CHAPTER II

STATE OF ART OF ENGINEERING COLLEGE LIBRARIES
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STATE OF ART OF ENGINEERING COLLEGE LIBRARIES

1. History of higher education
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4. Role of industries in technical institutions
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2.1 HISTORY OF HIGHER EDUCATION:

Higher education occupies an important place in the educational process of country in independent India, higher education is considered as the important tool for national development. Education is the process of perfection of the mankind. Education is the comprehension of life, enlightenment of the people. Higher education is the main instrument for development and change. It has important task of preparing leaders for different walk of life such as social, intellectual, political, cultural, scientific and technological, etc. The intellectual dynamism, resources and economic prosperity of a country are reflected in quality of higher education. (Gandhi, 2000a)

The growth and development of higher education in India has been reviewed by eminent educationalists of post independence era. The Radhakrishnan Commission visualized a metamorphosis of higher education specifying the objective to produce good human beings.

The Kothari Commission of higher education aimed at generation of new knowledge, leadership, competence building, equality and social justice. This still remain as guiding principles of our educational policies. A committee under the chairmanship of Dr. S. R. Ranganathan was constituted in 1957 for the development of libraries in higher education in the country. It has given suggestions regarding the development of libraries.

A well equipped and well managed library is the foundation of modern educational system. It is said that “Education without library services is like a body without soul”. Formal education can be conducted effectively and efficiently only with well managed libraries. Today libraries are connected to a vast ocean of internet based services, electronic resources are developing rapidly. Academic library are the nerve centre of their institutions and must support teaching, research and other academic activities. (Joshi, 2011)

In India the development of higher education is closely associated with the steady growth and development of the library in the institute of higher learning. With
a large network of technical institutions established and developed since independence and the programs and initiatives launched in India during the successive plane periods, the technical education system has made significant contributions in producing one of the largest reservoirs of technical trained manpower. This has been a source of strength for scientific and industrial development.

2.2 TECHNICAL EDUCATION:

Development and Historical Perspective:

The role and significance of technical education all over the world needs no emphasis. In the Indian context, the role of technical education has been clearly spelt out in the Science Policy Resolution (1958) it states: "The wealth and prosperity of a nation depends on the effective utilization of its human and material resources through industrialization. The use of human material for industrialization demands its Education in science and training in technical skills. Industry opens up possibilities of greater fulfillment for the individual. India’s enormous resources of manpower can only become an asset in the modern world when trained and educated."

With a large network of technical institutions established and developed since independence and the programs and initiatives launched in India during the successive plan periods, the technical education system has made significant contributions in producing one of the largest reservoirs of technically trained manpower which has been a source of strength for scientific and industrial development.

Prof. Naik (2008) realized that the basis of development of any country today, lies in its educating people in technology. More the education more is the development, which is turn depends on technical education of its personnel, beside the availability of raw material, minerals etc.

Sen (1989) has traced the history of development of Technical Education and has brought out the salient features about the various stages the committees and commissions appointed in India and the various policy measures imitated before and after independence. The industrial revolution of the 18th century laid the foundation of a technological civilization and gave raise to a new system of learning process which is known as ‘Technical education’. The technical education system brought out the concept of establishment of training institutions in order to meet the challenges of fast changing technological environment.
Considering the worldwide developments of technical education, starting from the first technical institute established by Dr. John Anderson in Glasgow in the year 1790 to train the craftsmen and artisans, such efforts were followed by France with the establishment of her first technical institute in 1794 and later by USA with the establishment of the Rensslelear polytechnic institute of Troy (New York state) in 1823 which started giving the degree in civil engineering in 1935. (Awale, 1996)

2.2.1 Development of Technical Education in India:

The foundation of technical education was laid in India almost at the same time as in Europe but its growth was stunted till India became independent. In 1714, the English traders established a Survey school at Madras to train Indian personnel in modern land survey and to assist British surveyors in 1842 an industrial school was established at Guindy, Madras which was attached to the Gun Carriage Factory in Madras. Another industrial school was established at Poona in 1858 for the training of overseers.

