. The existence

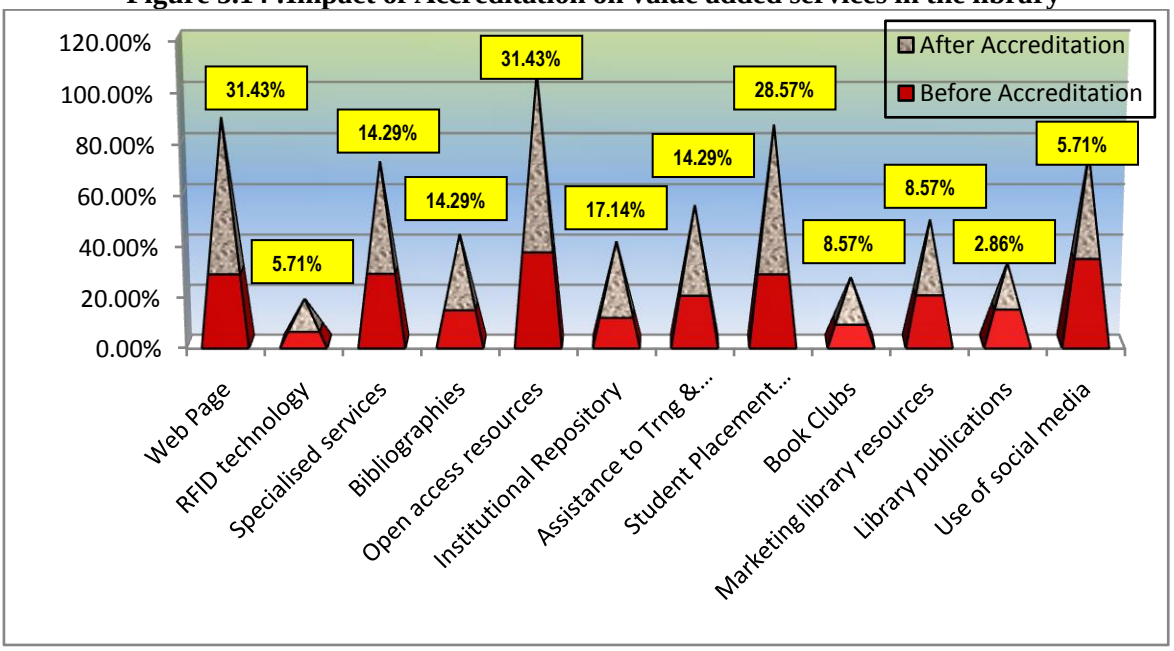
and extent of these services goes a long way in ensuring quality libraries in engineering colleges. The answers provided by the engineering college librarians has been shown below.

**Table 5.20 :Impact of Accreditation on value added services in the library**

| Sr. No. | Value added services | No. of colleges before Accreditation | No. of colleges after Accreditation | Increase in no. of colleges |
|---|---|---|---|---|
| 1 | Library Web Page | 10<br>28.57% | 21<br>60.00% | 11<br>31.43% |
| 2 | Use of RFID technology | 2<br>5.71% | 4<br>11.43% | 2<br>5.71% |
| 3 | Specialised services like CAS, SDI and Abstracting and Indexing services | 10<br>28.57% | 15<br>42.86% | 5<br>14.29% |
| 4 | Preparation of Bibliographies | 5<br>14.29% | 10<br>28.57% | 5<br>14.29% |
| 5 | Information about Open access resources | 13<br>37.14% | 24<br>68.57% | 11<br>31.43% |
| 6 | Institutional Repository | 4<br>11.43% | 10<br>28.57% | 6<br>17.14% |
| 7 | Assistance to Training & Placement cell | 7<br>20.00% | 12<br>34.29% | 5<br>14.29% |
| 8 | Assistance to Students for campus interviews | 10<br>28.57% | 20<br>57.14% | 10<br>28.57% |
| 9 | Book Clubs, book reviews and talks by authors | 3<br>8.57% | 6<br>17.14% | 3<br>8.57% |
| 10 | Marketing library resources using ICT tools | 7<br>20.00% | 10<br>28.57% | 3<br>8.57% |
| 11 | Library publications | 5<br>14.29% | 6<br>17.14% | 1<br>2.86% |
| 12 | Use of social media for information dissemination | 12<br>34.29% | 14<br>40.00% | 2<br>5.71% |

The same can be depicted as follows –

**Figure 5.14 :Impact of Accreditation on value added services in the library**




### 5.35.1Information through the library web page

A library webpage helps users to understand and use library resources more effectively. The analysis of data showed that before Accreditation only 10 engineering college libraries (28.57%) provided information to their users through the library web page. However after Accreditation this number increased to 21 libraries (60.00%).

### 5.35.2RFID technology in the library

It was seen that before Accreditation only 2 libraries (5.71%) used Radio Frequency Identification (RFID) technology for better access and maintenance of the library collection. After Accreditation it was found that 4 libraries (11.43%) used RFID technology in their libraries.

### 5.35.3Specialised services like CAS, SDI and Abstracting and Indexing services

It was noted that before Accreditation10 colleges (28.57%) provided specialised services like Current Awareness Service, Selective Dissemination of Information and Abstracting and Indexing services while after accreditation this number increased to 15 colleges (42.86%).

### 5.35.4Bibliographies to library users

The data collected showed that before Accreditation the number of engineering college libraries which prepared and provided bibliographies to its patrons – in anticipation and on demand, were 5 libraries (14.29%). However after accreditation it was seen that this number increased to 10 libraries (28.57%).

### 5.35.5Information about Open Access resources

It was seen that before Accreditation 13 libraries (37.14%) provided information about Open access resources to their users. After accreditation it was seen that 24 libraries (68.57%) provided their users with information about Open access resources, where to find them and how to use them.

### 5.35.6Create and maintain an Institutional Repository

It was noted that before Accreditation4 libraries (11.43%) collected and disseminated the intellectual output of their organization through an Institutional Repository while after Accreditation it was seen that this number went up to 10 libraries (28.57%).

### 5.35.7Assistance to Training and Placement Cell

The analysis of data showed that before Accreditation 7 libraries (20.00%) provided assistance to the Training and Placement Cell through their resources and services. After Accreditation it was noted that 12 libraries (34.29%) provided such type of assistance.

### 5.35.8Assistance to students for campus interviews

It was observed that before Accreditation10 libraries (28.57%) provided assistance to students for campus interviews but after Accreditation this number doubled and became 20 libraries (57.14%).

### 5.35.9Book clubs, book reviews and talks by authors

It was noted that before Accreditationonly 3 libraries (8.57%) initiated book clubs, book reviews and talks by eminent authors. However after accreditation it was seen that 6 libraries (17.14%) were involved in the same.

### 5.35.10Market the library resources and services

It was perceived that before Accreditation 7 libraries (20.00%) marketed the library resources and services using various information communication tools. However after accreditation it was seen that this number rose to 10 libraries (28.57%).

### 5.35.11Disseminate information through library publications

The analysis of data showed that before the process of Accreditation only 5 colleges (14.29%) disseminated information through library publications. However even after accreditation only 6 libraries (17.14%) did so.

### 5.35.12 Information to users through social media

It was observed that before Accreditation 12 libraries (34.29%) propagated information to users through social media like RSS feeds, Blog, Facebook , Wiki, e-mail alerts and SMS alerts. However after accreditation this number rose to 14 libraries (40.00%)

From the above analysis the positive impact of Accreditation is seen on the following -

- On library infrastructure from Table No. 5.8, 5.9 and 5.10 and Figure No. 5.5, 5.6 and 5.7.
- On Human resources from Table No. 5.13and 5.14, and Figure No. 5.9 and 5.10.
- On Collection development from Table No. 5.16 and 5.18 and Figure No. 5.11 and 5.12.
- On Library services from Table No. 5.19and Figure No. 5.13.
- On value-added Library services from Table No. 5.20 and Figure No. 5.14.

Hence Hypothesis II that **the process of Accreditation has had a positive impact on engineering college libraries**is accepted.

## 5.36Librarian's views on preparation for NBA Accreditation

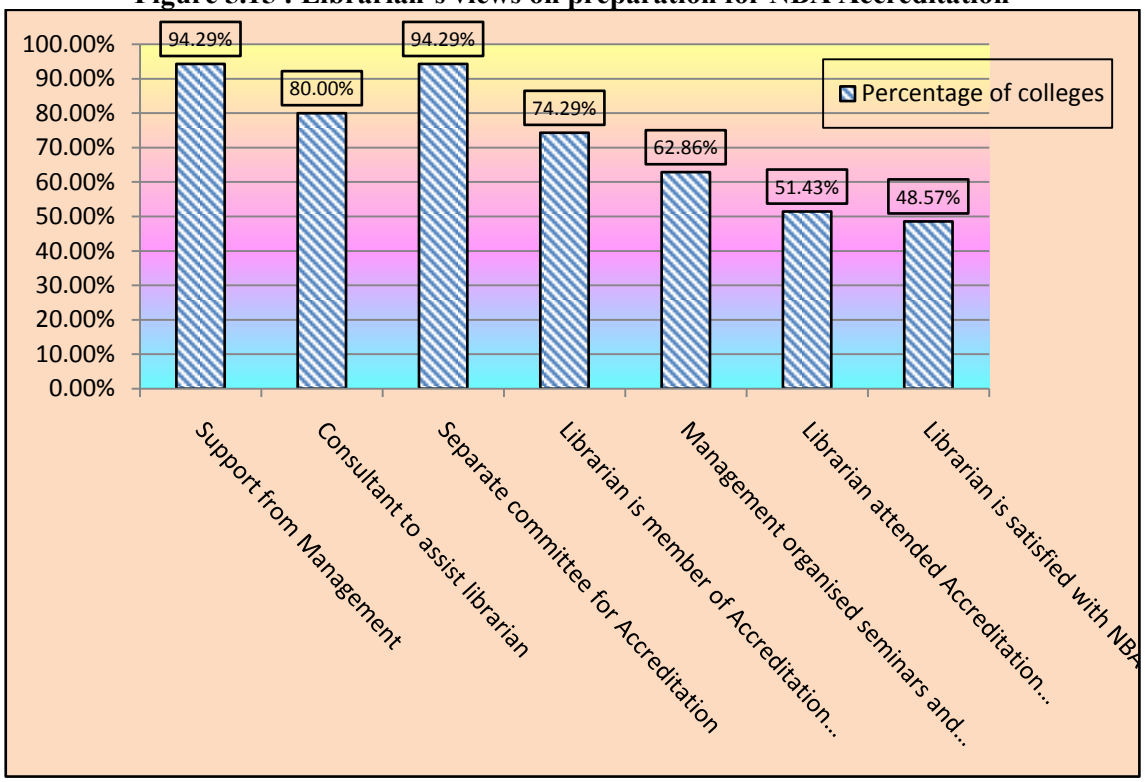
The final questions of the survey were directed towards obtaining crucial information with regard to the librarian's views on the process of Accreditation in general and the engineering college library in particular. The respondents had to complete a table containing the relevant Accreditation issues. The following is the combined analysis of data.

**Table 5.21 :Librarian's views on preparation for NBA Accreditation**

| Sr. No. | Particulars | Yes | No |
|---|---|---|---|
| 1 | Support from Management in preparation of Accreditation | 33<br>94.29% | 2<br>5.71% |
| 2 | Consultant to assist librarian in the process of Accreditation | 28<br>80.00% | 7<br>20.00% |
| 3 | Separate committee in preparation of Accreditation | 33<br>94.29% | 2<br>5.71% |
| 4 | Librarian is a member of the committee formed in preparation of Accreditation | 26<br>74.29% | 9<br>25.71% |
| 5 | Management organised seminars and workshops in preparation of Accreditation | 22<br>62.86% | 13<br>37.14% |
| 6 | Librarian attended programmes organised in preparation of Accreditation | 18<br>51.43% | 17<br>48.57% |
| 7 | Librarian is satisfied with the weightage given by the NBA in the Accreditation process | 17<br>48.57% | 18<br>51.43% |

The same can be depicted as follows –

**Figure 5.15 : Librarian's views on preparation for NBA Accreditation**




### 5.36.1 Support from management in preparation of the process of Accreditation

The assessment for favourable results of Accreditation is undertaken for individual programmes of the Engineering institution and demands complete support from management. The library is an essential and assessable component of every programme and hence is entitled to the same support and backing. Respondents were asked about the support from management in the context of Accreditation. With regard to this query, a majority of 33 librarians (94.29%) stated that they had received support from their management in the context of Accreditation. Only 2 librarians (5.71%) replied 'No'.

### 5.36.2 Consultant to assist the librarian in the process of Accreditation

The advice from experts in the field helps to understand the finer nuances of the process and its various implications. This assists us in proper and systematic planning for the Accreditation process. In answer to the question about whether a consultant was hired to assist the librarian in the process of Accreditation, 28 engineering librarians (80.30%) answered 'Yes' while only 7 librarians (20.00%) said 'No'.

### 5.36.3Separate committee in preparation of Accreditation

Continuous meetings and systematic follow up with most stake holders of the educational process is necessary in preparation of Accreditation. In answer to the question about whether a separate committee was constituted in preparation of Accreditation, 52 librarians (78.79%) answered 'Yes' while only 3 respondents (4.55%) said 'No'.

### 5.36.4 Librarian is a member of the committee formed in preparation of Accreditation

The library is an important component of the Accreditation process, hence it can be reiterated that the librarian should be an important and obligatory member of the committee formed in preparation of Accreditation. Respondents were queried about the same.In this context, 26 librarians (74.29%) answered 'Yes' while 9 librarians (25.71%) said 'No'.

### 5.36.5Management organised seminars and workshops in preparation of Accreditation

The management often finds it necessary to organize seminars and workshops useful to the staff and the librarian with the aid of experts from the field. Respondents were asked whether this exercise was a part of their Accreditation process.In response to this question, 22 librarians (62.86%) answered 'Yes' while 13 librarians (37.14%) said 'No'.

### 5.36.6Librarian attended programmes organised in preparation of Accreditation

In the era of networking and interactions, the experience and expertise of one person, benefits many. Hence it is essential that the librarian attends programmes organised by Library Associations and other academic institutions so that they can get an idea of the task at hand. Respondents were asked if they had attended any such programmes.To this query, 18 librarians (51.43%) answered 'Yes' while 17 librarians (48.57%) said 'No'.

### 5.36.7Librarian is satisfied with the weightage given by the NBA in the Accreditation process

As a compass to academic patrons in a complex information environment, it is imperative that the library is judged in a satisfactory and comprehensive manner in the aspect of Accreditation. To the question as to whether the librarian was satisfied with the weightage given to the library in the Accreditation process, 17 engineering college librarians in Mumbai (48.57%) librarians answered 'Yes' while 18 librarians (51.43%) stated 'No'.

## 5.37 Librarian's views with regard to NBA emphasis on specific criteria for Accreditation

Respondents were asked whether they believed that the NBA should emphasize on certain specific criteria and procedures with respect to Accreditation. It is hoped that the views of the engineering librarians will prove to be an important mechanism for feedback of the NBA Accreditation process with respect to engineering college libraries. Librarians were queried about various aspects of library practices and their implications.

The respondents were asked whether they believed that specific criteria and practices like library orientation and follow up programs for faculty and students, emphasis on innovative measures, liaison with faculty and working with Training and Placement Cell should be stressed upon and should fetch them more points in the accreditation process.

The following is the combined analysis of data.

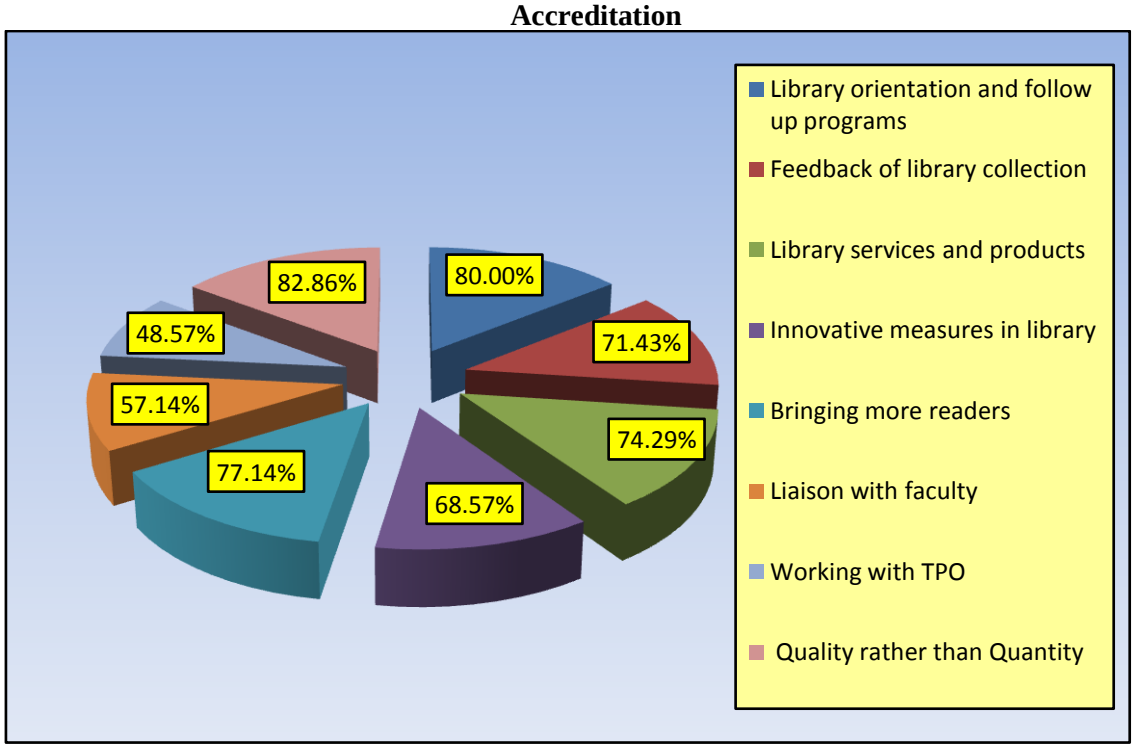
**Table 5.22 : Librarian's views with regard to NBA emphasis on specific criteria for Accreditation**

| Sr. No. | Particulars | Yes | No |
|---|---|---|---|
| 1 | Library orientation and follow up programs for faculty and students | 28<br>80.00% | 7<br>20.00% |
| 2 | Feedback with regard to library collection and its usage | 25<br>71.43% | 10<br>28.57% |
| 3 | Emphasis on Library services and products | 26<br>74.29% | 9<br>25.71% |
| 4 | Emphasis on Innovative measures in the library | 24<br>68.57% | 11<br>31.43% |
| 5 | Emphasis on bringing more readers into the library | 27<br>77.14% | 8<br>22.86% |
| 6 | Liaison with faculty to introduce modules enhancing library use | 20<br>57.14% | 15<br>42.86% |
| 7 | Working together with Training and Placement cell to support career | 17<br>48.57% | 18<br>51.43% |

| | | | |
|---|---|---|---|
| | opportunities | | |
| 8 | Doing an analysis of Quality rather than Quantity with regard to various parameters | 29<br>82.86% | 6<br>17.14% |

The same can be depicted as follows –

**Figure 5.16 : Librarian's views with regard to NBA emphasis on specific criteria for Accreditation**




### 5.37.1 Library orientation and follow up programs conducted for faculty and students

With library orientation for new comers proving to be a window to the information world, it is suggested that the NBA stress on the quality and type of training with a move towards 'Life-long learning.' Respondents were asked whether the NBA should lay more stress on library orientation and follow up programs conducted for faculty and students. It can be seen from the data collected that 28 engineering librarians (80.00%) answered 'Yes' while only 7 librarians (20.00%) said 'No'.

