CHAPTER-4

TECHNICAL EDUCATION AND LIBRARIES OF TECHNICAL INSTITUTES IN ASSAM

In the history of mankind, education has formed a continuum and a basis for the development of human society. The present world scenes that world leadership is dominated by technology based nations. Technology can grow through integrated technical education that creates technologist – the nation builders.

In the emergent international order of fast technological changes, the pressures of globalization, quality consciousness, stiff competition, technology upgraded pose profound challenges to the technical education system. Multi-capability and Multi-usability of technicians has become the “Need of the hour”. The world of work, want a result-oriented technician, with minimum gestation period in industry.

Libraries of technical institutes emerged when the country became independent from the British regime. But it was World War II which brought a phenomenal growth of libraries of technical institutes, stimulated by the tremendous increase in the establishment of a numbers of scientific and technical organizations. Rapid growth of libraries of technical institutes is a phenomenon of the twentieth century, which in fact commenced with the attainment of independence in 1947. Thereafter, a large number of technical institutions were established time to time and at present all the institutions have their own libraries.
4.1 Technical Education in India

In India, technical education is imparted at various levels such as diploma, degree, postgraduate and research in specialized fields, catering to various aspects of technological development and economic progress.

The history of imparting formal technical education in India can be traced back to mid 19th century, although it got momentum in 20th century with the set up constitution of technical education committee of the Central University Board of Education (CUBE) in 1943; Preparation of Sergeant Report in 1944 and formation of All India Council of Technical Education (AICTE) in 1945. With the country gaining independence in 1947, the development of technical education had become a major concern for the government of India to face the new challenges and move the country forward.

Technical Education is one of the most significant components of the human resource development spectrum and it plays an important role in the socio-economic development of a country and it shares a major part to the education system. It covers courses and programmes in engineering, technology, management, architecture, town planning, pharmacy and applied arts & crafts, hotel management and catering technology. India’s general, technical and managerial capabilities are on par with the best of the world countries.

India is seriously handicapped with a very weak and narrow knowledge base, with 15% gross enrolment ratio in the higher education (Annual Report, 2011-12, MHRD, GOI), as compared to 30% in China, 94.1% in United States of America (UNICEF, May, 2008), 54.6% in developed countries and 36.5% in developing
countries (Suneja, 2012). However, the Ministry of Human Resource Development (MHRD) has set a goal of doubling GER to 30% by 2020 from the current 15%. There is need to convert the available huge human resource potential into a reality by expanding opportunities for youngsters. This is possible only if we seriously undertake rapid reforms in the higher and technical education sector.

Engineering Education in India was started during the British era and focused mainly on civil engineering. The very first engineering education was started in College of Engineering, Guindy, Madras (started as a Survey School in 1794) and since then so many engineering and polytechnics have come into existence. Figure 4.1 shows the establishment some of the major engineering institutions in the country.

Figure 4.1 Time Line of Indian Engineering Educations

(Source: Engineering Education in India, Rangan Banerjee et al., Department of Energy Science and Engineering, IIT, Mumbai)
Technical education is a branch of study that prepares human resources for field requiring well-informed and disciplined insight and skill of a high order. It is the process by which men and women get prepared for exacting, responsible service in a professional discipline scenario also show in the days of British rule, India started imparting technical education; but not in a proper format. In 1822, Native Medical Institute, the first technical educational institution was established at Calcutta. In, 1847, the first engineering college was established for training in civil engineering at Roorkee, which has been covered later on to Roorkee Engineering College and presently the Roorkee, IIT.

The set up of Indian Institutes of Technology, Indian Institutes of Management and Indian Institutes of Science were major steps in the development of technical education in the country. The quality of education of these institutes have managed to change the outlook of India so much that this ancient country which was earlier known for yoga and mediation is now known for computer engineers. However, it does not mean that the challenge of making technical education accessible to the rural populace and other under developed sections of the society has been overcome.

In order to maintain the standard of technical education, a statutory authority- The All India Council for Technical Education (AICTE) was set up in 1945. AICTE is responsible for planning, formulation and maintenance of norms and standards, quality assurance through accreditation, funding in priority areas, monitoring and
evaluation, maintaining parity of certification and awards and ensuring coordinated and integrated development and management of technical education in the country.