The first engineering college named Thomson Civil Engineering College, Roorkee was established in 1847 by the provincial government to supply the manpower needed for the PWD and survey departments of the Government of India.

The need for introduction of occupational education was highlighted in 1854 in what has been known as Wood’s Dispatch. On the recommendations contained in Wood’s Dispatch on the need for creating training facilities, three engineering colleges were established, one each in Bengal, Bombay and Madras which developed into Bengal engineering College, Poona, Engineering College, and Guindy Engineering College respectively. The establishment of these colleges in 1856 was as per the Government policy. The pattern of training in these colleges was more or less the same. Another technical Institute known as Victoria Jubilee Technical Institute (VJTI) was established in Bombay in 1887 to train licentiates in electrical, mechanical and textile engineering and technology. (DTE-1997b)

In the beginning of the twentieth century, with an increased relation of the importance of technical education in India, another engineering college was established at Jaipur, Bengal under the spices of the National Council of Education which started a diploma course in Mechanical Engineering in 1908 followed by a chemical engineering course in 1921. Sir Jameshdji Tata, an industrialist and a devout
nationalist leader established the Indian Institute of Science at Bangalore in 1909, which started a certificate and an associate course at the degree level in Electrical engineering. In 1917 the Banaras Hindu University started a comprehensive degree course in electrical and mechanical engineering.

In 1936-37 a two member team of British experts advised the Government on a major reform in the education systems, based on which a model institution called Delhi polytechnic was started in Delhi which was later known as Delhi College of Engineering.

2.2.2 History of Technical Education in Maharashtra:

Following is the chronological development of technical education in Maharashtra state:

- 1845, Establishing school of engineering at Pune district with a certificate course.
- 1912, College of Engineering Pune was start with Civil Engineering Course.
- 1948-60, Combined State of Maharashtra, Gujarat was having 2 Engineering College & 3 Polytechnic colleges.
- 1960-78, 16 Engineering Colleges & 50 diploma level polytechnics established.
- 1983, Govt. of Maharashtra granted permission to start private Technical Institutions (Engineering Colleges, Polytechnics in Maharashtra).
- 2000, In Maharashtra State there are 129 engineering Colleges, 154 Polytechnics.
- 2005, in Maharashtra State there are 154 engineering colleges and 158 polytechnics.
- 2010, In Maharashtra State there are 309 Engineering Colleges (including 6 Autonomous) 387 Polytechnics.
The following table gives an idea about development of Technical education in Maharashtra since 1978, in terms of type of courses, number of institutes and the sanctioned intake:

Table 2.1

Development of Technical Education in Maharashtra.

<table>
<thead>
<tr>
<th>Sr. no.</th>
<th>Type of courses</th>
<th>Year</th>
<th>No. of Institutions</th>
<th>Sanctioned Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Degree Course in Engineering And Technology</td>
<td>1978</td>
<td>16</td>
<td>2642</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1988</td>
<td>76</td>
<td>14275</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1995</td>
<td>94</td>
<td>22740</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000</td>
<td>129</td>
<td>38939</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2005</td>
<td>154</td>
<td>46325</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2010</td>
<td>309</td>
<td>114268</td>
</tr>
<tr>
<td>2</td>
<td>Diploma in Engineering &amp; Technology</td>
<td>1978</td>
<td>28</td>
<td>5145</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1988</td>
<td>127</td>
<td>23436</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1995</td>
<td>160</td>
<td>30000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000</td>
<td>170</td>
<td>34295</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2005</td>
<td>174</td>
<td>68685</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2010</td>
<td>387</td>
<td>132632</td>
</tr>
</tbody>
</table>

Source: (http://www.msbte.com/ accessed on 18/02/2010)

With a large network of technical educational institutes established and developed since inceptions of the programs and initiatives launched in India. During the successive periods, the technical education such as most significant contributions in producing one of the largest reservoirs of technical trainee manpower which has been a course of strength for scientific and industrial development.