### 5.37.2 Feedback with regard to library collection and its usage

It is often seen that circulation statistics is just a small facet of the usage of the library collection. More in-depth information could prove to be a guiding light in the purchase of

books and their correct utilization. Librarians were asked about their views in the matter of the NBA laying more emphasis on feedback with regard to the library collection and its usage.Tn answer to this question, a majority of 25 librarians (71.43%) answered 'Yes' while 10 librarians (28.57%) said 'No'.

### 5.37.3 Emphasis on Library services and products

The backbone of any library is the services it provides and the products it creates, markets and delivers with an aim to provide the right information to the right user at the right time. In this connection, respondents were asked about the need for the emphasis of the NBA on various library services and products. To this query, a majority of 26 librarians (74.29%) answered 'Yes' while 9 librarians (25.71%) said 'No'.

### 5.37.4 Emphasis on Innovative measures in the library

The transition of library collections from print to digital and the transition of library users from physical to virtual has presented the librarian with new opportunities. The librarian is challenged to be proactive and go beyond the four walls of the library to innovate and devise new strategies and products for users. Respondents were asked whether they thought that innovation should be rewarded by the NBA with respect to Accreditation points. In answer to this question, 24 librarians (68.57%) answered 'Yes' while 11 librarians (31.43%) said 'No'.

### 5.37.5 Emphasis on bringing more readers into the library

All the resources of the library – staff, infrastructure, collection and specialised products are utilised to maximum capacity when they provide services to the users that they are designed for. In the age of the 'Googled Librarian' – information professionals are challenged to discover ways and means of bringing more readers into the library. As an extension to the earlier query, librarians were asked if the NBA should focus on this aspect as well. In this respect, 27 librarians (77.14%) answered 'Yes' while 8 librarians (22.86%) said 'No'.

### 5.37.6 Liaison with faculty to introduce modules enhancing library use

Various courses and topics of the engineering curriculum can be used to experiment different aspects of library orientation, products and feedback mechanisms; all in liaison

with the concerned faculty. Such innovation and interaction should find special mention in the Accreditation process. Respondents were asked about their views on liaison with faculty to introduce modules enhancing library use. In this respect 20 librarians (57.14%) answered 'Yes' while 15 librarians (42.86%) said 'No'.

### 5.37.7 Working together with Training and Placement cell to support career opportunities

A student with a good academic background and a successful career is the mark of a good educational institution. The feature of a good library lies in its ability to support students and their career goals. Users also need assistance with regard to GATE, GRE and GMAT exams. Respondents were asked whether they believed that the criteria of the NBA should lay emphasis on the aspect of working together with the Training and Placement Cell to support career opportunities. To this query, 17 librarians (48.57%) answered 'Yes' while 18 librarians (51.43%) said 'No'.

### 5.37.8 Doing an analysis of Quality rather than Quantity with regard to various parameters

One of the most crucial and pertinent questions related to the Accreditation process is the assessment of quality rather than quantity. Respondents were asked about their views on this concluding issue. To the final and most significant question highlighting the complete focus of the Accreditation process, a majority of 29 librarians (82.86%) answered 'Yes' while only 6 librarians (17.14%) said 'No'.

It can be observed from Table 5.22 and Figure 5.16. that engineering college librarians are of the view that the NBA should lay more emphasis on a number of different but important criteria and practices with regard to the process of Accreditation.

Hence **Hypothesis III that the NBA should lay more emphasis on specific criteria and practices of the engineering college library with respect to the process of Accreditation** is accepted**.**

# FINDINGS

This section interprets and discusses the findings of the analysis of data from the questionnaire as presented above. Visits to the engineering colleges and personal interviews with librarians of these colleges has also helped to throw more light on the findings. The interpretations of the research findings are in accordance with the specific objectives and theoretical frameworks discussed in Chapter One.

The information, which emerged from the literature review, also provided a source for comparison with the findings of this study. The purpose of this study was to explore the impact of accreditation on engineering college libraries in Mumbai.

## 5.41 Responses obtained to the questionnaire

The researcher has distributed the questionnaire to a total of 66 engineering college librarians and has received back the responses from 60 college librarians (90.91%).

## 5.42Accreditation Status

The above analysis shows that out 60 colleges which filled the questionnaire, 16 colleges (26.67%) were accredited, 3 colleges (5.00%) were re-accredited, 3 colleges (5.00%) had applied for Accreditation while 13 colleges (21.67%) were in the process of applying for Accreditation. Thus a total of 35 colleges (58.33%) have been through the process of Accreditation or are in the process of Accreditation.

Also 7 colleges (11.67%) have not applied for Accreditation and 18 colleges (30.00%) are not yet eligible to apply for the process of Accreditation as per the norms of the NBA since they were established later than year 2009.

## 5.43Organisational Information

1. There are a total of 66 engineering institutes affiliated to the University of Mumbai which conduct full time engineering programmes at the Under graduate, Post graduate and Doctoral level.
2. Only two institutions were aided namely VeermataJijabai Technical Institute (VJTI) and Sardar Patel Institute of Engineering (SPIT). They were eligible to receive grants from the Government to run the Institute.

3. Also two institutions i.e. VJTI and K.J. Somaiya College of Engineering (KJSCE) had been conferred with "Academic Autonomy" from the University of Mumbai.
4. All the other institutions were non-aided and run by private trusts.

## 5.44 Year of Establishment

1. It was found that 8 engineering colleges (22.86%) were set up before 1985; also 4 institutes (11.43%) were set up between years 1985 to 1990, 7 colleges (20.00%) were set up from 1991 to 1995, 7 colleges (20.00%) were established from 1996 to 2000; 8 colleges (22.86 %) were founded in the years between 2001 to 2005 while 2 institutions (5.71%) were set up from 2006 to 2010.
2. The study showed that 11 engineering colleges (16.67%) were set up before 1985, the maximum number of engineering colleges in Mumbai (13 colleges) were set up between the years 2006 to 2010.
3. The oldest engineering college in Mumbai is V.J.T.I and was established in 1887 while the most recently established colleges are Gharda Institute of Technology and ShivajiraoJondhale College of Engineering and Technology, Asangaon (both established in 2007)

## 5.45 Engineering College courses and Intake Capacity

- The total number of branches in Engineering in the various institutes within the scope is 16.
- The total intake capacity for all these branches of Engineering is 17,330.
- These include under-graduate, post graduate and doctoral programmes in the various branches of Engineering. Many institutes have only single intake. However some institutes also have double intake.
- The maximum intake capacity is 378 students
- The minimum intake capacity is 120 students.
- The maximum number of courses that any institute offered was 7.
- The minimum number of courses that any institute offered was 2.

### 5.46Impact of Accreditation on area of the library

It is revealed from the data collected that out of 35 colleges, after Accreditation the maximum number of colleges i.e. 31 colleges (88.57%) have a library area of more than 400 sq. metres, while 2 colleges (5.71%) have an area of exactly 400 sq. m and 2 colleges (5.71%) have less than the stipulated area according to the norms of the AICTE.

### 5.47 Impact of Accreditation on Library Opening hours

1. Library timing is one of the most important factor affecting service delivery.The analysis of collected data indicated thatthat 2 engineering college libraries (5.71%) were open on Sundays and holidays as a result of Accreditation.
2. Only 2 libraries (5.71%) showed an increase in Opening hours during week days as a result of Accreditation while the maximum number of colleges i.e. 31 colleges (88.58%) did not show any change in timings as a result of Accreditation.
3. It has also been observed that a majority of colleges in the rural areas kept their library reading rooms open for longer hours. This could be because most of these colleges had hostel facilities and the students could make the maximum use of the library which was indeed a good sign.

### 5. 48Impact of Accreditation on Library Infrastructure

1. It is often seen that Accreditation accelerates the sanction of additional area and infrastructure so as to comply with the AICTE norms. Before Accreditation only 25 respondents (71.43%) had sufficient area for library use. After 33 libraries (94.29%) had sufficient area for library use.
2. Before Accreditation only 28 respondents (80.00%) had sufficient furniture with relation to the number of users. After Accreditation 34 libraries (97.14%) had procured adequate furniture.
3. Before Accreditation only 12 libraries (34.29%) had sufficient computers. After Accreditation now 34 libraries (97.14%) had sufficient computers and ICT enabled tools for users.
4. Before Accreditation 30 respondents (85.71%) stated that they had separate areas for reference work in their library. After Accreditation it was seen that 31 librarians (88.57%) had created such enclosed areas.

5. Before Accreditation only 12 engineering libraries (34.29%) had Wi-Fi facility in the library. After Accreditation a majority of 28 librarians (80.00%) had made Wi-Fi facility available in the library.

## 5.49 Impact of Accreditation on library automation

1. The use of computers to simplify library procedures as well as provide effective services to users, forms the crux of academic Librarianship in the digital era. Before Accreditation, 7 engineering college libraries (20.00%) were fully automated, 23 libraries (65.71%) were partially automated while 5 libraries (14.29%) were not automated at all. After Accreditation 19 libraries (54.29%) were now fully automated, 16 libraries (45.71%) were partially automated and 0 libraries (0.00%) were not automated.

## 5.50 Impact of Accreditation on Digital Library

1. One of the requirements of the AICTE as well as the NBA is the setting up of a Digital Library. The study shows that before Accreditation only 14 engineering college libraries in Mumbai (40.00%) had a Digital library while after Accreditation a majority of 32 colleges (91.43%) had a Digital library.
2. Before Accreditation only 12 colleges (34.29%) had an exclusive room for Digital library. After Accreditation 30 colleges (85.71%) showed the presence of an exclusive room for Digital library.
3. Before Accreditation only 13 colleges (37.14%) had an exclusive server for the digital library. After accreditation 31 libraries (88.57%) affirmed the availability of an exclusive server for the digital library.
4. Before Accreditation only 15 college libraries (42.86%) made use of the Intranet to provide Digital library services. After Accreditation this number increased to 26 colleges (74.29%).
5. Before Accreditation 18 colleges (51.43%) used the Internet to provide digital library services. After accreditation 31 colleges (88.57%) made digital library services available to their users through the internet.

### 5.51 Impact of Accreditation on Library Advisory Committee

1. Before Accreditation the number of colleges which showed the presence of library advisory committee was 20 colleges (57.14%).After Accreditation this number increased to 21 colleges (60.00%)
2. Only one engineering college library (2.16%) formed a Library Advisory Committee because of the Accreditation process.

### 5.52 Impact of Accreditation on Human Resources in the library

1. The staff of an academic library have a very important role to play in satisfying the information needs of the faculty and staff. Qualified and motivated library personnel are an asset to any library. In this survey it was seen that 2 colleges did not have a Librarian but only Assistant librarians. Other than that, all the remaining 33 colleges had librarians.
2. Also 11 colleges did not have any Assistant librarian while 24 colleges did not have library assistants
3. The maximum number of library staff that any library had was 14 which was seen in two colleges while the minimum number of staff was 2 seen in two colleges
4. Before Accreditation only 19 libraries (54.29%) had sufficient staff as per AICTE norms.After Accreditation 32 colleges (91.43%) had managed to procure sufficient staff.
5. Before Accreditation 20 libraries (57.14%) were able to satisfy the information needs of their users through the current staff strength.After Accreditation this number increased to 26 libraries (74.29%)
6. Before Accreditation 18 librarians (51.43%) were able to strike a balance between professional, qualified, semi-skilled and non skilled staff in their library.After Accreditation 32 libraries (91.43%) were able to do so.
7. Before Accreditation 15 libraries (42.86%) were able to motivate their staff to utilise their talents and skills for the betterment of the library. After Accreditation 31 librarians (88.57%) were able to do so.
8. Sometimes the library staff may not be sufficient but through their dynamism and with the help of additional training they can provide optimum information services. Before Accreditation 17 libraries (42.86%) were able to encourage their staff to attend training

programmes and upgrade their skills.After Accreditation 30 libraries (85.71%) were successful in doing so.

9. Salary is one of the motivating factors for acquiring and retaining qualified personnel. Before Accreditation 16 libraries (48.57%) were able to secure for their staff, salary scales commensurate with qualifications and experience.After accreditation 27 colleges (77.14%) were able to do so.

### 5.53 Increase in library staff as a result of Accreditation

1. There was a consequent increase in the number of library staff due to the process ofAccreditation. 18 colleges (51.43%) stated that there was an increase of one staff, 5 colleges (4.29%) said that there was an increase of two staff, one college (2.86%) said that there was an increase of 3 staff while 11 colleges (31.43%) stated that there was no increase in staff as a result of Accreditation.

### 5.54Impact of Accreditation on Library Collection Development

1. The researcher focused on the development of the library collection as per the norms of the AICTE. It is seen that before Accreditation only 23 libraries (65.71%) had sufficient book titles as per AICTE norms.After Accreditation 33 colleges (94.29%) had managed to procure sufficient titles of books.
2. It is observed that before Accreditation, only 20 colleges (57.14%) had sufficient volumes of books.After Accreditation it was seen that all 35 colleges (100.00%) had managed to acquire sufficient volumes of books.
3. With regard to the periodical collection, before Accreditation, 24 libraries (68.57%) had adequate number of national journals as per the norms of the AICTE. After Accreditation, 30 libraries (85.71%) libraries had sufficient number of national journals.
4. Also before Accreditation, 18 libraries (51.43%) had sufficient number of international journals. After Accreditation 25 libraries (71.43%) had sufficient number of international journals.

### 5.55Impact of Accreditation on e-resources

1. Before Accreditation, 20 colleges (57.14%) subscribed to 0-3 e-resources, 15 colleges (42.86%) colleges subscribed to 4-6 e-resources while 0 colleges (0.00%) subscribed to

7-9 e-resources. After Accreditation, it was noted that 17 colleges (48.57%) subscribed to 0-3 e-resources, 10 colleges (28.57%) subscribed to 4-6 e-resources while 8 colleges (22.86%) subscribed to 7-9 e-resources.

2. Further analysis revealed that these low figures were often due to high costs of subscription, minimal usage, sometimes non-English and often irrelevancy of information with regard to undergraduate programmes in Engineering. Also some librarians felt that these e-resources did not have much to offer for users undertaking degree programmes in Computer related Engineering courses.
3. Librarians were unified in stating that they should be allowed to select journals based on relevancy and use rather than be forced to accept the given bundle of journals.

### 5.56 Impact of Accreditation on Library Services

1. It was seen that before Accreditation 17 colleges (48.57%) provided Referral service to their users.After accreditation this number rose to 26 colleges (74.29%).
2. The data showed that before Accreditation 11 colleges (31.43%) provided Inter library loan facility to their students and staff. After Accreditation it was seen that 21 libraries (60.00%) now provided Inter library loan facility.
3. It was observed that before Accreditation 16 libraries (45.71%) extended book bank facility to their students.After Accreditation 27 libraries (77.14%) provided books under the Book bank scheme.
4. Before Accreditation 28 libraries (80.00%) had created Departmental libraries. After Accreditation all 35 libraries (100.00%) had set up Departmental libraries for faculty use.
5. It was found that before Accreditationonly 9 libraries (25.71%) had created a WebOPAC. After Accreditation it was seen that 23 libraries (65.71%) provided information to their users through the WebOPAC.
6. Before Accreditation only 7 libraries (20.00%) provided pamphlets, handouts and guides to users during library orientation. After accreditation 16 libraries (45.71%) provided such material like pamphlets and handouts to their users.
7. A good sign was that while before Accreditation only 5 libraries (14.29%) undertook training for faculty in the use of library resources. After Accreditation 15 libraries (42.86%) provided training for their faculty.

## 5.57 Impact of Accreditation on Value added Services in the Library

1. A deciding factor in quality libraries is the additional services they provide that satisfies users and adds value.Before Accreditation only 10 libraries (28.57%) provided current information to their users through the library web page. After Accreditation this number increased to 21 libraries (60.00%).
2. Also before Accreditation only 2 libraries (5.71%) used Radio Frequency Identification (RFID) technology in their libraries. After Accreditation 4 libraries (11.43%) used RFID technology in their libraries.
3. It was seen that before Accreditation10 colleges (28.57%) provided specialised services like Current Awareness Service, Selective Dissemination of Information and Abstracting and Indexing services to their patrons.After accreditation this number increased to 15 colleges (42.86%).
4. Before Accreditation 5 libraries (14.29%). prepared and provided bibliographies for their users - in anticipation and on demand.After accreditation it was seen that this number increased to 10 libraries (28.57%).
5. A positive aspect is that before Accreditation 13 libraries (37.14%) provided information about Open access resources to their users. However after accreditation 24 libraries (68.57%) provided their users with information about Open access resources.
6. Setting up and maintaining an Institutional Repository to collect and disseminate the intellectual output of an organization speaks volumes about the quality of its information services.Before Accreditation4 libraries (11.43%) collected and disseminated the intellectual output of their organization through an Institutional Repository.After Accreditation it was seen that this number went up to 10 libraries (28.57%).
7. Before Accreditation 7 libraries (20.00%) provided assistance to the Training and Placement Cell through their resources and services. After Accreditation it was noted that 12 libraries (34.29%) provided such type of assistanceto support career opportunities.
8. Before Accreditation10 libraries (28.57%) provided assistance to students for campus interviews.After Accreditation this number increased to 20 libraries (57.14%).

9. Before Accreditationonly 3 libraries (8.57%) initiated book clubs, book reviews and talks by eminent authors. After accreditation 6 libraries (17.14%) were involved in the same.
10. Before Accreditation 7 libraries (20.00%) marketed the library resources and services using various information communication tools. After accreditation this number rose to 10 libraries (28.57%).
11. Before Accreditation only 5 colleges (14.29%) disseminated information through library publications. After Accreditation it was seen that 6 libraries (17.14%) did so.
12. Before Accreditation 12 libraries (34.29%) propagated information to users through social media like RSS feeds, Blog, Facebook , Wiki, e-mail alerts and SMS alerts. After Accreditation this number rose to 14 libraries (40.00%).