Technical education has made a significant contribution to India’s economic development. Ministry of Education, Govt. of India (1985) in the report “Challenge of Education” recognized the technical education as “the programmes which have changed the country and diversified and augmented its production since independence have been possible largely because of manpower produced by India’s institutions for technical education.”

Despite the establishment of Technical Training Institute and the recommendations of various committees, the orientation and quality of polytechnic education remains a major concern. The inability of the institutions of technical education to attract good teachers is another problem which has defied solution for many years. At any point of time, on an average, there are 20 to 30 percent vacancies in the sanctioned staff strength of degree and diploma level institutions. The better students are not attracted to teach in the technical institutions because salaries and perks in industry are much more attractive. The interaction between industry and technical institutions, which is so crucial for ensuring relevant quality and cost effectiveness, remains weak, despite exhortations for closer cooperation. Industrial investment is research undertaken by the institutions continues to be negligible.

In the Indian context, technology has to make a major contribution to rural development also. Although there are some examples of excellent work in this area, by and large technical institutions have not concerned themselves, as vigorously as they should have with the application of modern technology for the benefit of the
common man in the rural areas. There is a wide variation in standards between different types of technical institutions. In many states, the entire budget for technical education for supporting many engineering colleges and polytechnics is no greater than the provisions made for a single IIT.

4.1.1 Technical Education System in India

A three tier system is followed in technical education, namely: certificate level, diploma level and undergraduate and post-graduate level. The modified figure of “Technical Education System in India”, as stated by Mazumder (2008) in the ‘Workforce development in India’, is stated in Figure 4.2.

Figure 4.2 Technical Education Systems in India
(Source: Asian Development Bank Institute, 2008)
The technical education system in India can be broadly classified into three categories – Central Government funded institutions, State Government/State funded institutions & Private/Self-financed institutions. As per the annual report 2011-12 of MHRD, Govt. of India, the number of AICTE approved technical institutions region-wise are shown in Table 4.1:
<table>
<thead>
<tr>
<th>Region</th>
<th>States</th>
<th>No of Institutes</th>
<th>Intake</th>
<th>No of Institutes</th>
<th>Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>Chattisgarh, Gujarat, Madhya Pradesh,</td>
<td>575</td>
<td>188811</td>
<td>222</td>
<td>74390</td>
</tr>
<tr>
<td>Eastern</td>
<td>Andaman &amp; Nicobar Island, Arunachal Pradesh, Assam, Jharkhand, Manipur, Meghalaya, Mizoram, Orissa, Sikkim, Tripura, West Begal</td>
<td>256</td>
<td>96321</td>
<td>215</td>
<td>56220</td>
</tr>
<tr>
<td>North-West</td>
<td>Chandigarh, Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan</td>
<td>606</td>
<td>199201</td>
<td>608</td>
<td>188327</td>
</tr>
<tr>
<td>Northern</td>
<td>Bihar, Dadra &amp; Nagar Haveli, Uttar Pradesh, Uttarakhand</td>
<td>528</td>
<td>171180</td>
<td>324</td>
<td>84896</td>
</tr>
<tr>
<td>South-Central</td>
<td>Andhra Pradesh</td>
<td>975</td>
<td>380026</td>
<td>285</td>
<td>74460</td>
</tr>
<tr>
<td>South-West</td>
<td>Karnataka, Kerala</td>
<td>459</td>
<td>158012</td>
<td>307</td>
<td>80192</td>
</tr>
<tr>
<td>Southern</td>
<td>Puducherry, Tamil Nadu,</td>
<td>554</td>
<td>247110</td>
<td>459</td>
<td>174179</td>
</tr>
<tr>
<td>Western</td>
<td>Daman &amp; Deu, Goa, Maharashtra</td>
<td>516</td>
<td>162351</td>
<td>592</td>
<td>155161</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td>4469</td>
<td>1603012</td>
<td>3012</td>
<td>887825</td>
</tr>
</tbody>
</table>
To maintain uniformity in higher education all over the country and also to take care of un-served areas a number of centrally funded Institutions have been set up. Some such institutions have also been set up to take care of area/sector specific requirements. Some of such existing institutions (i.e., IIT’s / NIT’s / Universities / Institution) have also been declared as Institutions of National Importance as they play a pivotal role in developing highly skilled personnel in the country. Table 4.2 shows the centrally funded educational institutions and the list of Institutions of National Importance.