As the technical education courses in India are diverse, the number of institutes providing technical courses in India is also huge. The number of AICTE approved Institutes that offer engineering degree courses is 4,39,689. There are around 9244 Institutions in India that offer diploma courses in engineering. (www.indiaedu.com/technicaledu).
2.3 THE ROLE OF AICTE IN TECHNICAL EDUCATION:

The All India Council for Technical Education was established by then government of India on 30th November 1945 on the advice of the Central Board of Education.

All India Council for Technical Education (AICTE) is the apex body dealing with all issues of technical education of country, where as University Grants Commission (UGC) is apex body for all science, commerce and arts colleges and higher education institutions.

Ratnalikar (2000) has pointed out that AICTE as an organization has two distinct periods in its span of 56 years since its inception in 1945. One is from 1946-1987 and another 1987- onwards. In the first period of 40 years AICTE functioned only as recommendatory body. In the next period i.e. since 1987 when the AICTE bill was passed by Act of Parliament of India, it was vested with statutory powers.

The statutory AICTE was established for proper planning and to co-ordinate development of technical education. AICTE monitors qualitative growth of technical education in relation to planned quantitative growth and proper maintenance of norms and standards.

Engineering education, among all higher education in India, have been most progressive. The reasons may be many but one of them is certainly the role played by AICTE since its inception in 1945. Under the leadership of AICTE and because of the IIT's as role model for engineering institutions, engineering education has been far more adaptive and responsive to new demands curriculum reform, examination and assessment reform, industry linkage, quality improvement program. For the facility, set of ICT in admission and education delivery have been introduced to the greater extent across engineering institutions in the country.

The AICTE has put in process several initiatives for planning, formulation and maintenance of norms and standards, capacity building of accreditation, funding of priority areas, monitoring and evaluation of courses/programs, providing access or equity and quality in the field of technical education. In order to achieve the planned growth and quality in technical education system, the AICTE has spread number of effort to include competitiveness to face the globalization and in generating
competence and quality in technical qualified human resources to make it globally acceptable.

The National Policy on Education (1986) visualized that, the union government would accept the largest responsibility to reinforce the national and integrative character of education, to maintain quality and standards and to monitor the educational requirements of the country as a whole in regard to manpower development. In the context of unprecedented explosion of knowledge in higher education, particular in technological field.

In the December 1987, through Act No. 52 of 1987, the All India Council for Technical Education is vested with the statutory authority for planning, formulation of norms and standards, accreditation, funding of priority areas, monitory and evaluation, ensuring coordinated and integrated development of technical education (AICTE, 1990-rule-d).

Following are some of the functions of AICTE: (1990)

1. To lay down norms and standards for courses, curricula, physical and infrastructural facility, staff pattern, staff qualification and examination

2. To grant approval for starting new technical institutions.

3. To set up a national board of accreditation to periodically evaluation of technical initiations on the basis of guidelines, norms and standards specified by it.

The AICTE has a major role and responsibilities, not only in enabling states and institutions to plan systematically but also in credibility institutions and programs based on well-formulated norms and standards. These norms and standards for engineering colleges and polytechnics were existing in the past and they have been periodically reviewed.

2.4 ROLE OF INDUSTRIES IN TECHNICAL EDUCATION IN MAHARASHTRA STATE:

Science and technology is advancing today at faster rate. There has been increase in scientific inventions in the last, two decades and new dimensions to professional and technical skills become open. The socio-economic development of a country depends on industrialization which depends on technical education.
Industries play an important role in the development of technical education. Government of Maharashtra under World Bank assistance scheme, decided to involve the industries in development of technical education in Maharashtra state and signed a MOU to carry out the required activities with the confederation of Indian Industries (CII). The main objective of MOU is to develop technical education in Maharashtra state. Following are the objective of CII described in the book ‘Technical education in Maharashtra State’ (1997b),

1. To interact with government of Maharashtra on policy issue for improving the quality of technical education.
2. To act as a catalyst in co-ordination of efforts of industry/institute and government bodies for management of technical education.
3. To network with industries/institution for developing a strong technical manpower base, this would meet changing and growing demands of the industry.
4. To exchange the machining/equipments and utilities of government bodies on issues relating to technical education.
5. To liaison with zonal panel and advice the Maharashtra committee on issues relating to technical education and training.