### 5.58Librarian's views on preparation for NBA Accreditation

1. Against the background of Accreditation and quality assurance,33 librarians (94.29%) stated that they had received support from their management in the context of Accreditation while only 2 librarians (5.71%) replied 'No'.
2. 28 librarians (80.30%) said that a consultant was hired to assist them in the process of Accreditation, while only 7 librarians (20.00%) said 'No'.
3. 52 librarians (78.79%) said that a separate committee was constituted in preparation of Accreditation, while only 3 librarians (4.55%) said 'No'.
4. 26 librarians (74.29%) said that they were a member of the committee formed in the institute in preparation of Accreditation, while 9 librarians (25.71%) said 'No'.
5. 22 engineering librarians (62.86%) said that the Management had organised seminars and workshops in preparation of Accreditation, while 13 librarians (37.14%) said 'No'.
6. 18 librarians (51.43%) said that theyhad attended programmes organised in preparation of Accreditation, while 17 librarians (48.57%) said 'No'.
7. 17 librarians (48.57%) said that they were satisfied with the weightage given to the library in the Accreditation process, while 18 librarians (51.43%) stated 'No'.

## 5.59 Librarian's views with regard to NBA emphasis on specific criteria for Accreditation

1. Respondents were asked whether they believed that the NBA should emphasize on certain specific criteria and practices with respect to Accreditation. 28 librarians (80.00%) said that the NBA should lay more stress on library orientation and follow up programs conducted for faculty and studentswhile only 7 librarians (20.00%) said 'No'.
2. 25 librarians (71.43%) stated that the NBA should laymore emphasis on feedback with regard to the library collection and its usage, while 10 librarians (28.57%) said 'No'.
3. 26 librarians (74.29%) said that there was a need for the emphasis of the NBA on various library services and products, while 9 librarians (25.71%) said 'No'.
4. 24 librarians (68.57%) said that innovation should be rewarded by the NBA with respect to Accreditation pointswhile 11 librarians (31.43%) said 'No'.
5. 27 librarians (77.14%) said that the NBA should focus on the aspect of bringing more users into the library, while 8 librarians (22.86%) said 'No'.
6. 20 librarians (57.14%) affirmed the need for liaison with faculty to introduce modules enhancing library use, while 15 librarians (42.86%) said 'No'. Librarianship should move out from the four walls of the library and be seen in institutional practices.
7. 17 librarians (48.57%) said that the Accreditation criteria of the NBA should lay emphasis on the aspect of working together with the Training and Placement Cell to support career opportunities, while 18 librarians (51.43%) said 'No'.
8. To the final and most significant question highlighting the complete focus of the Accreditation process, 29 librarians (82.86%) said that the NBA should do an analysis of quality rather than quantity with regard to various parameters, while only 6 librarians (17.14%) said 'No'.

# SUGGESTIONS

The present study has been undertaken in order to ascertain the impact of Accreditation on engineering college libraries in Mumbai. Various facets like Accreditation status, Collection development, Infrastructure, Staffing, Products and services, along with other sub sections embedded in it, have been studied and deliberated upon.

The findings following the study have put forth certain concerns which need to be dealt with in a systematic manner for better performance of the library. Based on the findings of the research survey, the following suggestions have been made in order to improve the overall conditions of engineering libraries and pave the way for quality libraries.

The suggestions put forth in this study are divided into three components –

5.6.1 General structure and functions of the library

5.6.2 Accreditation and its impact on various practices of the library

5.6.3 Procedures of the NBA with regard to the Accreditation process

These suggestions are enumerated point wise below

## 5.6.1 Suggestions with regard to the general structure and functions of the library

1. It is suggested that the engineering college libraries be provided with sufficient space in keeping with the norms of the AICTE. Sufficient space should be allocated for reading, group discussions and research scholars.
2. The College authorities should see that the engineering college libraries have qualified librarians and library staff. The college authorities should ensure that they are given the correct payscale commensurate with their qualifications. There should be adequate staff in relation to the number of users. It is recommended that the governing bodies work out a staff formula with regard to the number and remuneration of library staff.
3. Library staff should be encouraged to upgrade their knowledge and skills and points should be awarded for the same, similar to that of the teaching faculty.
4. Libraries should be kept open for longer hours. It is suggested that libraries open one hour before lecture timings and close 1-2 hours later. During examination time, libraries should extend their reading room timings.

5. All engineering college libraries should have a Library Advisory Committee. The committee should meet at-least 4 times a year.
6. Automation of the libraries, whether by use of Commercial software or Open Access software, should be undertaken by the libraries. Data entry can be outsourced or given to students for a minimal amount. The Issue /return facility should be computerised. Libraries should undertake Bar coding of books, with the help of additional staff, if necessary.
7. It is recommended that all engineering college libraries set up a full fledged Digital library on their premises, complete with a Server, Computers with CD/DVD ROM and access to library facilities through the Intranet and Internet.
8. Engineering college libraries should strictly adhere to the norms of the AICTE with regard to the library collection. The college authorities should sanction adequate funds for the same. Additional copies of relevant books should be purchased taking into account the intake capacity for a particular course.
9. Librarians should determine the sufficiency and relevance of the library collection through statistics and user feedback from time to time.
10. It is suggested that libraries increase their periodical collection in a systematic manner so as to ensure the sufficiency of their journal collection.
11. Engineering college libraries should subscribe to more e-resources as per the demands of the course and the requirements of its users. The need of the hour is to form a consortium of engineering college librarians which can put their precise e-resource requirements to the AICTE and the e-resource publishers. This will ensure maximum use of the resource and justify the huge sums of money involved.
12. It is recommended that engineering college librarians get together to discuss and deliberate on various additional services they could provide to users through resource sharing like Inter library loan, Referral services, Book Bank scheme, use of Web OPAC, faculty training etc. Inter institutional co-operation in terms of common pamphlets and how-to-use guides for e-resources and hands-on training will go a long way in providing better services to users.
13. It is strongly recommended that the web-sites all engineering colleges have a separate Library Home page. This should have links to all the library resources – both subscribed as well as Open Access and should be updated from time to time.

14. Librarians should strive to provide specialised services like CAS, SDI and Bibliographies to their users. They should also inform their users about Open Access resources available on the Internet.
15. It is strongly recommended that librarians set up an Institutional Repository to collect, preserve and disseminate the intellectual output of their organization.
16. With regard to Training and Placement Cell, engineering college libraries are urged to get involved in this feature both by assisting the Training and Placement Officer as well as the students during Aptitude tests as well as Campus recruitment.
17. Librarians should take the initiative to organize Book Clubs, Book Reviews and Talks by authors so as to develop and encourage a reading culture among students.
18. Social media like Facebook, Blogs, RSS feeds, e-mail and SMS alerts and various other communication tools should be widely exploited so as to reach a larger audience. Library publications should be initiated and propagated to disseminate information about the library and its services.

### 5.6.2 Suggestions with regard to Accreditation and its impact on the various practices in the library

1. With regard to Accreditation status, it is recommended that the college authorities should take suitable measures to improve their grade. Whereas those colleges who have not got yet been accredited should try to get Accreditation from the NBA as early as possible.
2. It is suggested that more libraries direct their concentrated efforts towards achieving Academic Autonomy for more flexibility of courses.
3. It is recommended that librarians look at Accreditation as an opportunity to fortify the collection development in the library with regard to titles, volumes, journals and e-resources.
4. Library staff of engineering colleges should prepare for Accreditation, well in advance, with proper filing, documentation and generation of reports as may be required by the governmental committees.
5. The college authorities should, at such times, provide guidance and support and sanction additional funds for Collection development in keeping with the norms of the AICTE and the needs of the users.

6. With regard to library area, although it is understood that space is a constraint in urban areas, yet it is suggested that the college authorities sanction atleast the minimum required area for the library.
7. It is suggested that sufficient infrastructure, in the form of required furniture, computers, Wi-Fi facility and other ICT tools be provided to users so that their library visit should be stimulating and encouraging.
8. With regard to library staff, it is strongly recommended that adequate and qualified staff be employed so that the preparation for Accreditation goes on smoothly and systematically. Staff should be motivated, their skills should be upgraded, if necessary and additional help should be provided if necessary.
9. It is recommended that engineering college libraries provide better and improved services and products to faculty and students.
10. It is suggested that all libraries be automated on a priority basis so as to provide easy access to the collection, and also to facilitate generation of statistical reports.

### 5.6.3 Suggestions with regard to NBA and Accreditation related information

1. It is suggested that the NBA should emphasize on certain specific criteria and practices with respect to Accreditation. These basic procedures along with systematic policies and guidelines form the framework to a quality library.
2. It is proposed that Library orientation, library training modules and liaison with faculty for the same should be encouraged and rewarded since this forms the basis for Information Literacy.
3. It is recommended that the NBA should emphasize on feedback with regard to library collection and its usage.
4. It is strongly recommended that the NBA focus on library services and products as part of the criteria for Accreditation. Innovative measures adopted by the library to provide these services as a move towards quality should attract acclaim and points from the NBA.
5. It is imperative that the Accreditation process should highlight the importance of bringing more readers into the library and create an environment in the library for maximum utilization of reading material and the assessing bodies should take note of these measures.

6. The engineering college library should work together with the Training and Placement Cell to support career opportunities and the NBA should consider intra-institutional and intra-departmental, co-operation and resource sharing as evidence for quality.
7. The NBA Accreditation process should be an analysis of quality rather than quantity with regard to various parameters and points should be assigned accordingly. This will give an impetus to engineering college libraries to work towards boosting quality which will eventually be seen in its quantity (statistical) reports.

# CHAPTER 6

# PROPOSED MODEL FOR THE PROCESS OF ACCREDITATION IN ENGINEERING COLLEGE LIBRARIES

*"So it is said that if you know others and know yourself …*
*you will not be imperilled in a hundred battles."*

*Sun Tzu in The Art of War*

## 6.1Introduction

Today's age is the age of information. We extract information, evaluate it, repackage it and use it to produce more information. It is this process of using information that we call 'Learning'. And it is in this aspect of learning, especially academic learning, that we fall back on libraries. The importance of libraries in academic environment can never be over emphasised.

A library holds one of the most important positions in an academic institution, helping to fulfill the mission of disseminating information to faculty and students through its various services and products. The old model of an academic library considered it to be a trinity of documents, users and staff. It was an accepted fact that the staff, through their services, brought the users in contact with the documents.However in modern times, this image of an academic library is fast changing. Today the user may not visit the library and yet has access to its collection through its products and services with the help of ICT.

The task of fulfilling the vision and mission of the library can only be realized if the library makes use of emerging trends and technologies to design products and services to satisfy the information needs of its users.Only then will the engineering library become a quality library ready for any accreditation or assessment process as may be deemed necessary by the management or governing bodies from time to time.It is against this background that the library professional should strive to develop the engineering library into a quality library oriented towards the user, while following Ranganathan's laws of Library Science.

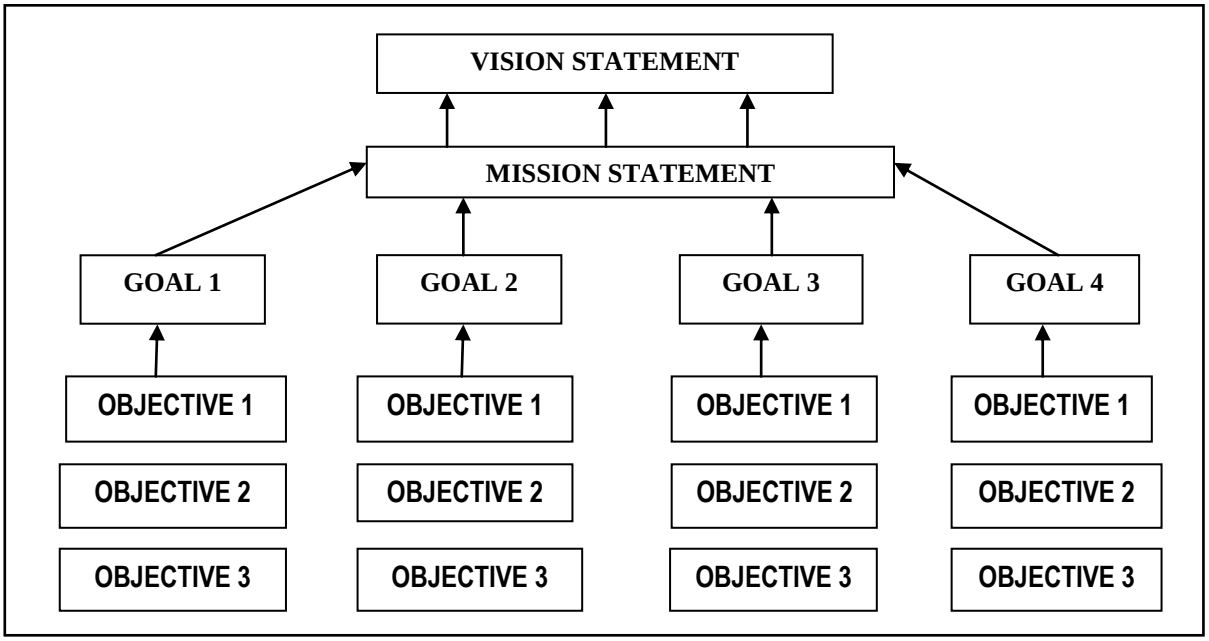
The researcher has proposed the following model which could be used by the librarian of an engineering institution, going in for the process of Accreditation through the NBA.

## 6.2Library Policies

The following are the basic mandates and policies that need to be highlighted with regard to an engineering college library.Information about these procedures needs to be displayed at prominent places so as to be visible to all. It should also be an integral part of the Library's Home page. They are -

- Vision Statement
- Mission Statement
- Goals
- Objectives

**Figure 6.1 : Mandates and Policies of an academic library**



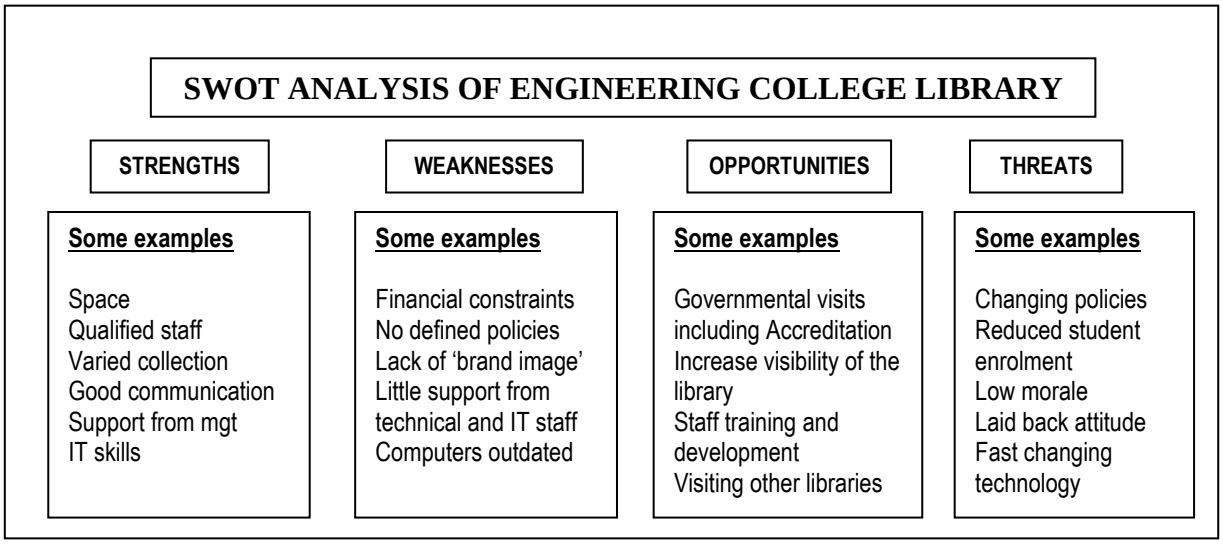

The **Vision statement** outlines what the organization or library wants to be in the future while the **Mission statement** concentrates on the present and identifies the desired level of performance necessary to get to where the library wants to be. The list of potential achievements the library wants to reach are its **goals** while the specific steps one takes to get to those achievements are the **objectives**. It is important that the librarian, along with the library staff outlines these policies right at the beginning so that everyone knows where they are and where they want to be.

### 6.2.1 SWOT analysis

The first step in any planning process, be it an individual or an organization, is Self assessment. This is undertaken through a SWOT analysis. SWOT is an acronym for **S**trengths, **W**eaknesses, **O**pportunities and **T**hreats. SWOT refers to the internal strengths and weaknesses of an organization or library, and the environmental opportunities and threats facing the same. In today's parlance, threats are often referred to as 'challenges'

SWOT analysis is based on the principle that an effective strategy maximizes an institution's strengths and opportunities, but at the same time minimizes its weaknesses and threats. Ideally, an institution or a library should build on its strengths, dilute its weaknesses, exploit the opportunities, and avoid the threats.The following are some of the factors involved in the SWOT analysis of an engineering college library.

**Figure 6.2 : SWOT analysis of engineering college library**




Every librarian should analyse the strength and weakness of their library with regard to internal and external factors through departmental meetings and brain-storming sessions. The librarian should seek to find answers to the following questions in an effort to do a thorough SWOT analysis of the library.

#### 6.2.1.1 Strengths

- What does your library do that no one else does?
- Do your products and services fulfil the vision and mission of your institution and your library ?

- What do your users like best about your library?
- What are your library's strongest contributions to your users?

#### 6.2.1.2 Weaknesses

- Do you feel that your library has less resources than necessary ?
- What else needs improvement with regard to facilities and services?
- What do your users wish you did better?
- Do you wish the organizational structure was better and allowed for more communication?
- Do your staff feel their jobs are routine and mundane with no necessity for quality in structure or performance ?
- Do you or your staff feel that hard work is rewarded with extra work?

#### 6.2.1.3 Opportunities

- What could you do if only your library had the resources to do it?
- What is happening in the educational sector globally and locally that you could take advantage of?
- How can your strengths open doors to opportunities for your library?
- What can you do to get more readers into the library ?
- How can you exploit social media to the advantage of the library ?
- Is there scope to be more proactive in directly contributing to student success?
- Can you think of Accreditation as an opportunity and exploit it to the maximum ?

#### 6.2.1.4 Threats

- What is happening in the educational arena that could have an adverse impact on your library?
- What library services are provided at other places or in other ways with greater ease for engineering students and faculty ?
- What is it that decreases footfalls into your library and what can you do about this ?
- What can you do about the rapidly advancing technologies with respect to your users and the services you provide to them?

A SWOT analysis of libraries reveals that strengths and weaknesses exist in the library and librarians. Weaknesses, once identified, can be converted into strengths. Thinking positively, threats are actually challenges. One needs to face them, fight them and convert them into opportunities.

## 6.3Library Finances

The goals and objectives outlined by the vision and mission of the library will bear fruit only when they are nurtured with sufficient financial backing. These figures need to be estimated, documented, approved and their spending should be justified. All this is portrayed in the library budget.

### 6.3.1 Library Budget

A budget is a **financial statement** of the estimated revenues and expenditures of an institution, like the engineering college library, for a definite period of time. A carefully developed budget will ensure that available funds are effectively utilized to realize the library's objectives.