**Table 4.2 List of Centrally Funded Institutions and Institutions of National Importance**

<table>
<thead>
<tr>
<th></th>
<th>Central Universities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Central Universities</td>
<td>42</td>
</tr>
<tr>
<td>2.</td>
<td>Deemed Universities</td>
<td>129</td>
</tr>
<tr>
<td>3.</td>
<td>Technical Institutions</td>
<td>15—Indian Institutes of Technology (IITs) 30—National Institutes of Technology (NIT)</td>
</tr>
<tr>
<td>4.</td>
<td>Management Institutions</td>
<td>13—Indian Institutes of Management</td>
</tr>
<tr>
<td>5.</td>
<td>Information Technology Institutions</td>
<td>5—I nstitute of Information Technology (IIIT)</td>
</tr>
<tr>
<td>6.</td>
<td>Science &amp; Research Councils</td>
<td>5—Indian Institutes of Science Education and Research (IISER) 1—Indian Institute of Science (IISc)</td>
</tr>
<tr>
<td>7.</td>
<td>Planning &amp; Architecture Institutions</td>
<td>3 - School of Planning &amp; Architecture</td>
</tr>
<tr>
<td>8.</td>
<td>Training Institutions</td>
<td>4—National Institutes of Technical Teachers’ Training &amp; Research (NITTTR)</td>
</tr>
</tbody>
</table>
4.1.2 Technical Education in Assam

The story of actual development of technical education in Assam was affected in early fifties. National Council and State Council were constituted along with separate directories for technical education for state to advice and implement policies by creating facilities for technical education and training. A beginning in the direction of development of technical education in the state was made just after independence.

However, if we look back to the pre-independence period, the first technical institute. Assam Textile Institute, formerly known as Government Weaving Institute was established in the year 1920 under the administrative control of the Department of Industries. An elementary course in weaving of one year’s duration was introduced in the established year. Then His Royal Highness the Prince of Wales Technical
School was established at Jorhat in the year 1927 under the administrative control of the Department of Industries.

After independence, in 1948, Assam Engineering Institute was established in Guwahati with diploma course in civil engineering. In the same year, diploma courses in electrical, mechanical and automobile engineering were introduced in POWIET, Jorhat, by abolishing the certificate courses. Subsequently, the other polytechnics were established.

The first engineering college was established in the year 1955 with the name of Assam Civil Engineering College in the campus of Assam Engineering Institute and subsequently it was shifted to Jalukbari with the name of Assam Engineering College. The development of technical education in the state was picked up rather quickly with the creation of a separate Directorate of Technical Education in April, 1959. Just after the creation of separate directorate, expansion of technical education in the state gained momentum and another engineering college named Jorhat Engineering College had been established in Jorhat in the year 1960. This was further followed by establishment of different polytechnics with introduction and upgradation different courses time to time.

4.1.3 Brief Description about the Different Technical Institutes of Assam under the Study

Presently, we have many technical institutions in Assam but the study will be limited into the following institutions. Table 4.3 shows the chronological arrangement of the institutions included in the study.
Table 4.3 List of all the Technical Institutes under the Study