2.5 ROLE OF LIBRARY IN TECHNICAL INSTITUTION:

The main function of college library is to satisfy its readers by providing needed information and with giving access to various resources for longer hours.

Academic library is a library that is an integral part of a college, university or other institution of post secondary education, administered to meet the information and research needs of its students. Faculty and staff depending upon the institution, the library may serve a particular faculty or the entire institute.

The increasing role of information technology in libraries has a significant impact on the changing roles of librarians. New technology is dramatically increasing the accessibility of information and communication technology, librarians are adopting to the evolving needs of users that emerge from the adoption of these new technologies.

The most significant example of how technology has changed the role of librarian in the last 50 years has been the move from traditional card catalogue to
online public access catalogues. The librarians are using the computer and software programs for library automation and moving towards virtual working environments.

The library of technical institute is using other technologies from electronic database including internet to logical functions such as barcode or RFID. Many Libraries provide virtual reference services, via web based chat, instant messaging, text messaging and e-mail. Work of digitization is taking place in technical libraries and improving access to information world wide. These examples illustrate some of the ways in which librarians of academic libraries are using technology to fulfill and expand their roles (www.Wikipedia)

The Primary functions of any college library are -

1) Acquisition of documents
2) Technical processing
3) Circulation of documents
4) Reference, referral & information services
5) Communication
6) Recourse sharing.

Dhiman & Sinha (2002) specified objectives of college libraries as follows –

1) To promote the records of the human knowledge and to keep them up to date in accordance with the growing needs and requirements of today & tomorrow.
2) To remind faculty members of various opportunities for using library resources in teaching.
3) To facilitate a group of the readers in the use of library resources with practical demonstration on how to seek the information.
4) To provide necessary resources for staff and students.
5) To bring the reading material to the notice of the students and staff together which stimulate reading for pleasure, self realization, personal growth and development.

Due to changing nature of education, libraries have become most important in every academic institution, the modern education is becoming more and more library oriented. The new technology have made an impact on the engineering institutes library, the librarians are shifting from collection to access. The card catalogue is
Replacing by OPAC. The integrated library system improved the operations of library with automation.

Majority of the engineering and polytechnics library collection is in the form of books, periodicals and non-book materials. In these colleges, book selection is based on the curriculum and the syllabus of the courses offered at the college level. Textbooks and book bank are important sources for these college libraries. E-journals are the important source for researcher students & Teachers.

Human resources are the most vital inputs to the sources of national, economic and social development, while the skills, expertise and attitude of the workforce are prerequisite for an organization/institutes ability to adjust to changing situations. Due to new trends in information and communication technologies, all accepted the renewed structure of organization and job process. This posed the greatest challenge to the HRD professionals and institutions. (Gandhi, 2000b)

The libraries in technical institutes exist to support teaching, learning and research activities. As such teachers, students and researchers form the major groups of users in engineering institutions. The main task of the technical institute library is to supplement the teaching and learning activities of teachers and learners. For this purpose and also to make their teaching and learning more effective and meaningful library caters various services to its users and hence information needs of teacher and students are satisfied.

The services of academic libraries were restricted in old days but now trend has changed. With this changing circumstance today, we find several services extended to the users like CAS/SDI/Internet/Bibliographic databases/Reference etc. In the era of information and communication technology, users are expecting more and better services from the library. Collection, conservation, expansion and dissemination of knowledge depends on libraries. Information is recognized as a vital resource, its need in decision making, extension of knowledge and conservation of research efforts is indispensable. Library is an essential integral component in higher education system. The college library not only supports the teaching learning process but also gives all spheres of information to teacher and students.