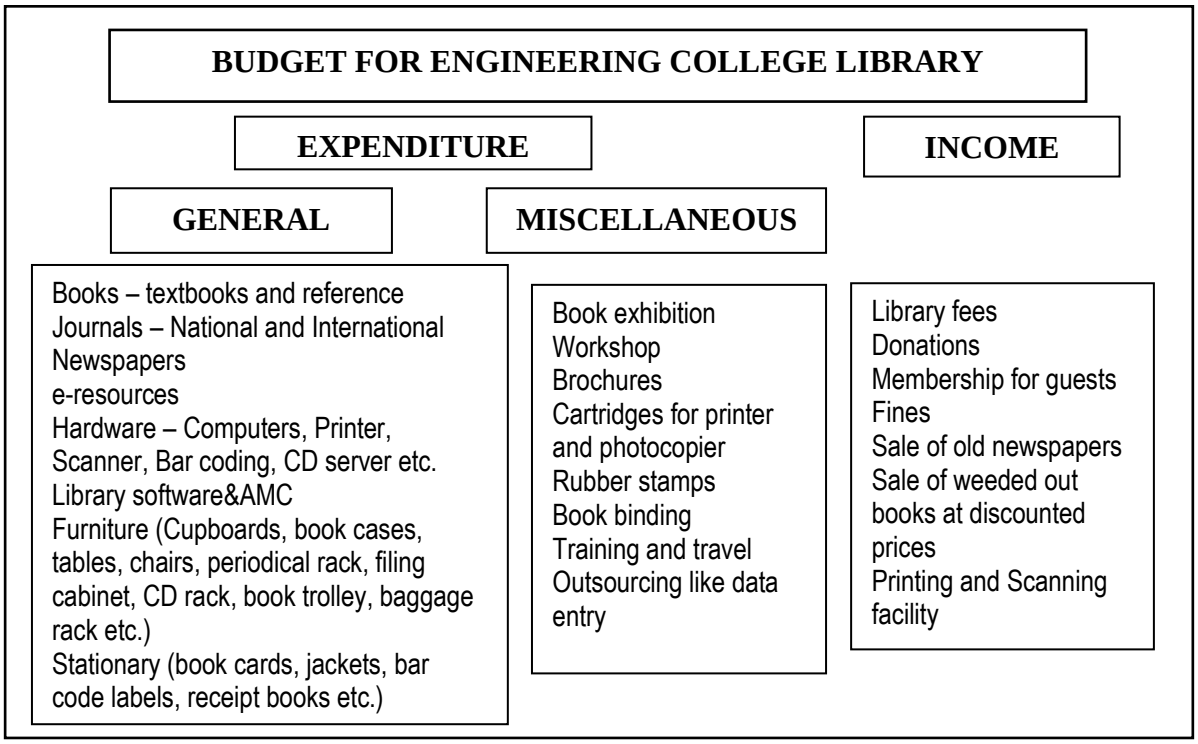
The first step in developing a library budget is to look at what the library hopes to accomplish in the next year. The availability of a current long-range plan will make this step much easier.The second step is to determine the total financial resources necessary for what the library wants to accomplish in the coming year. The final step in the budget process is securing the funding needed to carry out the planned programmes.

During the early period of preparation of the budget, the engineering librarian should consult other experienced professionals in the field so as to determine major services and financial inputs for the same. Collection development of print and electronic resources in keeping with the norms of the AICTE, future planning in terms of starting a new service, like off-campus access to electronic resources, outsourcing of data entry operations or employing of temporary or part-time additional staff – all this requires money and should be budgeted.

Once the librarian has put together all the information required for the present and the future, then a tentative budget can be drawn up. After consultations and revision, the final

budget can then be prepared for submission and approval by the management and concerned authorities.

**Figure 6.3 :Budget outline for Engineering college library**




### 6.3.2 Library Expenditure

The onus is on the librarian to request, approve and keep track of expenses incurred by the library . In this era of raising costs and dwindling budgets, it is important that the libraries keeps a proper and systematic check of out-goings with justification for the same.

The following are the points to be kept in mind -

1. Library expenditure is generally maintained from 1st April to 31st March year-wise i.e. for one financial year
2. A copy of all bills should be filed date wise
3. Maintain an updated Dead stock register
4. Prepare and maintain separate files for miscellaneous items like photo-copier maintenance, book binding etc.

**Figure 6.4 :Library expenditure for Engineering college library**

**LIBRARY EXPENDITURE for the year 2014-15**

| Sr No | Item | Number | Amount | Remarks |
|---|---|---|---|---|
| 1 | Books – Central Library | | | |
| 2 | Books – Departmental Library | | | |
| 3 | Journals – National | | | |
| 4 | Journals – International | | | |
| 5 | Magazines | | | |
| 6 | CDs | | | |
| 7 | e-resources | | | |
| 8 | Book Allowance for teaching faculty | | | |
| 9 | Newspapers | | | |
| 10 | Library software and AMC | | | |
| 11 | Furniture and fixtures | | | |
| 12 | Book Exhibition | | | |
| 13 | Book Binding | | | |
| 14 | Miscellaneous | | | |
| | TOTAL | | | |

The total library expenditure (year-wise) can then be calculated.

**Figure 6.5 :Engineering College Library expenditure (year – wise)**

**LIBRARY EXPENDITURE (year-wise)**

| Sr No | Item | 2014-15 | 2013-14 | 2012-13 |
|---|---|---|---|---|
| 1 | Books – Central Library | | | |
| 2 | Books – Departmental Library | | | |
| 3 | Journals – National | | | |
| 4 | Journals – International | | | |
| 5 | Magazines | | | |
| 6 | CDs | | | |
| 7 | e-resources | | | |
| 8 | Book Allowance for teaching faculty | | | |
| 9 | Newspapers | | | |
| 10 | Library software and AMC | | | |
| 11 | Furniture and fixtures | | | |
| 12 | Book Exhibition | | | |
| 13 | Book Binding | | | |
| 14 | Miscellaneous | | | |
| | TOTAL | | | |

Although much has been said about digital libraries, virtual libraries and remote location libraries, it remains to be said that,at-least in the context of engineering institutions, the library occupies a strategic and important place on campus. In the context of engineering college libraries, it is seen that Library Infrastructure generally includes the following -

1. Library building
2. Display Area
3. OPAC browsing area
4. Circulation Counter
5. Stack Area
6. Reading Area and Reference Section
7. Digital Library

Various additional facilities, like carousels for research scholars, separate areas for project discussion, newspaper reading areas and, coffee break areas etc. can also be demarcated.

### 6.4.1 Library Building

A purposeful and elegant library building is the end product of the manifold abilities, both academic and professional, of the team of persons who work for it. Today the architect, the consultant and the librarian work as a team in the planning and designing the library building. It is important that the library be located centrally, for easier access, and yet should be away from noisy areas like the canteen and gymkhana. According to the norms of the AICTE, the total area of an engineering college library should be not less than 400 sq. metres.It has also been stated that an additional reading room area of 50 sq m per 60 students is necessary for an intake beyond 420.

### 6.4.2 Display Area

The display area should be near the entrance. The idea is to attract more users into the library. A provision for display of new arrivals, a notice board for important announcements, a periodicals rack and a newspaper stand could be envisioned as a part of the display area. There could also be a property counter strategically placed on one side.It is important that the library promotes not only its resources and services but also its achievements and accomplishments. The library should have a 'Display cupboard' for trophies, certificates and accolades awarded to the library and library personnel. This will enhance the image of the library and will add value to the profession of Librarianship.

### 6.4.3 OPAC browsing area

Both the AICTE and the NBA are of the opinion that engineering college libraries should be automated. Consequently the library should have enough computer terminals for the students to browse the Online Public Access Catalogue.

### 6.4.4Reading area

The design of the reading room, the type and arrangement of furniture, the comfort level, the academic environment is what draws readers into the library. The bifurcation of space into reading room and reference section as well as a partitioned area for faculty and research scholars should be done keeping in mind the strength of the users, reservation for faulty and future requirements. It should be pleasant and inviting, with sufficient lighting and cross ventilation. It should be friendly to the physically challenged. There should be Plug points for laptop connections to a main source of power. Wi-fi facility should be made available in the library.

### 6.4.5Digital Library

This should be developed with modern day technology, in keeping with the requirements of the AICTE. Computer hardware and software should be such that there is seamless access to the various e-resources that the engineering library subscribes to. It should allow users to connect to the Internet and/or Intranet as required. The computers should possess a DVD ROM, anti-virus software and a multimedia kit including headphones. Regular maintenance is necessary to ensure that the computers are in working condition. Statistics such as number of users should be maintained.

The AICTE has specified the requirements for a Digital Library as well as availability of Computers for search and retrieval of information. The onus is now on the library staff, to make available all these facilities to students, with the support of the management and the co-operation of the I.T. staff. It has been observed, that Accreditation has proved to be a boon for librarians in this regard. Resource sharing through consortia like INDEST, NPTEL and DELNET is also encouraged.

The Self-assessment report of the NBA asks for various and statistical and analytical data such as ‘the number of users with regard to reading space’ and the ‘number of uses with regard to Issue/Return of books’. Assessors would like to know the area reserved for Reading room, Reference section, Stack area, Digital Library etc. Data about the types and number of users is also required. It is therefore imperative that the librarian maintains daily and monthly statistics of footfalls, Circulation, Reprography etc.

## 6.5Library Documentation

It is well known that Accreditation, by design, evaluates institutional quality. The process of Accreditation is not only providing quality services but also demonstrating evidence of it and also improving the quality of services if need be.Evidence of quality is seen in documentation. It is therefore important to understand, in the context of Accreditation, what documentation really is, why it is necessary, how data should be collected, analysed and presented.

### 6.5.1Types of Documentation

With regard to Accreditation of an engineering college library, the following are accepted as documentary evidence -

- Statistical reports
- Minutes of meetings
- Quotations, Purchase orders and Bills
- Different types of letters on letter heads with proper authentication
- Registers of different types

In an engineering college library, documentation should demonstrate adequacy of resources, provide evidence for the same and explain ideas for improvement. Documentation generally exists across a given time frame (3 years or 5 years). Sometimes several documents may be needed to demonstrate conformity. Alternatively the same document could be used as proof for more than one requirement. Sometimes data is required from the inception of the library.

It is therefore necessary to plan and document much in advance so that the same can be provided as and when required by the assessors. This should generally be done at the start of the engineering library itself. One does not have to wait for the gong of 'Accreditation' to sound. This is one of the pre-requisites of a 'quality' library, which has the required data available at any point of time.

### 6.5.2 Checklist for Documentation required for Accreditation

The following points should be kept in mind.

- ❖ Documents should be maintained chronologically, preferably in descending order , i.e. latest document first.
- ❖ The effective time period should be determined in advance, for example financial year, academic year, calendar year etc.
- ❖ Signatures are necessary since a signed document is an evidence of authenticity. Use letterheads wherever necessary.
- ❖ Utilise comparative analysis, tables and graphs wherever necessary.
- ❖ This data and its subsequent analysis are not just for the assessors or the regulatory bodies but for the management of the institution and its librarian as well.

Documentation requires systematic recording of evidence through team work, assigning of responsibilities, meeting deadlines and having follow- up meetings. Visits to other accredited libraries and interaction with engineering college librarians will prove to be beneficial in this regard. The document prepared by NAAC also be referred to as a roadmap for the same. It is true that an accreditation visit puts pressure on an institution and its library to demonstrate student outcomes through documentary evidence. It is important for the librarian to understand what is the role of the library in the accreditation process. All documentation and paperwork systematically maintained throughout the years pays off during accreditation, as it provides tangible proof of the good work being done. Accurate documentation helps ensure that the library and its staff are meeting their goals.

### 6.5.3 Files to be maintained

Here is a brief list of some of the files that need to be prepared and updated from time to time.

**Table 6.1 : Files to be maintained by the engineering college library**

| Sr. No | Name of File | Contents |
|---|---|---|
| 1 | Acquisition File | Quotations, Purchase Orders and Reminder letters |
| 2 | Billing File | Budgets, bills, proof of expenditure etc. |
| 3 | Purchases File | Other items bought like computers, software etc. |
| 4 | Official Reports File | Copy of all documentation submitted to various governmental bodies from time to time |
| 5 | Staff Circulation File | Staff request for membership, staff contact details, other correspondence etc. |
| 6 | Student Circulation File | Student data, letters, library defaulters lists etc. |
| 7 | Book Bank File | Correspondence related to book bank scheme |
| 8 | Book Allowance File | Data related to staff book allowance scheme |
| 9 | Book Exhibition file | correspondence, invitation letters, confirmations, discounts, purchase orders etc. |
| 10 | Journals and Magazines | Purchase orders, bills, reminders, renewals , systematic and tabulated details, etc. |
| 11 | E-resources File | containing invoices, MOUs payment details and receipts of e-resources like IEEE, Sciencedirect, etc. |
| 12 | Departmental Library | staff recommendations, quotations, purchase orders and copy of the bills related to the departmental library |
| 13 | Stock taking File | Reports and details |
| 14 | General File | containing notices, Inter-library loan and other material |
| 15 | Cultural Activities file | documentation related to workshop, seminars and other cultural activities where library staff are involved |

### 6.5.4 Registers to be maintained

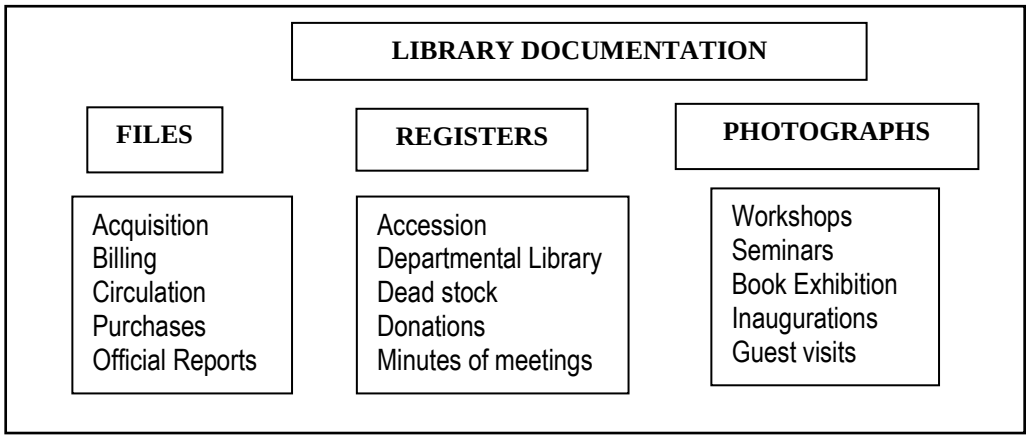
The followed are some of the many registers that need to be maintained–

**Table 6.2 :Registers to be maintained by the engineering college library**

| Sr. No | Name of Register | Contents |
|---|---|---|
| 1 | Accession Register | It is advisable to have a fixed number of entries per page (for e.g. 15) and per register (e.g.1500) for easier calculation |
| 2 | Departmental library Register | For books kept in the various departmental libraries |
| 3 | Dead Stock Register | of all library assets |
| 4 | Donations Register | for donated and gifted books |
| 5 | Accession Register for CDs | maintained in the same way as books |
| 6 | Register for footfalls | student and staff entries, guest register etc |
| 7 | Register for Digital library | to calculate footfalls and justify usage |
| 8 | Register for photocopying/ scanning/ printing facilities | For preparation of monthly and quarterly statistics |
| 9 | Weeded out books register | with relevant authorizations |
| 10 | Minutes of the meeting | Library advisory committee meetings, Suggestions from users, Feedback, library meetings etc. |

The graphic description of the documentation required by the engineering college library can be depicted as follows –

**Figure 6.6 :Library documentation required by engineering library**



The library should create and make available a 'Student Help Guide' or 'Manual for Library Users'. This will help faculty, students and guests to understand and make maximum use of the engineering college library. The librarian should also prepare a 'Fact sheet of the Library', 'Monthly Report' and 'Annual Report' of the library services and activities and additions to the same.

## 6.6Library Staff

Of all the resources that are present in the engineering library, the most important one is the Human Resource. It is the library staff who can satisfy or make deficient all the statistics that are required by the Accreditation team. The AICTE approval process handbook (in print form) of 2007 had specified the following staffing pattern for libraries attached to engineering institutions with an annual intake of 300 students. (pg. 332)

**Table 6.3 :Staffing pattern for engineering college library**

| Sr No | Post | Number |
|---|---|---|
| 1 | Librarian | One – Full time |
| 2 | Assistant Librarian | Two |
| 3 | Library Assistants | Four |
| 4 | Library Attendants | Two |

However in recent times, private engineering colleges,being unaided,follow a staffing pattern commensurate with the number of users and the needs of the library.Although this is adequate to cater to the information requirements of the users in most colleges, it is sometimes observed that the librarian has only one additional assistant or peon. It is then the onus of the librarian to satisfy the information needs of the users through the current staff strength.

The engineering librarian today, caters to different users having diverse needs and portray varied roles. It is the duty as well as the advantage of the librarian to establish himself/herself as an important asset of the educational institution. The information about the library staff, complete with a brief biographical statement, photograph and contact details should be put up on the library web page. Library staff should be pleasant, courteous and ever willing to help. 'Service with a smile' should be the motto of a knowledge provider. Staff should be encouragedto attend workshops and training programmes and upgrade their skills. On the other hand the librarian should try to secure for the staff, salary

scales commensurate with qualifications and experience. The library team should be motivated, proactive and visionary in the task of satisfying the information needs of the users.

## 6.7Library Collection

Most engineering college libraries have a vast collection of print and electronic resources , augmented by the mandatory requirements of the A.I.C.T.E. By these rules, the number and type of print and electronic resources that has to be purchased every year is specified and engineering libraries abide by these rules. It is believed that when an institution applies for Accreditation a lot of changes are seen in the area of Collection development. This could be the result of impetus from management or additional funds being released.

With regard to the library collection, the parameters of measurement include quality, quantity, accessibility, relevance and most recent information. The evidence of a quality library is that its policies and procedures are planned in such a way as to make maximum use of the collection. The librarian should balance the AICTE norms with the library budget with regard to books, journals and e-resources. The following are the norms of the AICTE with regard to the library collection.