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of Institution</th>
<th>Abbreviation</th>
<th>Year of Establishment</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Assam Textile Institute</td>
<td>AT I</td>
<td>1920</td>
<td>Guwahati</td>
</tr>
<tr>
<td>2</td>
<td>H R H The Prince of Wales Institute of Engineering and Technology</td>
<td>POWIET</td>
<td>1927</td>
<td>Jorhat</td>
</tr>
<tr>
<td>3</td>
<td>Assam Engineering Institute</td>
<td>AEI</td>
<td>1948</td>
<td>Guwahati</td>
</tr>
<tr>
<td>4</td>
<td>Silchar Polytechnic</td>
<td>SP</td>
<td>1948</td>
<td>Silchar</td>
</tr>
<tr>
<td>5</td>
<td>Assam Engineering College</td>
<td>AEC</td>
<td>1955</td>
<td>Guwahati</td>
</tr>
<tr>
<td>6</td>
<td>Jorhat Engineering College</td>
<td>JEC</td>
<td>1959</td>
<td>Jorhat</td>
</tr>
<tr>
<td>7</td>
<td>Nowgong Polytechnic</td>
<td>NP</td>
<td>1961</td>
<td>Nagaon</td>
</tr>
<tr>
<td>8</td>
<td>Girls Polytechnic</td>
<td>GP</td>
<td>1964</td>
<td>Guwahati</td>
</tr>
<tr>
<td>9</td>
<td>Dibrugarh Polytechnic</td>
<td>DP</td>
<td>1965</td>
<td>Dibrugarh</td>
</tr>
<tr>
<td>10</td>
<td>Jorhat Institute of Science &amp; Technology</td>
<td>JIST</td>
<td>1971</td>
<td>Jorhat</td>
</tr>
<tr>
<td>11</td>
<td>Bongaigaon Polytechnic</td>
<td>BP</td>
<td>1986</td>
<td>Bongaigaon</td>
</tr>
<tr>
<td>12</td>
<td>Residential Girls Polytechnic</td>
<td>RGP</td>
<td>1988</td>
<td>Golaghat</td>
</tr>
<tr>
<td>13</td>
<td>Girijananda Choudhury Institute of Management &amp; Technology</td>
<td>GIMT</td>
<td>2006</td>
<td>Guwahati</td>
</tr>
<tr>
<td>14</td>
<td>Don Bosco College of Engineering and Technology</td>
<td>DBCET</td>
<td>2008</td>
<td>Guwahati</td>
</tr>
<tr>
<td>15</td>
<td>NETES Institute of Technology &amp; Science</td>
<td>NITS</td>
<td>2009</td>
<td>Guwahati</td>
</tr>
<tr>
<td>16</td>
<td>Royal School of Engineering and Technology</td>
<td>RSET</td>
<td>2009</td>
<td>Guwahati</td>
</tr>
</tbody>
</table>
i) Assam Textile Institute (ATI)

Assam Textile Institute, a premier institute was established by Late Rai Bahadur Kanaklal Baruah in the year 1920. At that period, there was no technical institute in this part of the country. Under the administrative control of the Industries Department, the institute started with one year elementary course in Weaving. In pursuance of the recommendation of the Sericulture and Weaving Department of the Govt. of Assam, the Government Weaving Institute was amalgamated into the present Assam Textile Institute. Assam Textile Institute (ATI) is the only institute, which offers courses on Textile Technology, Garment Technology and Fashion Technology under one roof. This is a unique combination since all the three courses are inter-related. All the three courses are under the state council for Technical Education, Assam and recognized by All India Council for Technical Education (AICTE).

ii) His Royal Highness The Prince of Wales Institute of Engineering and Technology (POWIET)

The ‘War Technical School’ at the time of Second World War is the present pioneer technical institute in the North Eastern India named as 'His Royal Highness the Prince of Wales Institute of Engineering and Technology '. This institute was established in 1927 and the institute came up fully to impart technical education from 16th January 1928. After introductory motor mechanic course, a four year certificate course in Civil Engineering equivalent to diploma course has been introduced in 1948. From 1957 three year diploma course has been introduced in Electrical and Mechanical Engineering Department in addition to the Civil Engineering Department. In 1976 & 1978 the curriculum of Automobile Engineering and
Agriculture Engineering respectively had been included to the three diploma course. The institute has acquired another milestone with the introduction of Electronics & Telecommunication Technology. All the branches are duly approved by the All India Council of Technical Education (AICTE).

### iii) Assam Engineering Institute (AEI)

The Assam Engineering Institute was established just after independence, on 16th January, 1948 and it is one of the premier institute in the North East catering the needs of technical manpower in various fields of engineering. Presently, the institute admits students for 3 years diploma in Civil, Mechanical, Electrical, Electronics & Telecommunication, Chemical and Computer Engineering Department with total capacity of 285 students. A post diploma course on computer application is also being offered with intake capacity of 30 students. All the courses are under the State Council for Technical Education (SCTE), Assam and recognized by All India Council for Technical Education (AICTE).