Library of technical institute is different from arts, commerce and science library, as it provides information and communication technology based services.
Today library professionals of engineering & polytechnic colleges are required to be search engine guru, effective net worker, service coordinator, information evaluator, information counselor and team leader.

Researcher would like to find out how these challenges are faced by the engineering college & polytechnic librarians. As these libraries can work as a role model for libraries in other disciplines.

2.6 ROLE OF LIBRARIAN IN TECHNICAL INSTITUTE’S LIBRARY:

The Education Commission (1964-66) made meaningful statement for a successful functioning of library i.e. “A collection of books, even a collection of good books, does not constitute a library. Given enthusiastic teachers, ‘who teach with books’ & librarians who can cooperate with them in converting the library in an intellectual workshop even a comparatively small collection of sensitively, chosen books may work wonders in the life of students without such a staff. The most luxurious buildings or extensive books collection may have no effect at all.”

The job analysis of college librarian is given by Satarkar (2000) in his book ‘Personnel management in college library’ as under -

1. Frame the policy of book acquisition including accepting donations.
2. To receive books from book sellers on approval.
3. Selection of vendor for supply of and decision about cash purchase, advance payment etc.
5. Keeping readers (especially faculty) informed about newly published books.
7. Classification of documents.
8. Maintenance of authority files for classification and cataloguing.
9. Obtaining recommendations for periodicals and obtaining periodicals on grants to give orientation to newly registered users.
10. To give reference service for the queries received.
11. To give CAS AND SDI services.
13. Selection of the binder.
14. To conduct annual stock verification.
15. Selection of hardware and software.
16. Purchase of hardware and software.
17. Installation of hardware and software.
18. Provision of consumable.
20. Provision of INFLIBNET-INTERNET services.
22. Distribution of budget, correspondence for grants etc.
23. Correspondence and other office work.

Sharma (1994) pointed out that when working in a knowledge environment the information professionals has three prime roles and responsibilities –

1) To provide information product and services that continually & consistently matches the requirement of the organization.

2) To reduce information users to ensure that they can access and use the information products and services effectively to maximize the quality and consistency of organizational knowledge.

3) To facilitate the sharing and transfer of knowledge.

The role of librarian in any library is to provide excellent services to users, information technology has added several new dimensions to this task. Working of librarian of engineering college library is very different from other libraries. The new technologies have made a deep impact on engineering institute libraries. Kacherki (2004) writes in his paper ‘New dimensions in the management of engineering college libraries’ that “In engineering college librarians can work as an information manager to provide right information to the right person at the right time are in other word they can give their traditional services such as reference service, indexing and abstracting
service, SDI, CAS, with a new look, librarian are challenged to develop new technical skills and abilities to validate the quality of information resources over the web.

The increasing role of technology in libraries has significant impact on the changing role of engineering college librarians. New Technologies are increasing the accessibility of information and librarians of engineering institutions adopting to the increasing needs of users that emerge from the adoption of new technologies.

The most significant example of how technology has changed the role of engineering institutions librarians in the last ten years that, library catalogue has been shifted to OPAC, all library operations has been automated, hardcopies of periodicals are replaced by e-journals, use of internet reduced the work of postage and cost. The other technical development took place is in the form of electronic databases, barcode technology, RFID technology. Many libraries provide virtual reference services via-web based chat, instant messaging, text messages and e-mail. Digital library have expanded its access to decentralized information. Librarians of engineering institutions have developed their repositories and adopted new formats of information such as e-journals and e-books.