**Table 6.4 :AICTE requirements for engineering college library**

| Sr No | Item | Requirement |
|---|---|---|
| 1 | Number of Titles<br>Yearly addition | 100 titles<br>50 titles per course |
| 2 | Number of Volumes<br>Yearly addition | 500 volumes per course<br>250 volumes per course division |
| 3 | National journals | 6 journals × course division |
| 4 | International journals | Desirable |
| 5 | e-books | 25% of total number of titles and volumes each can be in the form of e-books. |
| 6 | Subscription to e-resources | According to Appendix 10 of AICTE approval process handbook |

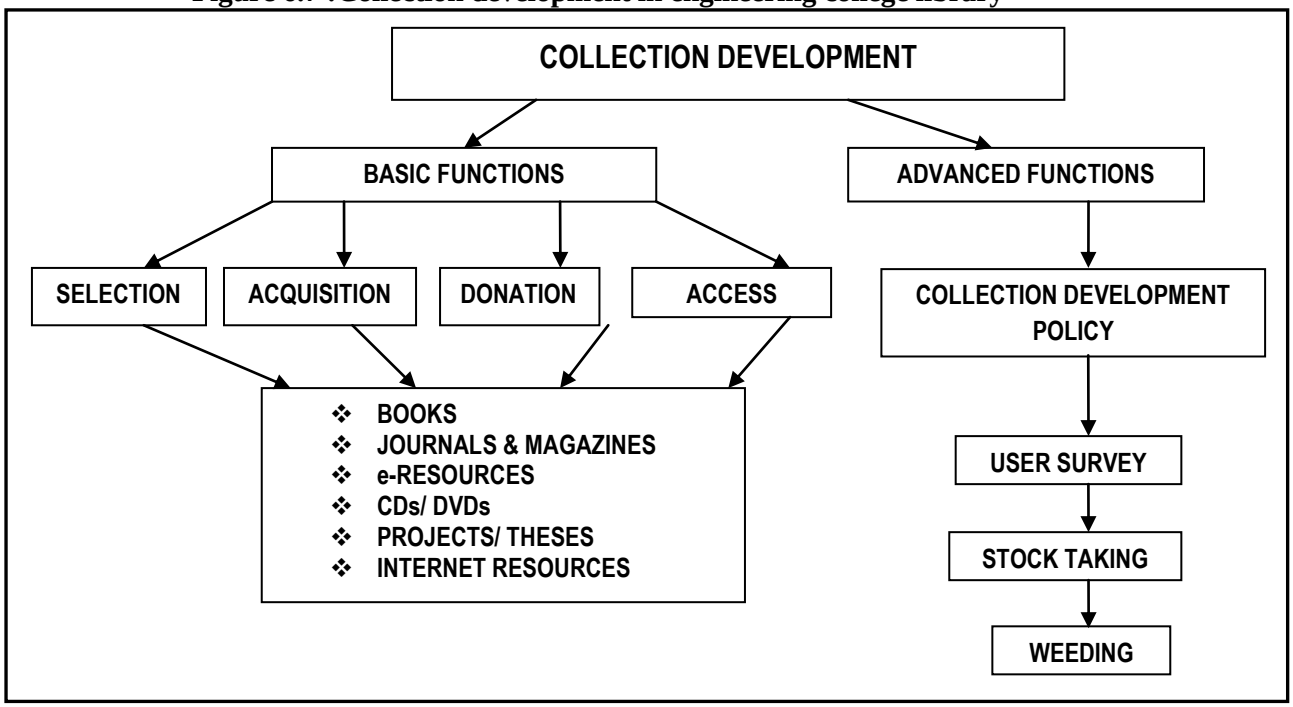
**Table 6.5 :AICTE Mandatory Subscription of e-Journals for Engineering Institutions**

| Mandatory Subscription of e-Journal Packages for all Engineering Institutions conducting Undergraduate / Postgraduate Courses | | |
|---|---|---|
| **Sr. No.** | **Publisher** | **Subject areas** |
| 1 | IEEE | Computer Engineering + Computer Science + Electrical and Electronics Engineering + Telecommunications and related disciplines |
| 2 | Springer | Electrical and Electronics and Computer Science Engineering OR |
| | Wiley-Blackwell | Computer Science + Data System+ Telecommunication and related discipline |
| 3 | ASME/Springer/Wiley Blackwell | Mechanical Engineering |
| 4 | ASCE/Wiley Blackwell | Civil Engineering |
| 5 | Mc Graw-Hill | General Engineering & Reference Access Engineering Library |
| 6 | J-Gate | J-Gate Engineering and Technology (Gateway) |
| 7 | ELSEVIER | Engineering + Computer Science |
| 8 | ASTM Digital Library | Online Dictionary of Engineering Science & Technology |

The following points should be kept in mind with regard to library collection –

- There should be a proper collection development policy in place
- Issue and return timings should be convenient
- It is advantageous to have fixed timings for specific services, especially when understaffed .e.g. Photocopying, Scanning, Printing etc.
- The library system should be automated using a commercial or open source software
- Creation of a Web OPAC is almost always seen as necessary
- Bar coding of library books and is now deemed desirable by NBA
- Use of RFID technology for tagging of books helps both the users and the library staff
- Training in the use of e-resources is necessary both for faculty as well as students

**Figure 6.7 :Collection development in engineering college library**




Library automation facilitates Report generation and is seen as a plus point of efficient library management. Most engineering college libraries today have a Web page, separate from the institutional Home page. A good CD/DVD collection can be maintained using a CD server. Many libraries have a 'Gateway' or allow for 'Federated search' across online databases.

Various statistical reports are required by the NBA visiting team like the number of titles and volumes of books purchased in a financial year, the number of new additions added and the amount spent for the same. Data about CDs, theses and project reports should also be maintained.

Accreditation indirectly ensures the purchase, technical processing, shelving and availability of the book to the user in minimum possible time. It is often seen that funding is almost always provided as Accreditation draws near else the report will show a deficiency. Sometimes additional staff is arranged for technical processing and shelving of books. If the engineering college library aims at provide quality services to its users observing Ranganathan's laws of library science, then it is ready for Accreditation at any time.

## 6.8Library Products And Services

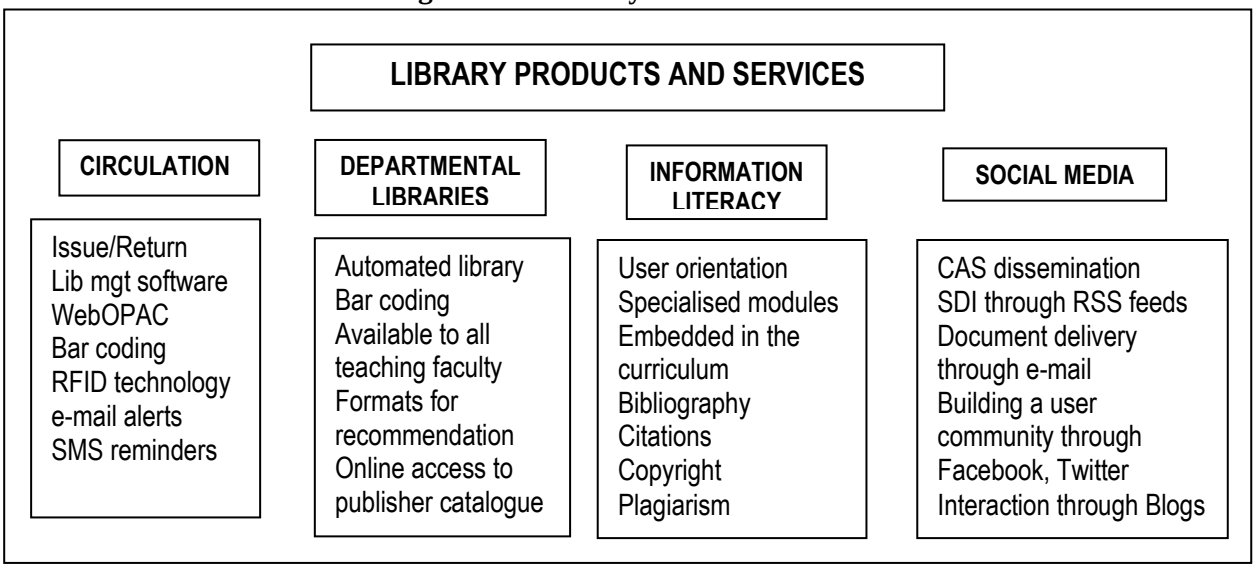
All engineering college libraries provide basic information facilities in keeping with the vision and mission of the institute as well as its own goals and objectives. These include Collection development, Cataloguing service, User orientation, Issue Return, Reference and

Referral service, Scanning, Reprography and Printing facilities, Digital Library and Stock taking. The engineering college library exists to satisfy the users' quest for information, through its services and products. When preparing for Accreditation, the academic library should keep in mind its users at all times and design services to their advantage.

The following services are generally provided by the engineering library in keeping with the norms of the AICTE -

- Circulation of books
- Book Bank
- Inter library Loan
- Departmental libraries
- Library orientation and Information Literacy
- Information through social media

**Figure 6.8 : Library Products and Services**




This can be explained as follows –

### 6.8.1 Circulation of books –

The number of books to be issued to the different categories of users should be specified in the user manual and on the website. Timings for issue/return should be convenient. Technical processing of books should be streamlined so that the books reach the stacks and are made available to the users in the minimum possible time. 'Service with a smile' is the motto of a helpful librarian. Users sometimes feel that the OPAC was designed to serve librarians rather than users. Librarians should take note of this aspect. Open access system

of browsing the library collection is helpful to the user but a little tedious for the library staff with regard to shelf rectification and loss of books.

The Self -Assessment Report of the NBA makes inquiries about library automation especially for Issue/Return operations. Some library operations like data entry for retrospective conversion of data, preparation of bulk library cards, scanning of student photographs, Bar coding operations, RFID technology etc. can be outsourced. Book binding is generally done outside. Systematic stock taking and weeding is essential to ensure maximum use of the library collection. Involving students during vacations for data entry, designing and utilizing feedback forms to gauge user requirements and interactive sessions with faculty will go a long way in fulfilling the demands of the profession.

### 6.8.2 Book Bank

There are various governmental schemes to assist financially backward students to procure books for study. Besides the librarian, in consultation with the management and vendors can design a 'No Profit No Loss' basis scheme for students.

### 6.8.3 Inter library Loan

This should be the initiative of engineering college librarians as one of the best examples of resource sharing. Online access of each other's Web OPAC and online reservation of books through Inter library loan scheme should be permitted.

### 6.8.4 Departmental libraries

All engineering institutions develop departmental libraries; however these are often not maintained since this is the responsibility of the department-in-charge. However it is to the advantage of the librarian to computerise this collection as well so that it can be made up-to-date and accessible to faculty in the various departments.

### 6.8.5Library orientation and Information Literacy

Many engineering college librarians consider library orientation as just a formality to be undertaken at the beginning of the semester. However they need to realise that along with basic instructions about the library and its services, Information Literacy is today a fast growing watchword. It is an essential component of engineering students' education. Without the skills to find, retrieve, evaluate and use information, students cannot participate

fully in an academic environment and a disciplinary culture. The basic user orientation programs conducted by Librarians in a class room have now developed into online modules and training sessions on the use of Open source journals and subscribed e-resources. Modules like technical writing, research review need to be introduced and issues like ethics, copyright and plagiarism need to be discussed. This ensures additional credibility for the library.

### 6.8.6 Information through social media

The special services which were provided earlier in conventional libraries has now been relegated to the background or is being done on a small scale in an informal way. The use of social media for dissemination of information in engineering college libraries is already established. Most commercial library software provide these services but librarians often do not use this facility. It is left to the librarian to make use of SMS and e-mail alerts, Wikis and Blogs, Facebook pages, Twitter and RSS feeds to provide students and faculty with the required information.

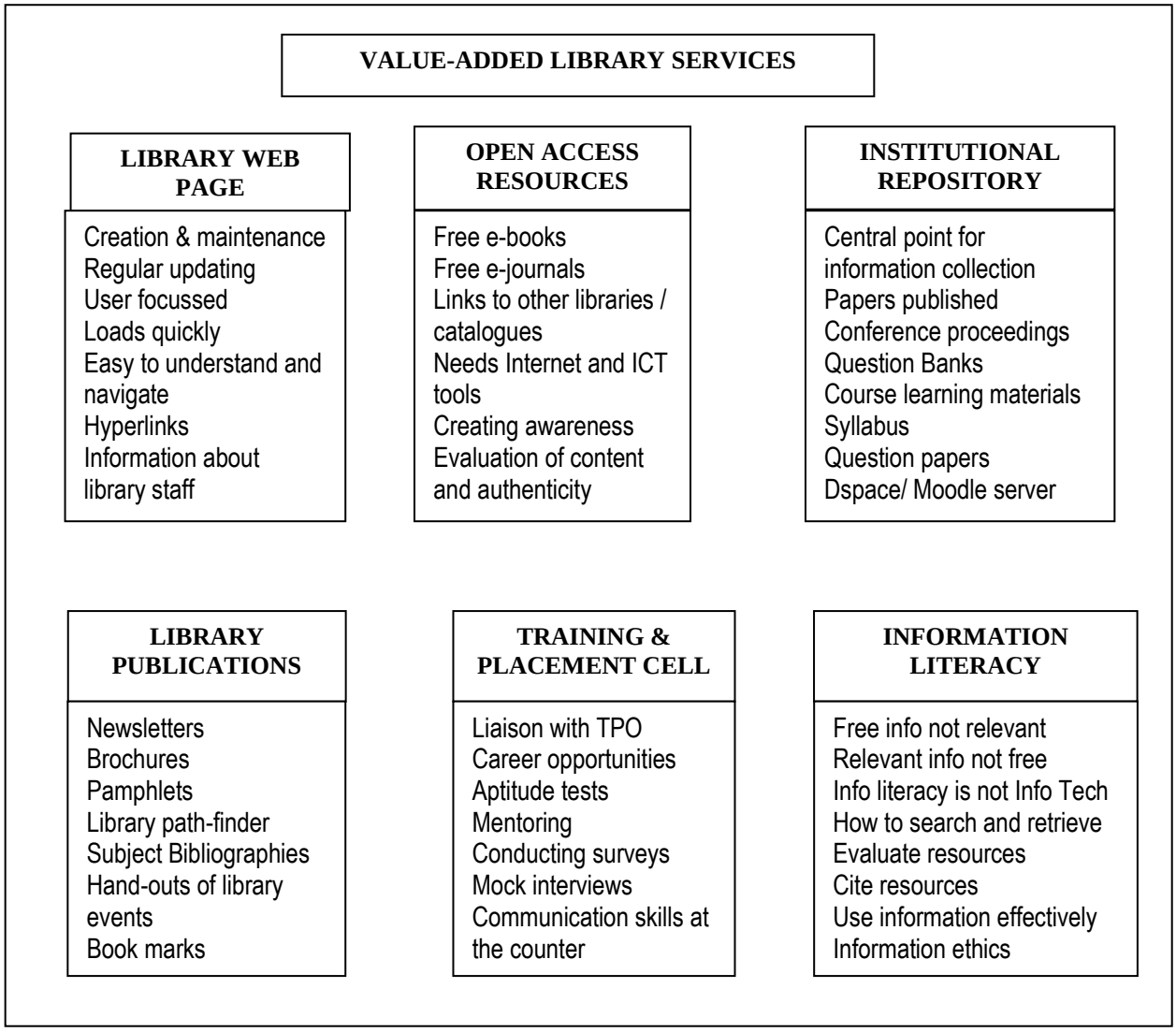
## 6.9 Value Added Library Services

Today 'service quality' and 'value added services' are the watchword for both engineering librarians as well as users. The role and purpose of the library is being questioned by policy makers and they are subject to increased accountability. It is time to demonstrate both to the management and to the regulatory bodies, the need and importance of the engineering library in the academic environment.

Professor Berry, who is the author of several booksand is stated to be the foremost authority on quality service insists that the way libraries can thrive is by delivering excellent customer service. Libraries must therefore define value and then create it.

In the context of engineering college libraries, besides the basic services that any academic library provides to its users, there are a number of other services and products, which if provided, add value to the library and to the profession of Librarianship.
The following are some of the listed value added services that an engineering college library should provide to its users in order to be called a 'quality library'.

**Figure 6.9 :Value-added library services**




### 6.9.1Current information through updated Library web page

It is the task of the librarian to develop and maintain a separate Library Home Page with links to the library collection. The technique of providing hyperlinks to the websites of other institutions and organizations is actually an offshoot of the Referral service of the traditional library. The webpage with scrolling links to current news is also a derivative of the conventional notice board. Users should be able to post queries online and obtain satisfactory answers to them. Some libraries havealist of forms like‘Membership Form’, ‘Recommendation Form’, ‘No dues Form’ etc. that can be easily downloaded.

A good library webpage should be constructed based on the following criteria -

1. It should contain current and accurate information
2. It should be easily accessible to users

3. It should be user focussed and designed in a simple yet attractive manner and should upload quickly
4. It should be instructive and easy to understand with search boxes and help for finding articles
5. It should have a Current awareness page which should be updated
6. It should have well designed tutorials
7. It should have a detailed mention of all library services with relevant timings
8. It should have information about the library staff and their professional contact details
9. It should be oriented towards assisting research students

### 6.9.2Information about Open Access Resources

The increasing cost of scholarly journal subscriptions today makes it difficult for librarians to provide their users with access to peer reviewed and current information. Open access offers a viable solution to this information pricing crisis.Avast variety of information in the form of e-books and e-journals is available on the Internet and it is available for free. Engineering libraries should find out and provide to their users, links to such Open access resources as it would benefit both students and faculty.

### 6.9.3Institutional Repository through Dspace/ Moodle server

A lot of scholarly information is generated in institutions of higher education. This information remains confined to Departments and individuals. Given the overlapping areas of courses and programmes in Engineering Institutions the demand arises for a Central point for information collection. This central point is the Library. An Institutional Repository is an online locus point for collecting and preserving, in digital form the intellectual output of an institution. In the context of engineering colleges , this includes materials such as research journal articles , digital versions of theses and dissertations – both by faculty and students, conferences, seminars and workshops material, as well as other academic documents such as Syllabus, Question papers, Question Banks, course learning materials and other Institutional publications like Prospectus, College Magazine, Academic calendar, also movies made of the College as well as photographs. The repository can be created using an Open Access software like Dspace or can be also be uploaded on a Moodle server.

### 6.9.4Library Publications

The engineering library should publish newsletters on a periodic but regular basis in order to keep users updated about the library and its happenings. Besides brochures, pamphlets and handouts about library events, path-finder to the library, subject bibliographies, tutorials, how to search and retrieve information etc. can also be published.

### 6.9.5Liaison with the Training and Placement cell

The Self-Assessment Report of NBA Accreditation calls for a lot of information about placement details of passed out engineering students. It is here that the library can assist both students as well as the Training and Placement Officer by providing bibliographies and information about career opportunities. Aptitude tests can be conducted in the library for small groups of students, either on paper or online. The librarian can also provide links to such sites through their home page. The librarian can also train students to develop communication skills by assisting at the Circulation counter, conducting surveys, having group discussions and giving mock interviews for jobs in the library.

### 6.9.6Information Literacy, Information ethics, Plagiarism and hands on Training programmes

According to the Association of College and Research Libraries (ACRL) - Information literacy is a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information."In the context of engineering college libraries, students are always in need of quick, easily accessible and understandable repackaged information The paradox is that, although a lot of information is free, it is not relevant, and that which is relevant is not free. Users often get lost in the myriad of electronic information with little knowledge of search strategies and hence resort to Google.Although students are taught a variety of subjects, the syllabus does not train students how to search for information either print or e- resources, how to evaluate which is authentic, how to cite those sources and how to prepare a list of references.