### iv) Silchar Polytechnic (SP)

Silchar Polytechnic is situated in Meherpur of Silchar and it is affiliated under the Directorate of Technical Education, Assam. At present, Silchar Polytechnic offers three years diploma courses in four branches namely, Civil Engineering, Mechanical Engineering, Electrical Engineering and Electronics and Telecommunication, with the total intake capacity of 220. All the branches are duly approved by the All India Council of Technical Education (AICTE).
v) Assam Engineering College (AEC)

Assam Engineering College was established in 1955, located in Jalukbari of Guwahati city. It is the premier technical institute of North East India. It is the first undergraduate engineering college in North-eastern India. AEC has been the hub of many academic and supplementary activities in Assam for almost half a century. The college is approved by the All India Council for Technical Education (AICTE). The college offers Bachelor courses (BE) in the fields of Electrical Engineering, Chemical Engineering, Civil Engineering, Computer Science and Engineering, Electronics and Telecommunication Engineering, Industrial and Production Engineering, Instrumentation Engineering and Mechanical Engineering. It also offers Master Degree Courses on Computer Application (MCA), Electrical Engineering (ME), Civil Engineering (ME) and Mechanical Engineering (ME). Ph.D. facilities are also provided in various technical fields. All the courses are approved by AICTE and affiliated to Gauhati University.

vi) Jorhat Engineering College (JEC)

The Jorhat Engineering College was established in 1960 by the Government of Assam. The college is affiliated to Dibrugarh University, Dibrugarh, Assam and is accredited by the AICTE. The college has five four-year undergraduate programs in Civil Engineering, Computer Science and Engineering, Electrical Engineering, and Instrumentation and Mechanical Engineering. The college also has one three-year postgraduate program in computer application leading to a Master of Computer Applications (M.C.A.) degree.
vii) Nowgong Polytechnic (NP)

Nowgong Polytechnic (NP), AICTE approved institution is situated in the middle of Assam, established in the year 1961. Initially, the institute started it’s functioning from Nagaon ITI building and later it was shifted to the present site in the year of 1965. At present the institute has four branches namely Civil, Electrical, Mechanical and Computer Engineering. There are a good number of laboratories and workshops with well equipped instruments and machineries. The institute has been built up with the necessary infrastructure for imparting technical education in the region.

viii) Girls’ Polytechnic (GP)

Girls Polytechnic is AICTE recognized polytechnic institute located in Bamunimaidan, Guwahati. This institute is also known as Padmashree Chandra Prabha Saikiani Girls’ Polytechnic. At present, the institute has four courses namely Architectural Assistantship, Civil Engineering, Modern Office Management and Computer Engineering with total intake capacity of 160.

ix) Dibrugarh Polytechnic (DP)

Dibrugarh Polytechnic, AICTE approved institution is the only diploma level engineering institute in the eastern part of Assam. It was established in 1965. It is situated at Lahoal (Dibrugarh district) about 1.8 km away from 37th National Highway. It is surrounded by lush green tea gardens providing excellent environment for study. It has been successfully providing technical manpower to the industries of Dibrugarh and its nearby districts. At present there are three branches of engineering,
namely Civil, Mechanical and Electrical Engineering with total intake capacity of 140 students.

x) Jorhat Institute of Science and Technology (JIST)

Jorhat Institute of Science and Technology (JIST), formerly known as Jorhat Science College was founded in 1971 and accredited by AICTE. It is affiliated to Dibrugarh University, Assam and follows the curriculum as per the prescriptions of AICTE which is updated regularly depending on the technological advancements and research in the various fields. Jorhat Institute of Science and Technology offers admissions in engineering for a four years graduate degree in various courses.

xi) Bongaigaon Polytechnic (BP)

Bongaigaon Polytechnic, the only premier technical institute offering study of diploma course in engineering, on the North Bank of the river Brahmaputra, began its journey on 4th November, 1986. The Campus stands at the foothills of Nakkati Hills at village Barshan Gaon in Bongaigaon district in lower Assam covering an area of 271 bighas land and surrounded by scenic beauty of greeneries along the bank of Tunia river. The location is only 8 KM away from Bongaigaon railway station. This AICTE approved institute currently offers diploma courses in Civil Engineering, Electrical Engineering and Automobile Engineering and has 360 students in its roll.

xii) Residential Girls Polytechnic (RGP)

Residential Girls' Polytechnic is a polytechnic under the Directorate of Technical Education of Assam, situated in Pulibor, Golaghat which was established in the year 1988. At present, RGP offers three years diploma programmes in two
branches, namely Electronics & Telecommunication and Textile Chemistry & Design with intake capacity of 30 students per branch. Both the branches are duly approved by the AICTE.

xiii) Girijananda Chowdhury Institute of Management & Technology (GIMT)