2.7 QUALIFICATIONS, EXPERIENCE AND JOB DESCRIPTION OF LIBRARIAN:

As per AICTE (1990a rule.6.4) norms for polytechnic, the qualifications, responsibilities and job description of librarian as given in the rule no. 6.4 of norms and standards for Polytechnic institution, are as follows:

Staff Norms for Polytechnic: Minimum Requirement

1. Librarian - One
2. Library Assistant - Two
3. Library Attendant - Two

Responsibilities of the librarian:

1. The librarian is responsible for planning and development of the library.
2. The librarian should provide the necessary services to the students and staff of polytechnic.
3. Librarian is responsible to the principal in all matters concerned with the library activities and personnel.
Job Description of the librarian:

1. General administration
2. Budgeting
3. Book selection and acquisition
4. Planning and developing the library
5. Orientation the users towards effective utilization of library services and indexing.

Qualification: Education, Training & experience

A Librarian should possess following qualification for the post of librarian in polytechnic as per AICTE norms (1990b).

1) First or higher second class B.Sc. /B.A. /B.Com. Degree and
2) First or second-class M. Lib. Science degree.

As per AICTE (1990 rule 4.1 (g)) Library Books and journals norms are prescribed as under: Books and Journals.

**MINIMUM**

<table>
<thead>
<tr>
<th>Number of Books</th>
<th>=1000(1500xNumber of branches) Adequate coverage of large number of titles in all disciplines.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual addition of Books</td>
<td>= 50 books per discipline.</td>
</tr>
<tr>
<td>Periodicals</td>
<td>= 10 per discipline</td>
</tr>
</tbody>
</table>

**DESIRABLE:**

<table>
<thead>
<tr>
<th>Number of books</th>
<th>= 2000 + (2000x number of branches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual addition books</td>
<td>= 75 books per discipline.</td>
</tr>
<tr>
<td>Periodicals</td>
<td>= 15 periodicals per discipline.</td>
</tr>
</tbody>
</table>
Infrastructural Norms for Buildings & space: AICTE (1990c rule 3.1.1(IV))

- Minimum requirement for the polytechnic library of space is 150 sq.m. for first 500 intake capacity.
- And + 0.20 sq.m for every additional student.
- Desirable requirement for space in the library is 200 sq.m for first 500 students.
- And + 0.30 sq.m for every additional student.

Reading Room:
- 10% of total students.
- 25% of total strength of staff.

Desirable Norms:
- 15% of total students.
- 50% of total staff strength

Required for acquiring, storing, indexing, issuing and returning of books, periodical manual and providing reader services.

It is also suggested in the above AICTE norms report that, in addition to books and journals, each institute shall procure multimedia learning packages, Audio-visual aids, films, video films, etc. for effective teaching learning process as per need.

Duties, Responsibilities and qualifications of librarian of Engineering Colleges:

As per AICTE (1990a) norms for Engineering college the qualification, responsibilities and job description of librarian is given in the rule no. 8.11.1 of Norms and standards for Engineering Colleges, are as follows:

Staff Norms: Minimum Requirement

Following is the Minimum requirement of staff for working in each engineering college libraries as per AICTE norms -

1. Librarian - One
2. Assistant Librarian - Two
3. Library Assistant - Four
4. Library Attendant - Two
Responsibilities of the librarian:

Following are the responsibilities of engineering college librarians as per AICTE norms

1. The librarian is responsible for planning and development of the library.
2. The librarian should provide the necessary services to the students and staff of the college.
3. Librarian is responsible to the principal in all matters concerned with the library activities.

Job Description of Librarian:

Job description of librarian of engineering college is specified as per AICTE norms as under-

1. General administration
2. Budgeting
3. Books, periodicals/video tapes selection and acquisition
4. Planning and developing the library
5. Supervision of cataloguing and indexing
6. Arranging for repairs

Qualifications of the Librarian:

For the librarian in engineering college one should hold following qualification -

1) First or second class M. Lib. Science degree or
2) First class B. Lib. Science with 5 years of experience in a similar library.