Today’s academic users are often unsure about Information Literacy and confuse it with Information Technology.Information Literacy is life-long learning and one of the important criteria of Program outcomes of Accreditation for every course taught on the campus. Information literacy should be firmly embedded in the curriculum through liaison with the teaching faculty and development of practical modules.

## 6.10 Innovative Measures and Best Practices

The University of Washington has published a detailed document of the 'Input and Participation of Engineering Libraries to the ABET AccreditationProcess'.It is designed as a set of guidelines useful to complete the self-study questionnaire of ABET and to validate the quality of engineering universities, colleges and their libraries.

The following are a few of the questions to which the institutional assessors expect satisfactory answers –

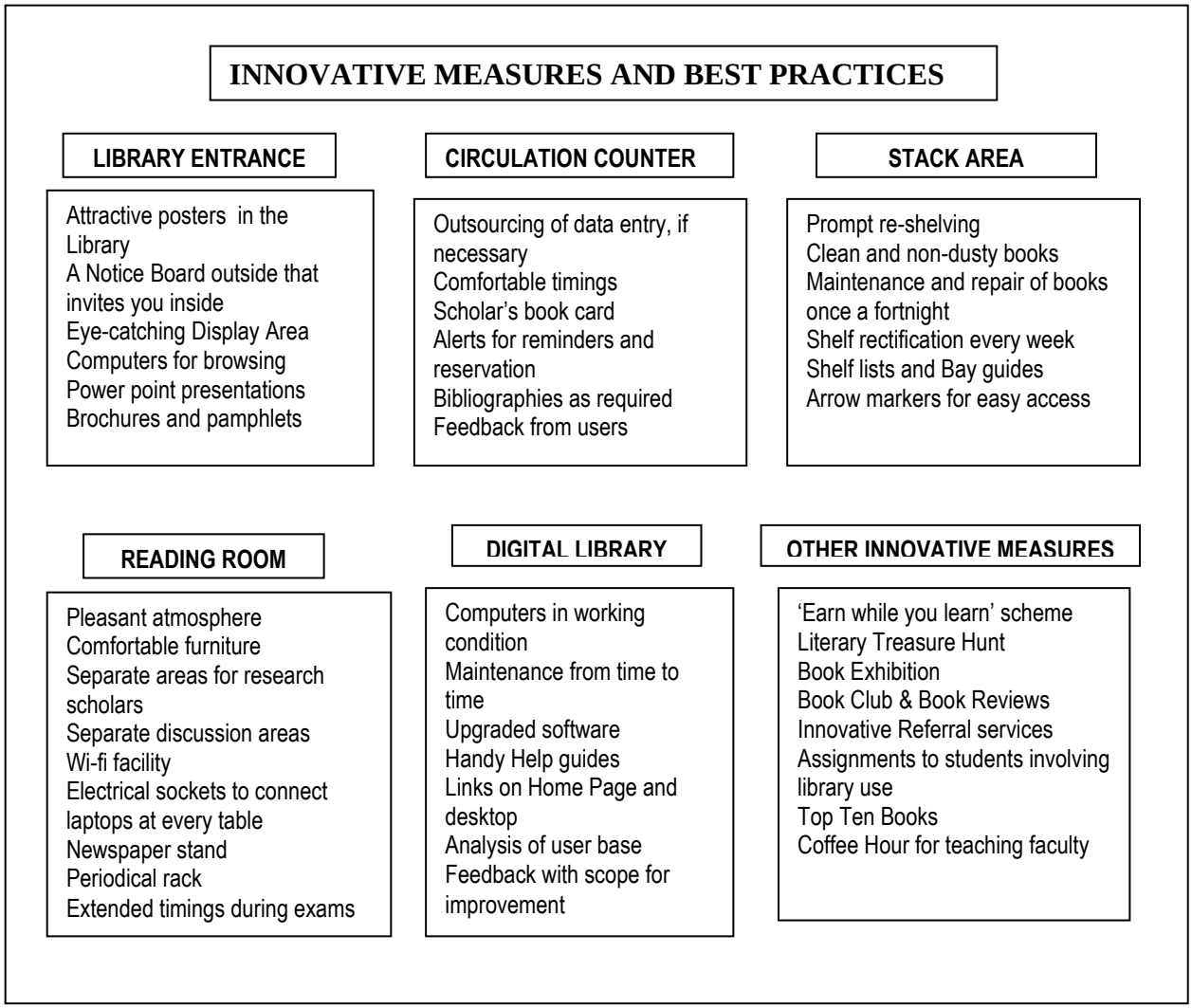
- Is off campus access available 24/7?
- How are the funding decisions made with regard to engineering materials?
- Adequacy of the budget and access to resources
- Is the library budget sufficient to meet the university's and program's needs, future plans, etc.?
- How is the faculty involved in collection decisions?
- How are the faculty informed about library resources?
- How do faculty members keep current with new information?
- Are there any training workshops that the library provides?
- How does the engineering library connect with students?
- How is information related to resources disseminated to the students?
- Describe the library's strategic direction, plan, and optimism for the future.
- What are the needs of the library?
- Trends in Sci-tech librarianship

The NAAC lays a lot of emphasis on libraries as centres of learning. This will be particularly true in the learner-centered academic environment in the times ahead. Hence NAAC has developed a set of objective indicators to facilitate assessment of the Library and Information Services of academic institutions. This also includes a list of 'Best practices'. Based on the NAAC and ABET documents as well as the observations of the researcher , some of the innovative practices that could be followed in engineering libraries include the following –

1. Attractive and eye catching posters at vantage points in the library (instead of the 'Silence please' and 'No mobiles allowed' that are usually displayed)
2. A good power point presentation for library orientationwith a floor map

3. 'Earn while you learn' program for students
4. Book Club, Book Reviews and Talks by authors
5. Innovative contests like 'Engineering Week', Quiz, Debates, 'Literary Treasure Hunt'
6. Displaying the list of Top Ten Books
7. Display of books based on the 'Subject of the fortnight'
8. Referral Service like list of relevant books from I.I.T or providing links to catalogues of other engineering colleges
9. Book Exhibition
10. Best User award
11. Gift of Books to academic toppers
12. Use of social media and information communication tools for marketing
13. Sale of withdrawn books at minimal cost
14. Coffee Hour for teaching faculty in the library once a fortnight

**Figure 6.10 : Innovative measures and best practices in the engineering library**



In the field of online journals, the idea of consortia was one of the best innovations that truly helped smaller libraries to acquire and use resources which they could often not afford. However it must not be forgotten that Innovation is relative to time and place. 'What is age old practice for one,may be innovation for another'.

Engineering libraries which consider Accreditation as a move towards developing a 'Quality Library' should remember the following –

- If innovation is linked to Accreditation, then it should continue into Re-accreditation
- If accreditation is a measure of quality then innovative techniques is one of the by-products
- If the institution seeks to achieve quality then Accreditation should not be the only reason for innovation.

## 6.11 Conclusion

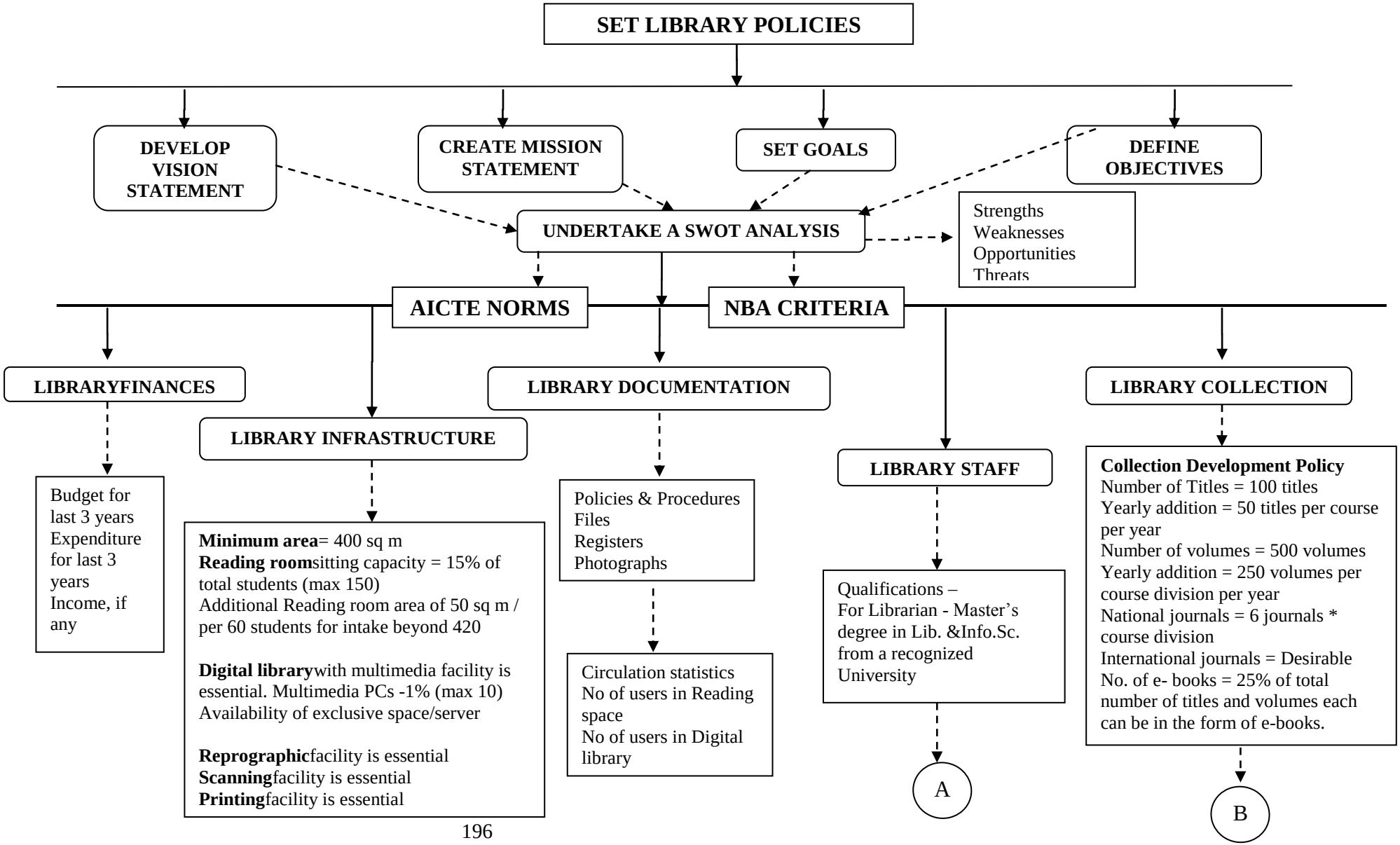
Engineering students today have high expectations from their libraries. The teaching faculty too expect the modern library to maintain an up-to-date collection, madeavailable to them through the latest ICT tools and techniques.

The regulatory bodies, like the NAAC and the NBA view their process as improving institutional quality. In this effort, they acknowledge that institutions take time to reach excellence. All assessors have standards that expect institutions themselves to assess institutional effectiveness regularly, to use the analysis of that assessment to identify and plan needed improvements, to implement those improvements, and to check their impact during another cycle of institutional assessment.

The 21st century library must become the value added provider of information services for the engineering community. It must find the products and services that no other organization within the community can provide, and add value to them in relationship to the 21st century customer information wants and needs. This obviously means finding out what those information products and services are, and how to add value to them. Engineering college librarians need to get outside their comfort zone and just do it !

It is the mission of the management and the responsibility of the engineering college librarian to resolve, much in advance, to devote their time, talent and resources towards building a quality library. This means living in the present while looking at the past and building the future. Constant upgradation of skills focusing on the anticipatory demands of the user and the facilities of ICT can transform the engineering library into a 'quality' one. This translates into giving the users expected services but also surprising them with added value that they did not expect. This draws users into the pleasant library environment and makes the library an exciting place to be. Such a library is then available for Accreditation at any time.

**Figure 6.11 : Proposed Model for Accreditation in an Engineering College Library**



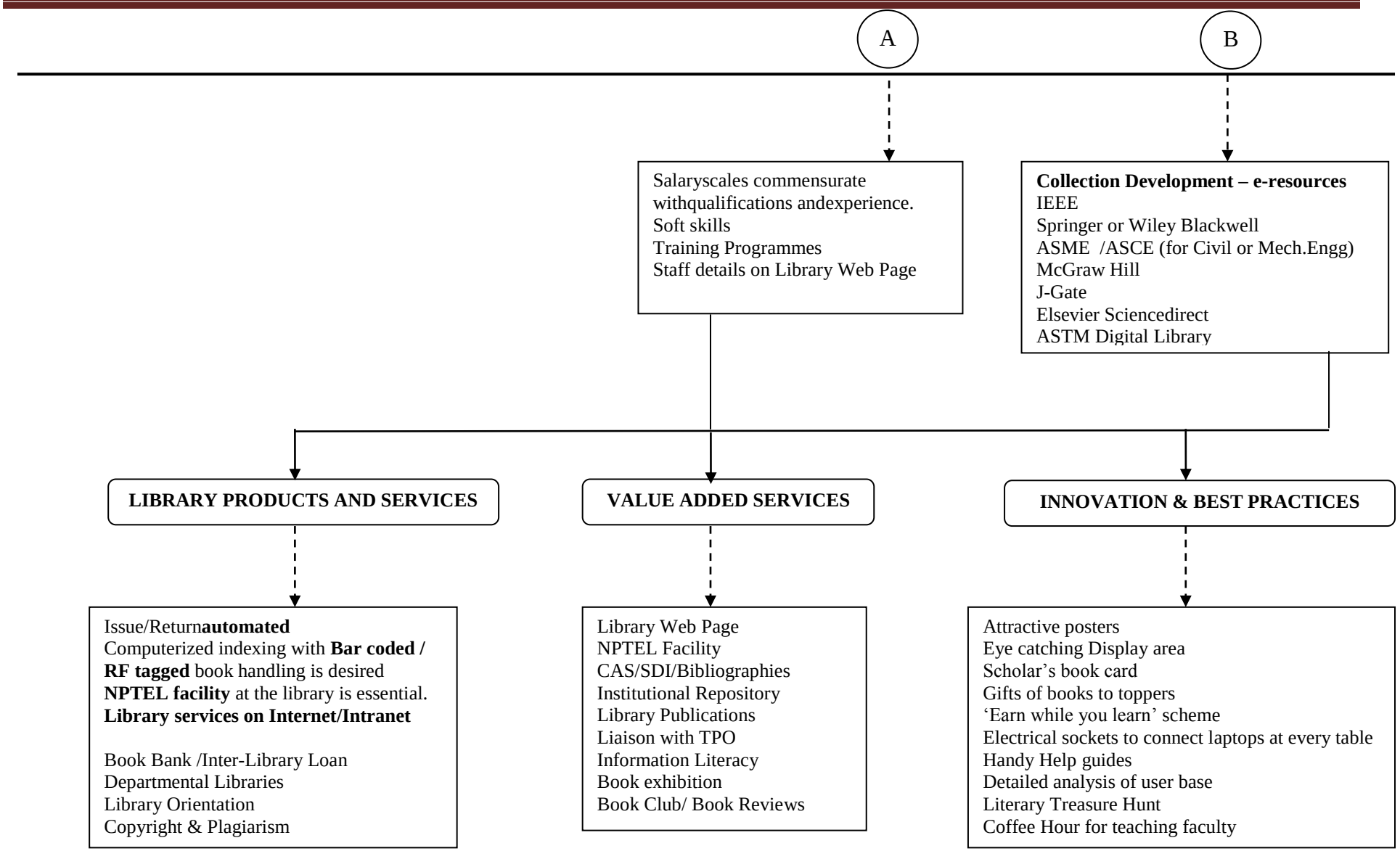

A
B
Salaryscales commensurate withqualifications andexperience.
Soft skills
Training Programmes
Staff details on Library Web Page
Collection Development – e-resources
IEEE
Springer or Wiley Blackwell
ASME /ASCE (for Civil or Mech.Engg)
McGraw Hill
J-Gate
Elsevier Sciencedirect
ASTM Digital Library
LIBRARY PRODUCTS AND SERVICES
VALUE ADDED SERVICES
INNOVATION & BEST PRACTICES
Issue/Returnautomated
Computerized indexing with Bar coded / RF tagged book handling is desired
NPTEL facility at the library is essential.
Library services on Internet/Intranet
Book Bank /Inter-Library Loan
Departmental Libraries
Library Orientation
Copyright & Plagiarism
Library Web Page
NPTEL Facility
CAS/SDI/Bibliographies
Institutional Repository
Library Publications
Liaison with TPO
Information Literacy
Book exhibition
Book Club/ Book Reviews
Attractive posters
Eye catching Display area
Scholar's book card
Gifts of books to toppers
'Earn while you learn' scheme
Electrical sockets to connect laptops at every table
Handy Help guides
Detailed analysis of user base
Literary Treasure Hunt
Coffee Hour for teaching faculty

Figure 6.12 :AICTE norms for engineering institutions

**AICTE NORMS FOR ENGINEERING INSTITUTIONS**

**Minimum area** = 400 sq metres

**Reading room** sitting capacity = 15% of total students (max 150)
Additional Reading room area of 50 sq m / per 60 students for intake beyond 420

**Digital library** facility with multimedia facility is essential
Multimedia PCs -1% (max 10)

**Reprographic facility** in the library is essential.

Document **Scanning facility** in the libraryis essential

Document **Printing facility** in the library is essential.

Availability of **NPTEL facility** at the library is essential.

Computerized indexing with **Bar coded / RF tagged** book handling is desired

**Collection Development –Titles**
Number of Titles = 100 titles
Yearly addition = 50 titles per course per year

**Collection Development –Volumes**
Number of Titles = 500 volumes
Yearly addition = 250 volumes per course division per year

**Collection Development –National journals**
Number of journals = 6 journals * course division

**Collection Development – International journals**
Number of journals = 6 journals * course division

**Collection Development –e-books**
Number of e-books = 25% of total number of titles and volumes each can be in the form of e-books.

**Collection Development – e-resources**
IEEE
Springer or Wiley Blackwell
ASME /ASCE (for Civil or Mechanical Engineering)
McGraw Hill
J-Gate
Elsevier Sciencedirect
ASTM Digital Library

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# CHAPTER 7

# CONCLUSION

*"Surveys do not solve problems. They identify potential sources of problems and act as catalysts for organizational change."*

*- Schienmann, 1991.*

## 7.1 Background

The researcher has undertaken an investigative study in order to understand the impact of Accreditation on engineering college libraries in Mumbai. The research methodology used was a questionnaire along with personal interviews directed towards the librarians of engineering colleges affiliated to the University of Mumbai.The questionnaire was designed so as to obtain data about various aspects of the engineering library, its policies and procedures, various criteria like timings, infrastructure and staffing, different parameters like library services and facilities, library products and value added services. The questionnaire was also intended to understand the impact of Accreditation on the above facets of the engineering library.