Girijananda Chowdhury Institute of Management & Technology (GIMT), Guwahati was established in 2006. The institute is managed and run by Shrimanta Shankar Academy. Girijananda Chowdhury Institute of Management and Technology is affiliated to Gauhati University, Guwahati and approved by AICTE, Government of India, New Delhi. The institute imparts courses in engineering field, at the undergraduate level. With these courses, it also offers postgraduate courses in Management (MBA) and Computer Applications (MCA). This institute is located at Azara, Guwahati.

xiv) Don Bosco College of Engineering and Technology (DBCET)

The first Constituent College of Don Bosco University is Don Bosco College of Engineering and Technology (DBCET). DBCET Campus is set in an environment of beautifully laid out gardens and lush green lawns by the side of the Guwahati Airport Road at Azara - a residential suburb of Guwahati. DBCET is situated near the Azara Primary Health Center, about 4km from the Airport on the Guwahati airport road.

xv) NETES Institute of Technology & Science (NITS)

NITS, Mirza is affiliated to the Gauhati University and approved by All India Council for Technical Education (AICTE). Mirza is an emerging township on the
National Highway 37, located just 28 km from the city centre of Guwahati and 6 km from the Lokapriya Gopinath Bordoloi International Airport, Guwahati. The institute offers Bachelor of Engineering (BE) and Bachelor of Technology (B Tech.) courses in Computer Science and Engineering, Electrical and Electronic Engineering, Electronics and Communication Engineering, and Mechanical Engineering.

xvi) Royal School of Engineering and Technology (RSET)

Royal School of Engineering and Technology (RSET) is located near Tirupati Balaji Temple on NH-37 in Guwahati (Assam). RSET was established in the year 2009 as a constituent of Royal Group of Institutions. The institute is affiliated to Gauhati University, Guwahati and recognised by AICTE, New Delhi. At present, RSET offers degree courses in Electronics and Communication Engineering, Mechanical Engineering, Civil Engineering, and Computer Science & Engineering.

The above institutions produce different types of technical manpower namely, professional engineers, technicians, skilled workers, etc.

4.2 Organisation of Libraries of Technical Institutes

The libraries of technical institutes play an important role in accomplishing the missions and goals of organizations. They acquire, organize and maintain informative materials which are useful to its users. Their resources meet both current and anticipated requirements of their users. The demand of libraries of technical institutes goes on changing from time to time because of new services, new products, developments, new approaches of marketing, etc. adapted by their organizations and agencies.
The libraries of technical institutes have rich collections in their respective fields and are set up to meet the requirements of different categories of users. The organization, management, collections, functions and services of these libraries may be said to be different from other libraries. The main objective behind the establishment of these libraries was to disseminate the information without any loss of time.

In recent times, the use of new technologies, such as the computer, audio and video cassettes, CD-ROM, online searching of national and international databases, participation in national and international networks and various forms of electronic technologies and telecommunications are the significant tools for the communication of information at national and international levels. These developments have in fact impacted the working of libraries of technical institutes to a great extent.

4.2.1 Collection

The library collection is one of the most valuable elements of the library. Sound collection is the very basis of effective and efficient library service. The collection of libraries of technical institutes is developed to fulfill the objectives of the organization. The collection of these libraries comprises books, reference books, current periodicals, back volumes of periodicals, theses/dissertations, research reports, project reports, seminar/conference proceedings, pamphlets and reprints, standards, patents, etc. In addition to, contemporary libraries of technical institutes hold the rich collection of non-book materials, such as microfilm/microfiches, audio visual material, CD-ROMs and online databases, maps/atlas etc. which are very useful to make library impressive in modern times.
4.2.2 Staff

Requisite staff with adequate qualifications is the prime necessity of a library of technical institute. The development of libraries of technical institutes is not only restricted to the cooperative acquisition of different materials, their preservation and dissemination, but it also pertain to organize them efficiently and responsibly. The responsibility of the librarian and his assistants of the libraries of technical institutes is not only the location of the reference material but also its interpretation. The librarian must be subject specialist with a solid background of library education and new information technologies as it is a necessity of our libraries of technical institutes.

To accomplish the goals of a library of technical institute, it is imperative that the library staff must have an understanding of the structure and policy of the organization; knowledge of the subject specialty of the library, the techniques of reference and information service, a familiarity of the entire collection and the particular interests of the clientele and also the ability to perform such special services like indexing, abstracting, translating and database searching, or knowing where these services can be procured quickly.