Qualification for the post of librarian in Engineering & Polytechnic colleges is as per AICTE circular F.No.FD/PSSC/Clarif./2003/1 /Dt: 10.9.2003, the decision of 41st EC, the NET can be relaxed for candidates having First Class Master of Library Science (M.Lib.) (AICTE, 2003)
2.8 INFRASTRUCTURAL NORMS FOR ENGINEERING & POLYTECHNIC COLLEGE LIBRARIES:

As per AICTE (1990b rule 3.2.5) norms the library of an engineering college requires:

1. A Reading Hall
2. A Stack Room
3. A Current Periodical Room
4. A Issue Counter
5. A Office and Stores
   - The reading hall must have minimum accommodation 5% of total strength for students, and.
   - 10% of total strength of teachers.

Norms for Books/Journals:

According to AICTE (1990c rule 6.0) minimum and desirable norms for degree engineering institutions, library should fulfill the minimum norms for initial stock of books, yearly addition of books and number of journals to be subscribed as given below -

Table 2.2

"Books and Journal norms"

Norms for journals for degree institute as per AICTE (1990):

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Initial stock of books</th>
<th>Minimum</th>
<th>Desirable</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Each branch of Engineering</td>
<td>1000</td>
<td>1500</td>
</tr>
<tr>
<td>B</td>
<td>Mathematics</td>
<td>1000</td>
<td>1500</td>
</tr>
<tr>
<td>C</td>
<td>Applied physics, Applied Chemistry, Humanities Social science and Management science</td>
<td>1000</td>
<td>1500</td>
</tr>
</tbody>
</table>
### Yearly addition of books:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Yearly addition of Books</th>
<th>Minimum</th>
<th>Desirable</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Each branch of Engineering</td>
<td>1 Book / Student admitted to the branch</td>
<td>1.5 Books</td>
</tr>
<tr>
<td>B</td>
<td>Mathematics, physics Chem., Humanity, social sciences and management sciences.</td>
<td>0.2 book per students</td>
<td>1.3 books per students admitted to the branch</td>
</tr>
</tbody>
</table>

### Journals Norms

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Minimum</th>
<th>Desirable</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Each branch of Engineering 12 (6 national + 6 international journals)</td>
<td>16 (8+8) journals</td>
</tr>
<tr>
<td>B</td>
<td>Mathematics, physics, chemistry, social science and Managements and humanities 12 (6 National 6 International journals)</td>
<td>16(8+8) journals</td>
</tr>
</tbody>
</table>

Minimum Infrastructural Requirements for Engineering and Polytechnic Library: As per norms & standards of AICTE (1995a).

Engineering library requirements for staff, books & journals and infrastructural norms are as under:

**Staff norms** – (1995 rule 8.11.1)

- It is suggested that library should consist of following staff
  
  - Librarian - One
  - Assistant librarian - One
  - Library assistants - Four
Book norms - (rule 12.3.9)

- To being with the college irrespective of its admission strength library must have 4000 volumes.
- Every branches will have 250 titles with four multiple copies.
- In subject like mathematics, Humanities, physics, chemistry etc. there should be total 1000 volumes.
- Yearly addition of books
  i) 1 title per student admitted to the branch
  ii) 0.2 titles per student admitted per year for mathematics, applied science, humanities, social science and management.

Norms for Journals —

- There should be 12 technical journals (6 National, 6 international) for each branch of engineering. It is essential for institution offering PG courses to subscribe international journals. The number of international journal may be relaxed though preferred for those offering only UG courses.

Norms for Infrastructure:

1. The engineering college central library where 240 students can admit per year should have 400-sq.m area.
2. Separate space must be available for the display and reference of current periodicals.
3. Library should open 12 hours in a day for staff and students.