A detailed literature review helped the researcher to understand that the studies undertaken so far do not illustrate the impact of Accreditation – whether it is positive or negative to the library and librarians and ultimately to the library user.The review of existing literature also did not demonstrate the impact of Accreditation on various features of the academic library like infrastructure, staffing, library products and services. It was with these facts in mind that this study had been undertaken.

The data collected through the questionnaire was analysed and presented so that interpretations could be made and conclusions could be drawn.It also helped to assess how Accreditation has helped both the librarian and the users what were the lessons learnt for the future. The analysis of data showed that most engineering college librarians in Mumbai had been through the process of Accreditation or were in the process of applying for Accreditation. They were therefore aware of the importance and depth of Accreditation.Most engineering college librarians believed that the process of Accreditation by the NBA had a positive impact on the various components of the library like the collection, the infrastructure, the products and services. Most engineering college librarians

were also of the opinion that the NBA should lay more emphasis on specific policies and procedures of the engineering college library with respect to the process of Accreditation.

Based on the analysis of data and the subsequent findings, the researcher was able to propose a model for the Accreditation of engineering college libraries. The researcher suggested a SWOT analysis right at the beginning followed by budgeting and proper record of expenses, systematic documentation and a move towards innovative measures and best practices. All this will ensure that the engineering library is on a 'pathway to excellence' and ready for Accreditation at any time.

## 7.2 Objectives of the study and its fulfilment

The objectives set for the research study is fulfilled properly and discussed thoroughly in the different chapters.

Objective 1- To study the process of Accreditation by the NBA in the context of engineering college librariesis achieved through Chapter 2 on Accreditation.
Objective 2 -To identify the various components of the process of Accreditation by the NBA in engineering college libraries in Mumbai is achieved through Chapter 2 and 3 and the questionnaire which highlights the norms of the AICTE with regard to space, collection development, library services etc.
Objective 3 - To test the impact of Accreditation on Collection development, Infrastructure, Staffing and Library services of engineering college libraries in Mumbaiis achieved through Chapter 4 by analysing the collected data with regard to the impact of Accreditation on the various aspects of the engineering college library like collection development, infrastructure, staffing and Accreditation related information like management support and assistance.
Objective 4 - To suggest procedures and facilities that the NBA could emphasize on with respect to the process of Accreditation in engineering college librariesis achieved through Chapter 4 by analysing the collected data with regard to NBA emphasis on various policies and procedures during the course of Accreditation and Chapter 5 which are the findings of the study and suggestions related to the same.
Objective 5 - To propose a formal model for the planning and implementation of the accreditation process in engineering college librariesis achieved through Chapter 6 in which

a model has been proposed for the process of Accreditation.

The present research study is very useful for librarians and library staff of various engineering college libraries since it explains the impact of accreditation on engineering libraries. It also provides a systematic plan of how to prepare for the process of Accreditation. It is also useful to the administrators, the management of these colleges and those involved in the funding for various aspects of the libraries. The study implies that quality is a continuous journey that will need support and funding from time to time. The study also provides suggestions to the governing bodies with regard the criteria and the points allotted for the same so that the process of Accreditation becomes streamlined into a 'Pathway for Excellence'. Besides these, other stake holders in the academic arena like parents, teachers and society as a whole are made aware, through this research study, of what to expect from an accredited institution and its library with respect to infrastructure, facilities and services.

## 7.3 Hypothesis and its testing

The hypothesis formulated by the researcher during the research study is successfully tested in the various sections of Chapter 4.

Hypothesis 1 - Engineering college librarians in Mumbai have been through the process of Accreditation or are in the process of Accreditation.

The researcher has tried to find out the Accreditation status of the various engineering colleges affiliated to the University of Mumbai. The collection of data and its subsequent analysis showed that most of the engineering colleges and their constituent libraries have been through the process of Accreditation or are in the process of Accreditation.

Hence Hypothesis I that most engineering college librarians in Mumbai have been through the process of Accreditation or are in the process of Accreditation is verified and accepted.

Hypothesis 2 - The process of Accreditation has a positive impact on engineering college libraries.

A number of queries in the questionnaire were directed towards obtaining important information from the librarian – namely

- The impact of Accreditation on Collection development in the library
- The impact of Accreditation on Infrastructure development in the library

- The impact of Accreditation on Staffing Pattern in the Library
- The impact of Accreditation on Library Services and Products

From the analysis of data it was interpreted that most engineering college librarians affiliated to the University of Mumbai stated that the process of Accreditation had a positive impact on their library with regard to collection development, infrastructure development, staffing pattern and library services and products.

Hence Hypothesis II that the process of Accreditation has a positive impact on their library is accepted.

Hypothesis 3 - The NBA should lay more emphasis on specific criteria and practices of the engineering college library with respect to the process of Accreditation.

The engineering college librarians were asked about their views with regard to the NBA emphasis on library criteria and practices with respect to Accreditation. The replies of the respondents which were collected, analysed and interpreted showed that most engineering college librarians believed that the National Board of Accreditation should lay more emphasis on specific criteria with respect to the process of Accreditation.

Hence Hypothesis III that the NBA should lay more emphasis on specific criteria and practices of the engineering college library with respect to the process of Accreditationis accepted.

## 7.4 Future areas of Research

The present study conducted by the researcher is based on engineering college libraries in Mumbai. It seeks to understand the impact of the process of Accreditation. However the studies still have scope for improvement. Similar studies can be carried out for other professional courses under the AICTE or seeking Accreditation by the NBA. A study of the impact of Accreditation on the users of the engineering library i.e. students and faculty could also be conducted. Besides a study basedon the comparison on the impact of Accreditation by the NAAC and the NBA could also be undertaken. In order to overcome the limitations it is suggested across cities or states or sample size could be increased. The advantages of such studies is that it will assist in transforming academic libraries into quality libraries.

## 7.5 Summing up

In academic institutions, especially engineering colleges, the process of Accreditation is looked upon as necessary yet dreadful. The adherence to all the norms of the AICTE, DTE and University of Mumbai along with specific yet detailed documentation and proofs takes up a lot of time, energy and manpower. The documentation itself is considered a tedious process. Add to that the visit of the NBA committee, the questions they might pose and the final result makes administrators, including librarians wary of this exercise. It is hoped that the regulatory bodies, the accrediting bodies as well as the management of engineering college libraries will consider the suggestions made in this study as a move towards creating and maintaining 'Quality Libraries'. It is also hoped that this study, along with the proposed model will assist engineering college librarians to prepare for the process of Accreditation.

Dalrymple (2001) insists that Librarians need to understand accreditation and how it works, and to be familiar with the events that have influenced the structure of accreditation in recent years. The current approach to accreditation emphasizes self-assessment and continuous improvement, providing useful management tools for librarians.

Adeola(2014) states that Accreditation is a once in a lifetime opportunity for advancement not only of the physical plant and collection but also the career and economic status of the library staff. Librarians should be actively involved in the Accreditation because the provision and use of library materials and services affects the quality of the students' educational experience.

It is only when librarians realise how their participation in these processes can result in improvement for the library then both the library and the institution benefit. The road to improvement of an academic library will also result in improvement of the library staff, in the context of knowledge, roles, skills, and horizons. Mathews, (2014) states that librarians need to decide about how they will think of the future; not what it will become. Librarians need to consider the local situation but also remain mindful of larger issues impacting that situation. He reiterates that the changing higher education scenario provides a niche for the library proficient in handling information.

Against the background of all this it is hoped that this study will contribute towards enhancing the positive aspects of the process of Accreditation in engineering college libraries. It anticipates a more pro-active role for the engineering college librarian to concentrate their efforts towards building a 'Quality Library' and thus pave the way towards 'Pathway to Excellence' in the information arena.

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# APPENDIX 1

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139 http://www.apsit.org.in/accessed on 12th February 2014

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144 http://www.csmit.inaccessed on 11th February 2014

145 http://www.djscoe.orgaccessed on 23th January 2014

146 www.dmce.eduaccessed on 25th March 2014

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148 www.donboscoit.ac.inaccessed on 4th May 2014

149 www.famt.ac.in accessed on 12th February 2014

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154 www.git-india.edu.inaccessed on 13th January 2014

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159 www.kgce.orgaccessed on 23th January 2014

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162 www.phcet.ac.inaccessed on 25th March 2014
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165 www.mhssce.ac.inaccessed on 25th March 2014
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171 www.rait.ac.inaccessed on10th February 2014
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173 www.sce.edu.inaccessed on 15th March 2014
174 www.kvctarmiet.comaccessed on 26th March 2014
175 http://www.siesgst.net/accessed on 15th March 2014
176 www.spit.ac.inaccessed on 25th March 2014
177 http://www.shahandanchor.com/metsmartcampus/accessed on 25th March 2014
178 www.sspmcoe.comaccessed on 15th April 2014
179 www.spce.ac.inaccessed on 25th March 2014
180 www.sigce.edu.inaccessed on 10th February 2014
181 www.sfitengg.orgaccessed on 15th March 2014
182 www.ssjcoe.co.inaccessed on 10th February 2014
183 www.sjcet.co.inaccessed on 25th April 2014
184 http://shivajiraojondhalecoe.org.in/accessed on 12th March 2014
185 www.slrtce.inaccessed on 10th February 2014
186 www.terna.orgaccessed on 25th March 2014
187 www.tsec.eduaccessed on 25th March 2014
188 www.tcetmumbai.inaccessed on 15th March 2014
189 www.theemcoe.orgaccessed on 24th March 2014
190 www.universal.edu.inaccessed on 23th March 2014
191 www.vpmmpcoe.orgaccessed on 25th January 2014
192 www.vit.edu.inaccessed on10th February 2014

193 www.vcet.edu.inaccessed on 15th March 2014

194 www.vishwatmakengg.inaccessed on 25th March 2014

195 www.vesit.eduaccessed on 14th March 2014

196 http://www.viva-technology.org/accessed on 25th March 2014

197 www.vishwaniketan.edu.inaccessed on 18th March 2014

198 www.vjti.ac.inaccessed on10th February 2014

199 www.watumull.eduaccessed on 12th January 2014

200 www.xavierengg.comaccessed on 25th March 2014

201 www.tasgaonkartech.comaccessed on 10th February 2014

# APPENDIX 2

## LIST OF ENGINEERING COLLEGES IN MUMBAI

| Sr No | Name of College | Short name | Address | Contact No | Website |
|---|---|---|---|---|---|
| 1 | A C Patil College of Engineering | ACPCE | Plot No. 17, Sion-Panvel Expressway, Opp. Kharghar Railway Station, Sector -4, Kharghar, Navi Mumbai, 410210 | 022 2774 5732 | www.acpce.org |
| 2 | Anjuman-I-Islam's College | AIKTC | Plot No 2 & 3, Near Thana Naka, Sector 16, Khanda Colony, Panvel, Navi Mumbai, 410206 | 022 27481247/ 48 | www.aiktc.com/engineering |
| 3 | A P Shah Institute of Technology | APSIT | Survey No. 12, Opp. Hypercity Mall, Kasarvadavali, Ghodbunder Road, Thane West, 400615 | 022 25973737 | http://www.apsit.org.in/ |
| 4 | Atharva College of Engineering | ACE | Charkop Naka, Malad - Marve Road, Asmita Jyoti Housing Society, Malad West, Mumbai, 400095 | 022-40294949 | www.athravaeducation.com |
| 5 | B.R. Harne College of Engineering and Technology | BRHCET | At - Karav, Post- Vangani (West), Tal.- Ambernath, Dist - Thane, Pin Code - 421 503. | 0251 – 2483344 | www.brharnetc.edu.in |
| 6 | Bharat College of Engineering | BCE | Opposite Gajanan Maharaj Temple, Badlapur West, Kanhor, 421503 | 077220 13100 | www.bharatedu.co.in |

| | | | | | |
|---|---|---|---|---|---|
| 7 | BharatiVidyapeeth College of Engineering | BVCOE | Sector - 7 Belpada, Near Kharghar Railway Station, Navi Mumbai - 400614. | 022 2757 1074 | www.bvcoenm.org.in |
| 8 | ChhtrapatiShivajiMaharaj Institute of Technology | CSMIT | Near Shedung Toll Plaza, Old Mumbai-Pune Highway, Panvel, Navi Mumbai, 410206 | 08655678500 | http://www.csmit.in |
| 9 | D.J. Sanghvi College of Engineering | DJSCE | Plot No.U-15, J.V.P.D. Scheme, Bhaktivedanta Swami Marg, Vile Parle West, Mumbai, 400056 | 022 4233 5000 | http://www.djscoe.org |
| 10 | DattaMeghe College of Engineering | DMCE | Plot No. 98, Sector 3, Airoli, Navi Mumbai 400708 | (022) 27792854 | www.dmce.edu |
| 11 | Dilkap Institute of Engineering and Management Studies | DRIEMS | At.Mamdapur, Post- Neral, Tal- Karjat, Dist.Raigad | 02148 – 651806 | www.driems.in |
| 12 | Don Bosco Institute of Technology | DBIT | Premier Automobiles Road, Opp. Fiat Company, Kurla West, Mumbai, 400070 | 022 2504 2018 | www.donboscoit.ac.in |
| 13 | Finolex Academy of Management and Technology | FAMT | P- 60, P-60/1, MIDC, Mirjole Block, Ratnagiri, 415639 | 02352 228 361 | www.famt.ac.in |
| 14 | Fr. Conceicao Rodrigues Institute of Technology | FRCRCE | Agnel Technical Education Complex, Father Agnel Marg, Sector 9A, Vashi, Navi Mumbai, 400703 | (022)41611000 | www.frcrit.ac.in |
| 15 | Fr.Conceicao Rodrigues College of Engineering | FRCRIT | Fr Agnel Ashram, Bandstand, Bandra West, Mumbai, 400 050 | 022 6711 4000 | www.frcrce.ac.in |
| 16 | G.M. Vedak Institute of | GMVIT | At-Post-Tal-Tala, , Tala-Indapur Street, | 02140 - 269088 / | www.gmvit.org.in |

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|---|---|---|---|---|---|
| | Technology | | Dist-Raigad, Pin code 402111 | 269004 | |
| 17 | G.V. Acharya Institute of Engineering and Technology | GVAIET | Opp. Shelu Suburban Railway Station, Veeracharya Technical Education Campus, Taluka - Karjat, 410201 | 9960045261 | www.gmvit.org.in |
| 18 | Gharda Institute of Technology | GIT | At Post - Lavel, Tal - Khed, District - Ratnagiri. Pin code - 415 708. | 91 2356 262797 / 98 / 99 | www.git-india.edu.in |
| 19 | Ideal Institute of Technology | IIT | GOT No 40-1/2, Pimplas Road, Posheri, Wada Maharashtra 421303 | 2526212144 | http://www.idealwada.com/Index.aspx |
| 20 | K J Somaiya College of Engineering | KJSCOE | Vidyanagar, Vidyavihar East, Mumbai, 400077 | 022 6644 9191 | www.somaiya.edu/vidyavihar/kjsce |
| 21 | K.J. Somaiya Institute of Engineering and Information Technology | KJSIEIT | Somaiya Ayurvihar Complex, Eastern Express Highway, Near Everard Nagar, Sion East, Mumbai, 400022 | 022 2408 0331 | www.somaiya.edu/kjsieit |
| 22 | K. C. College of Engineering | KCCOE | MithBunder Road, Near Sadguru Gardens, Kopari, Thane East, 400603 | 022-25327100 | www.kccoe.org |
| 23 | Konkan Gyanpeeth College of Engineering | KGCE | Vengaon Road, Dahivali, Tiware , Dist Raigad, Karjat, 410201 | 02148 220 770 | www.kgce.org |
| 24 | LokmanyaTilak College of Engineering | LTCOE | Kopar Khairane, Sector 4, Vikas Nagar, Navi Mumbai, 400709 | 022 2754 1005 | www.ltce.ltjss.net |
| 25 | Pillai's Institute of Information Technology , Engineering , | PIIT | Dr. K. M. Vasudevan Pillai Campus, Plot 10, Sector 16, New Panvel, Navi Mumbai, | 022 2745 6100 | www.piit.ac.in |

| | | | | | |
|---|---|---|---|---|---|
| | Media studies and Research | | 410206 | | |
| 26 | Pillai HOCL College of Engineering and Technology | PHCET | Rasayani, Khalapur, HOC Colony Road, Panvel, 410207 | 02192 2745 6100 / 1700 | www.phcet.ac.in |
| 27 | M.G.M.'s College of Engineering and Technology | MGMCET | Plot No. 1, 2, Sion - Panvel Expressway, Sector 18, Kamothe, Navi Mumbai, 410209 | 022 2743 3403 | www.mgmmumbai.ac.in/mgmcet |
| 28 | Metropolitan Institute of Technology and Management | MITM | Village Sukhalwad, Near Sindhudurg Railway Station, Malvan, Sindhudurg, Oras, 416534 | 2362 228550-54 | www.mitmindia.in |
| 29 | New Horizon Institute of Technology and Management | NHITM | New Horizon Education Society's Complex, Off Ghodbunder Road, Anand Nagar, Kavesar, Thane West, 400615 | 022-25971778 | www.nhitm.org/ |
| 30 | PadmabhushanVasantdadaPatil Pratishthan's College of Engineering | PVPPCOE | Vasantdada Patil Education Complex, Eastern Express Highway, Sion - Chunabatti, Near Everard Nagar, Mumbai, 400022 | 022 2407 0547 | www.pvppcoe.ac.in |
| 31 | RajaramShinde College of Engineering | RSCOE | At Pedhambe, Po. Alore<br>Tal –Chiplun, Dist - Ratnagiri 415 603 | 02355-230007 | http://www.mandareducsoc.org/collOfEngg.htm |
| 32 | Rajendra Mane College of Engineering and Technology | RMCET | At - Ambav (Devrukh).<br>Tal.- Sangameshwar, Dist. Ratnagiri 415804. | 02354 241 503 | www.rmcet.com |
| 33 | Rajiv Gandhi Institute of Technology | RGIT | JuhuVersova Link Road, Behind HDFC Bank Versova, Andheri West, Mumbai, 400053 | 022 2670 7025 | www.mctrgit.ac.in |

| | | | | | |
|---|---|---|---|---|---|
| 34 | RamraoAdik Institute of Technology | RAIT | Sector 7, Phase I, Pad. Dr. D. Y. PatilVidyapeeth, Nerul, Navi Mumbai, 400706 | 8898058315 22 27709505 | www.rait.ac.in |
| 35 | Rizvi College of Engineering | RCOE | New Rizvi Educational Complex, Off Carter Road, Bandra West, Mumbai, 400050 | 022 2605 2072 | http://eng.rizvi.edu.in/ |
| 36 | S.I.E.S. Graduate School of Technology | SIESGST | Vidyapuram, Sector 5, Nerul, Navi Mumbai, 400706 | 022-27716969 | http://www.siesgst.net/ |
| 37 | S.S.P.M.'S College of Engineering | SSPMCOE | Harkul Budruk, Kankavali, SH181, Kankavali, Maharashtra 416602 | 02367-202083 | www.sspmcoe.com |
| 38 | SabooSiddik College of Engineering | MHSSCE | 8, Saboo Siddik Polytechnic Road, Byculla, Mumbai, 400008 | (022) 23012922 | www.mhssce.ac.in |
| 39 | Saraswati College of Engineering | SCOE | Plot No. 46, Sector 5, Near MSEB Sub Station, Kharghar, Navi Mumbai, 410210 | 022 2774 3706 | www.sce.edu.in |
| 40 | Sardar Patel College of Engineering | SPCE | Bhavan's Campus, Munshi Nagar, Andheri West, Mumbai, 400058 | (022)-26289777, | www.spce.ac.in |
| 41 | Sardar Patel Institute of Technology | SPIT | Bhavan’s Campus, Munshi Nagar Andheri (West), Mumbai, 400058 | 26708520 Ext.313 | www.spit.ac.in |
| 42 | Shah and Anchor Kutchhi Engineering College | SAKEC | Mahavir Education Trust Chowk, W.T Patil Marg, Next to Duke's Company, Chembur, Mumbai, 400088 | 022-25580854 | http://www.shahandanchor.com/metsmartcampus/ |
| 43 | ShivajiraoJondhale College of | SJCET | At Asangaon, Tal Shahapur, Opp Railway | 02527-273999 | http://shivajiraojondhal |

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|---|---|---|---|---|---|
| | Engineering and Technology | | station, Dist : Thane 421601 | | ecoe.org.in/ |
| 44 | ShivajiraoJondhale College of Engineering | SSJCOE | Sheel-Kalyan Road, Sonarpada, Post-Manpada, Behind Venkatesh Petrol Pump, Dombivli East, Thane, 421204 | 0251 - 6512222 | www.ssjcoe.co.in |
| 45 | Shree L.R. Tiwari College of Engineering | LRTCE | Kanakia Park, Mira Road East, Thane, 401107 | 022-85295732 | www.slrtce.in |
| 46 | Smt. AlamuriRatnamala Institute of Engineering and Technology | ARMIET | A.S.Rao Nagar, Sapgaon, Shahapur, Thane, Maharashtra 400708 | 02527 212 222 8879648603/04 | www.kvctarmiet.com |
| 47 | Smt. Indira Gandhi College of Engineering | SIGCE | CIDCO, Plot No 17/18, Sector-16, Koper-Khairane, Mumbai, 400709 | 022 2754 3608/ 5242 | www.sigce.edu.in |
| 48 | St. Francis Institute of Technology | SFIT | Mount Poinsur, S.V.P. Road, Borivli West, Mumbai, 400103 | 022-28908585 | www.sfitengg.org |
| 49 | St. John College of Engineering and Technology | SJCET | Manor Road, Near Shakti Udyog Industrial Area, Vevoor Village, Palghar, 401404 | 02525 254 849 9860097672 | www.sjcet.co.in |
| 50 | Terna Engineering College | TEC | Plot No. 12, Sector-22, Opp. Nerul Railway Station, Phase-II, Nerul West, Navi Mumbai, 400706 | 022-61115444 | www.terna.org |
| 51 | ThadomalShahani Engineering College | TSEC | PG Kher Marg, TPS-III Off Linking Road, Bandra West, Mumbai, 400050 | 022 - 2649 5808 | www.tsec.edu |
| 52 | Thakur College of Engineering | TCET | A-Block, Thakur Educational Campus, | 022 - 28461891 / | www.tcetmumbai.in |

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|---|---|---|---|---|---|
| | and Technology | | Shyamnarayan Thakur Marg, Thakur Village, Kandivali East, Mumbai, 400101 | 92 | |
| 53 | Theem College of Engineering | TCE | BoisarChilhar Road, Boisar East, Palghar, Maharashtra 401402 | 02525- 284926 | www.theemcoe.org |
| 54 | Universal College of Engineering | UCE | Survey Number 146 , Chinchoti Anjur Phata Road, Near Bhajansons and Punyadham, Vasai, Thane, 401212 | 080070 00755 9168946669 | www.universal.edu.in |
| 55 | Vidyalankar Institute of Technology | VIT | Vidyalankarcampus,Vidyalankar College Marg, Wadala East, Mumbai, 400037 | 022 2416 1140 | www.vit.edu.in |
| 56 | Vidyavardhini's College of Engineering and Technology | VCET | K.T. Marg, Opposite Vasai Railway station, Vasai Road West, , Maharashtra 401202 | 9890175721 | www.vcet.edu.in |
| 57 | Vishwaniketan's Institute of Management Entrepreneurship and Engineering Technology | VIMEET | Survey Nos: 52,54,55,56, 57 Kumbhivali, Tal- Khalapur, Maharashtra 410202 | (02192) 274206 | www.vishwaniketan.edu.in |
| 58 | Vishwatmak Om Gurudev College of Engineering | VOGCE | Maharashtra State Highway 79, Mohili, Maharashtra 421601 | 9552581435 | www.vishwatmakengg.in |
| 59 | Viva Institute of Technology | VVIT | Shirgaon, Veer Sawarkar road, Virar (East) Tal-Vasai, Dist-Thane, 401303 | 0250 696 5620 | http://www.viva-technology.org/ |
| 60 | Vivekanand Education Society's Institute of Technology | VESIT | Hashu Advani Memorial Complex, Collector’s Colony, Chembur, Mumbai, 400074 | 022-61532532 / 61532510 | www.vesit.edu |

| | | | | | |
|---|---|---|---|---|---|
| 61 | VPM's MaharshiParshuramCollege of Engineering | VPMMPCOE | Post Velneshwar, Hedavi Guhanagar Road,, Tal Guhar, Ratnagiri, Maharashtra 415729 | 02359- 243102 | www.vpmmpcoe.org |
| 62 | VeermataJijabaiTechnical Institute | VJTI | H R Mahajani Marg, Matunga East, Near Five Garden, Mumbai, 400019 | 022 2419 8106 | www.vjti.ac.in |
| 63 | Watumull Institute of Engineering | WIE | 47,Worli Sea Face, Dr.R.G. Thadani Marg, Next to Venus Apartment, Worli, Mumbai, Maharashtra 400018 | 022 2497 4858 | www.watumull.edu |
| 64 | Xavier Institute of Engineering | XIE | OppRaheja Hospital, Mahim Causeway, Mumbai, 400016 | 022-24451961 | www.xavierengg.com |
| 65 | YadavraoTasgaonkar College of Engineering and Management | YTIET | Bhivpuri Road Railway Station, Chandhai, Nasrapur, Karjat, 410201 | 02148 321520/ 524 | www.tasgaonkartech.com |
| 66 | YadavraoTasgaonkar Institute of Engineering and Technology | YTCEM | Dr. N.Y. Tasgaonkar Technical Education Complex, Chandai, Bhivpuri Road Station, Tal. Karjat, Dist. Raigad, 410 201 | 02148- 320596 | www.tasgaonkartech.com |

# APPENDIX 3

## IMPACT OF ACCREDITATION ON ENGINEERING COLLEGE LIBRARIES IN MUMBAI

Ms. Janice Fernandes

### 1. GENERAL INFORMATION

Name : _____
Designation : _____
Institution : _____
Experience in years : _____
Qualification : _____
e-mail address : _____
Mobile No : _____

### 2. ORGANISATIONAL INFORMATION

Name : _____
Address : _____
Established in (year) : _____
Status : aided/unaided : _____
Contact numbers : _____
Website : _____

### 3. ACCREDITATION STATE

Which of the following accreditation states does your institution fall into –(Tick as applicable)

| Accredited | Re-accredited | Applied for accreditation | In process of applying | Not applied | Not eligible |
|---|---|---|---|---|---|
| | | | | | |

If Accredited or Re-accredited, kindly provide details.

| Sr No. | Course | Accreditation state | Year of Accreditation and Grade awarded | Year of Re-accreditation and Grade awarded |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

### 4. NUMBER OF COURSES AND INTAKE CAPACITY

| Sr No | Programme | Type | Intake Capacity |
|---|---|---|---|
| 1 | Electronics and Telecomm Engg | U.G. | |
| | | P.G. | |
| 2 | Computer Engineering | U.G. | |
| | | P.G. | |

| | | | |
|---|---|---|---|
| 3 | Information Tech Engineering | U.G. | |
| | | P.G. | |
| 4 | Electronics Engineering | U.G. | |
| | | P.G. | |
| 5 | Electrical Engineering | U.G. | |
| | | P.G. | |
| 6 | Mechanical Engineering | U.G. | |
| | | P.G. | |
| 7 | Civil Engineering | U.G. | |
| | | P.G. | |
| 8 | Chemical Engineering | U.G. | |
| | | P.G. | |
| 9 | Others | U.G. | |
| | | P.G. | |

## 5. LIBRARY INFRASTRUCTURE

Total area of the Library -
Before Accreditation _____ sq.m . After Accreditation _____ sq. m
Separate Reference section Yes/No ?_____
Total Students :_____ Total Faculty : _____ Total Users: _____

## 6. IMPACT OF ACCREDITATION ON INFRASTRUCTURE DEVELOPMENT IN YOUR LIBRARY

The process of Accreditation has helped me - (Tick as necessary)

| Sr. no | Statement | Adequate before Accreditation | Adequate after Accreditation |
|---|---|---|---|
| 1 | To acquire sufficient area for library use | | |
| 2 | To procure adequate furniture with relation to the number of users | | |
| 3 | To make available sufficient computers and ICT enabled tools for users | | |
| 4 | To demarcate separate areas for Reference, Project discussion, enclosed carrels for scholars/research etc. | | |
| 5 | To make Wi-Fi facility available in the library | | |
| 6 | To make all infrastructural facilities adequate to meet the needs of the users | | |

## 7. LIBRARY TIMINGS

| Sr No | Timing | From | Upto |
|---|---|---|---|
| 1 | Academic working day | | |
| 2 | Academic weekend | | |
| 3 | Vacation | | |

Does your Library have specific timings for various sections, please provide details.

| Sr No | Library section | Regular Timing | During Exams | During Holidays |
|---|---|---|---|---|
| 1 | Issue/Return | | | |
| 2 | Periodicals section | | | |
| 3 | Reading room | | | |
| 4 | Reprography | | | |
| 5 | Digital library | | | |
| 6 | Other sections | | | |

Increase in working hours as a result of Accreditation _____

## 8. LIBRARY AUTOMATION AND DIGITAL LIBRARY

Is your library Automated ? Yes/No _____
If 'Yes' then is it Fully automated/ Partially automated/ Not automated
_____

| Sr. No | Statement | Adequate before Accreditation | Adequate after Accreditation |
|---|---|---|---|
| 1 | Do you have a Digital Library ? | | |
| 2 | Availability of exclusive space/room | | |
| 3 | Do you have an exclusive server ? | | |
| 4 | Library services on Intranet | | |
| 5 | Library services on Internet | | |

Library software used ? _____

## 9. LIBRARY ADVISORYCOMMITTEE

Do you have a Library Advisory Committee? Yes/No _____
How often are the meetings held? _____
Was the committee formed as a result of Accreditation ? Yes/No _____

## 10. LIBRARY STAFF

| Sr No | Designation | Number | Qualification |
|---|---|---|---|
| 1 | Librarian | | |
| 2 | Assistant Librarian | | |
| 3 | Library Assistant | | |
| 4 | Library Clerk | | |
| 5 | Library Attendant | | |
| 6 | Peon | | |
| 7 | Others | | |

## 11. IMPACT OF ACCREDITATION ON HUMAN RESOURCES IN YOUR LIBRARY

The process of Accreditation has helped me - (Tick as necessary)

| Sr no | Statement | Adequate before Accreditation | Adequate after Accreditation |
|---|---|---|---|
| 1 | To acquire adequate staff as per AICTE norms | | |
| 2 | To satisfy the information needs of my users through the current staff strength | | |
| 3 | To strike a balance between professional qualified, semi-skilled and non-skilled staff | | |
| 4 | To motivate my staff to utilise their talents and skills for the betterment of the library | | |
| 5 | To encourage my staff to attend training programmes and upgrade their skills | | |
| 6 | To secure for my staff, salary scales commensurate with qualifications and experience | | |

## 12. COLLECTION DEVELOPMENT – BOOKS, JOURNALS AND E-RESOURCES

**Please provide details about the total collection of your Library.**

| Sr. No | Year | No of new Titles added | No of new volumes added |
|---|---|---|---|
| 1 | 2013-14 | | |
| 2 | 2012-13 | | |
| 3 | 2011-12 | | |

**Please provide details about the print journals subscribed by your Library**

| Sr No | Year | No. of national journals subscribed | No. of international journals subscribed |
|---|---|---|---|
| 1 | 2013-14 | | |
| 2 | 2012-13 | | |
| 3 | 2011-12 | | |

**Please fill in this table. Tick as necessary.**

| Sr no | Item | Total number | Adequate before Accreditation | Adequate after Accreditation |
|---|---|---|---|---|
| 1 | Titles | | | |
| 2 | Volumes | | | |
| 3 | National journals (print) | | | |
| 4 | International journals (print) | | | |

| | | | | |
|---|---|---|---|---|
| 5 | CDs | | | |
| 6 | Theses | | | |
| 7 | Project Reports | | | |
| 8 | Newspapers | | | |
| 9 | e-books | | | |

**Which of the following e-resources does your Library subscribe to ?**
**(Tick as necessary)**

| Sr No | Name of e-resource | Before Accreditation | After Accreditation |
|---|---|---|---|
| 1 | IEEE (ASPP) | | |
| 2 | Springer | | |
| 3 | Wiley Blackwell | | |
| 4 | ASME | | |
| 5 | ASCE | | |
| 6 | McGraw Hill | | |
| 7 | J-Gate | | |
| 8 | Elsevier's Science direct | | |
| 9 | ASTM Digital library | | |
| 10 | Any other | | |

## 13. IMPACT OF ACCREDITATION ON COLLECTION DEVELOPMENT IN YOUR LIBRARY

The process of Accreditation has helped me -(Tick as necessary)

| Sr. no | Statement | Strongly agree | Agree | Undecided | Disagree |
|---|---|---|---|---|---|
| 1 | To procure sufficient titles and volumes for my library | | | | |
| 2 | To procure sufficient print journals for my library | | | | |
| 3 | To subscribe to a sufficient number of e-resources | | | | |
| 4 | To obtain additional funds for collection development | | | | |
| 5 | To gain tremendous support from management with regard to collection development | | | | |
| 6 | To implement proper documentation, filing and report generation | | | | |
| 7 | My library collection now satisfies user needs better than it did before Accreditation | | | | |

## 14. LIBRARY PRODUCTS AND SERVICES

**Do you provide the following – (Tick as necessary)**

| Sr. No | Statement | Before Accreditation | After Accreditation |
|---|---|---|---|
| 1 | Referral service | | |
| 2 | Inter Library Loan | | |
| 3 | Book Bank | | |
| 4 | Departmental Libraries | | |
| 5 | Web OPAC | | |
| 6 | Pamphlets , guides and hand-outs for Library orientation | | |
| 7 | Specialised training for faculty | | |

## 15. IMPACT OF ACCREDITATION ON SERVICES AND PRODUCTS IN YOUR LIBRARY

The process of Accreditation has helped me – (Tick as necessary)

| Sr no | Statement | Strongly agree | Agree | Undecided | Disagree |
|---|---|---|---|---|---|
| 1 | To provide better services to my faculty and students | | | | |
| 2 | To introduce new products to satisfy user needs | | | | |
| 3 | To computerise the Library using a Commercial software | | | | |
| 4 | To computerise the library using an Open Access software | | | | |
| 5 | To introduce specialised products like CAS, SDI and bibliographies | | | | |
| 6 | To provide ICT enabled services like e-mail and SMS alerts, wiki blogs etc | | | | |

## 16. VALUE ADDED SERVICES IN THE LIBRARY

**Do you provide the following — (Tick as necessary)**

| Sr No | Statement | Before Accreditation | After Accreditation |
|---|---|---|---|
| 1 | Current information through updated Library web page | | |
| 2 | RFID technology | | |
| 3 | Specialised services like CAS, SDI and Abstracting and Indexing services | | |
| 4 | Bibliographies – in anticipation and on demand | | |
| 5 | Information about Open Access Resources | | |
| 6 | Collecting and disseminating intellectual output through Institutional Repository | | |
| 7 | Assistance to Training and Placement Cell | | |
| 8 | Assistance to students for Campus interviews | | |

| | | | |
|---|---|---|---|
| 9 | Book Club, Book Reviews and Talks by authors | | |
| 10 | Use of social media and information communication tools for marketing | | |
| 11 | Library publications | | |
| 12 | Information dissemination through RSS feeds, Blog, Facebook , Wiki, e-mail alerts and SMS alerts | | |

## 17. YOUR VIEWS ON PREPARATION FOR NBA ACCREDITATION

17.1 Please fill in the following details (Tick as necessary)

| Sr No | Statement | Yes | No |
|---|---|---|---|
| 1 | Is your management providing enough support in preparation of NBA accreditation ? | | |
| 2 | Has you Institution hired any consultant to assist you in the process of Accreditation ? | | |
| 3 | Has the Institution formed any separate committee in preparation of Accreditation ? | | |
| 4 | Are you a member of the Committee formed in your Institution in preparation of Accreditation ? | | |
| 5 | Has your management undertaken any programs in preparation of Accreditation ? | | |
| 6 | Has your management organised any seminars/workshops in preparation of Accreditation ? | | |
| 7 | Have you attended any programs organised by other Institutions in preparation of Accreditation ? | | |
| 8 | Are you satisfied with the weightage given to the library by the NBA in their Accreditation process | | |

## 18. YOUR VIEWS WITH REGARD TO NBA EMPHASIS ON SPECIFIC CRITERIA FOR ACCREDITATION

Do you agree that the NBA should emphasise on the following criteria and practices with respect to Accreditation

| Sr No | Statement | Yes | No |
|---|---|---|---|
| 1 | Library orientation and follow up programs conducted for faculty and students | | |
| 2 | Feedback with regard to library collection and its usage | | |
| 3 | Library services and products | | |
| 4 | Innovative measures | | |
| 5 | Bringing more readers into the library | | |

| | | | |
|---|---|---|---|
| 6 | Liaisonwith faculty with regard to introducing small modules enhancing library use | | |
| 7 | Working together with training and placement cell to support career opportunities | | |
| 8 | Doing an analysis of quality rather than quantity with regard to various parameters | | |

## 1. QUALITY IMPROVEMENT OF LIBRARY PERSONNEL

Have you attended any Quality Improvement Programme / Conference/Workshop/Seminar/? Yes/No _____.If 'Yes' please provide details.

| Sr No | Theme | Organizer | Date | Venue |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |

## 1. IDEAS AND SUGGESTIONS

Please mention your ideas and suggestions regarding the process of Accreditation inEngineering College Libraries. (Your views are indispensable in enhancing the quality oflibrary services)

_____

_____

_____

_____

**THANK YOU FOR GIVING YOUR TIME AND KNOWLEDGE TO ADD VALUE TO THE PROFESSION.**