AICTE (1995b) norms for Polytechnic for Staff, Book, Infrastructure & Journals:

Following staff is recommended by AICTE as per Norms 1995 for Polytechnics:

Staff : (rule 6.4.1)

- Librarian - One
- Asst. Lib - One
- Lib. Attendant - Two
Books: (rule 9.3 (IV))

1. Engineering Technology books other discipline offered by the respective polytechnics 1500 X Number of discipline.

2. Basic science of engineering sciences 400 X Number of discipline.


Periodicals:

1. 10-15 periodicals per discipline.

2. For 1 to 3 above 10% books may be added annually to the library.

Infrastructural norms for polytechnic: (rule 9 (IV))

Minimum:

- 150 sq.m. for first 500 students + 0.20 sq.m. for every additional students.

Desirable:

- 200 sq.m. for first 500 students + 0.30 sq.m. for every additional students.

General norms for polytechnic library as per AICTE (1995c): (rule 9.3)

1. A library needs to properly establish in each polytechnic.

2. The teachers and students should view the library as a centre of learning.

3. Proper environment created in the library.

4. The students and teachers would spend more time referring to the books periodicals and research papers etc.

5. The library should have books related to the areas of programming offering, books related to basic need engineering science, books on communication skills and management, good kooks for general reading and periodicals related with science and technology.
6. The library should also have multimedia learning packages.
7. The library should also have facility for photocopying.

Norms and standards for engineering college & polytechnic were existing in the past and it has been periodically under review. Following are the current norms for Books, Journals & infrastructure are as follows -

Table 2.3

Current Norms for Books & Journals in Engineering & Polytechnic Institution according to AICTE, Handbook: - (AICTE, 2010)

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Title</th>
<th>Volume</th>
<th>National</th>
<th>International</th>
<th>Journal</th>
<th>Space Norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>100</td>
<td>500 X B</td>
<td>6 X B</td>
<td>3 X B</td>
<td>400/Sqm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*50 per course</td>
<td>*250 Per course</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polytechnic</td>
<td>50 per course</td>
<td>250 X B</td>
<td>3 X B</td>
<td>......</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*25 per course</td>
<td>*125 Per course</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Where,

- B is branch / course
- * is Yearly increment in stock.

As per AICTE Norms the library should provide following facilities in the library apart from all of above -

1. Digital library facility with multimedia facility is essential
2. Reprographic facility is essential
3. Document scanning facility in the library is essential
4. Document printing facility in the library is essential
5. Library books/non books classifications as per standard classification method is essential
6. Computerized indexing with the bar coded/RFID tagged book handling is desired.
All the technical institutions in India are required to maintain above norms for continuance of their recognition under the AICTE. It has been observed that in majority of engineering and polytechnic colleges the staff appointment not confirming the norms, in most of the places assistant librarian is not appointed. Particularly in polytechnics the overall staff strength of the library from assistant librarian to Library attendants was not as per the norms.

As per AICTE norms the basic qualification of librarian is M.Lib with First Class, it was observed that 18.25% of the librarian were under qualified in engineering colleges and 26.42% of the librarian were under qualified in polytechnic colleges.

As far as infrastructural facilities are concerned, in most of the colleges the area of library (400 Sqm as per norms) was not as per norms. Reading room facility was not up to the mark in most of the institutes. On the library automation front which is one of the most important norms, it was observed that many libraries have not even started the process of automation.

As far as journals (National & International, hard copies and e-journals) are concerned AICTE norms states that 6 national & 3 International journals more be subscribed in hard form & also some online subscription should be there, but it is observed that these technical institute are subscribing national journals as per norms but international journals were not subscribed by most of the institutions. E-journals found to be subscribed by majority of the institutions.
References:


2. AICTE (1990a) Norms and Standards for Polytechnic. New Delhi, All India Council for Technical Education. pp.32-34.

3. AICTE (1990b) Ibid. (Polytechnic) pp.16.

4. AICTE (1990c) Ibid. (Polytechnic) pp.07.

5. AICTE (1990a) Norms and Standards for Engineering. New Delhi, All India Council for Technical Education. pp.53-54.


7. AICTE (1990c) Ibid. (Engineering) pp.28.