4.2.3 Users

The users of libraries of technical institutes are students, faculty members, research scholars, scientists, engineers, experts, technical personnel, trainees, etc. who need correct, accurate, comprehensive, up-to-date and timely information in their respective domains. The satisfaction of the readers of such libraries is of paramount importance as these factors form the basis to measure the efficiency and effectiveness of a library and its services.
4.2.4 Budget

A library budget is an estimate of expected income and expenditure of the library for the coming year. Adequate budget to procure the resources of the library whether in print or online, it is necessary to offer effective information services to users. White (1988) has stated that “budgeting for a library is rather like budgeting for a yacht. It is not question of how much is needed, but how much is available. There is no limit to the amount that can be spent; usually there is not enough.” Budget constraints are the problem to all types of libraries.

The budgeting is a process of preparing a statement of income and expenditure for a particular period of time, termed as financial year. Being merely an estimate, it can be altered, due to change in the circumstances. Budgeting is usually done on yearly basis. The management of library collection requires ongoing expenditure in each year. Unless adequate fund is received and the fund is judiciously distributed among the various segments of collection development programme, the aims and objectives of collection management will not be fulfilled and the goals will not be achieved.

The principle of budget allocation should be set properly. The budget allocation process should allow for both present needs and anticipated future needs. The allocation process should be one which can provide better programme support. There are certain factors which have to be considered in selecting a budget allocation method. The formal budgeting process may have some constraints or limits in the choices of an allocated fund.

The method of allocating budget for collection development should be formulated in the library. The collection development fund for acquisition may
provide specific budget for certain categories of materials such as books, serials, graphic materials, maps, microforms, electronic media, e-resources etc. The problem areas in determining allocation of budget must be identified and should be foreseen.

Libraries today need to budget for ICT hardware, software, as well as necessary accessories and networking equipment, etc, all of which were not part of the traditional library budget. The comparatively high cost of ICT infrastructure and the challenge of human resources skilled in manipulating ICTs in libraries, over the normal services of libraries, call for clear and significant budgetary provisions.

Apart from computer hardware and software, the other significant area of need for library budget is human resources. Investment in human resources in any organization is perhaps the most important investment that can be made. This is the more necessary because ICT is a new means of delivering library services. Library staff needs appropriate training in order to deliver relevant services effectively and efficiently. Library patrons need training in order to adequately apply the new technology in securing necessary library resources for their studies, teaching, and learning. All these require adequate budgeting for trainers, trainees, and training facilities, in order for delivery of library services to be effective in the era of ICTs.

4.2.5 Physical Facilities

Making physical facilities available to the clienteles of libraries of technical institutes is essential to help the users make effective use of library resources and its services. These facilities are integral part of the library services. The users of libraries of technical institutes should be provided comfortable place for reading, peaceful and conducive environment like individual study carrels, good lighting, emergency light (generator system facility), air conditioning and heating facility, drinking water,
toilets, etc. These facilities are necessary for effective use of library resources. Moreover, attractive furnishers are also essential as these encourage the library use.

The library must provide a variety of learning and research environment that involves audio-visual equipment, internet and access to other electronic as well as online resources. The Online Public Access Catalogue (OPAC), electronic databases and access to internet provide library users with a wide variety of information resources. These services are augmented with traditional as well as modern electronic reference sources and services to meet the needs of users. Besides, library should be centrally located in an organizations or parent body.

4.3 Importance of Libraries in Technical Institutes

The libraries have been repository of knowledge and information. The exponential growth of published literature in science and technology has enhanced the role and importance of libraries in acquiring, organising and communicating the relevant, accurate and precise information to the clientele including scientists and researchers to achieve the organizational goals.

The development of any country is based upon the foundation of quality research, which brings the nation at par with developed countries. The strength of a research system is largely dependent upon its capacity to create, organize, and use information. The effectiveness of research and development is dependent upon the information services discharged by the library and information centres of technical organizations.

After independence, a large number of technical organizations came into existence. Their libraries and information centres offers multifarious functions and
cater to the needs of wide range of clientele having divergent interests and complex demands. Earlier these libraries were vested with the responsibility of preserving the literature for future, but today with the gradual growth published literature. They are now endowed with rather more important functions of acquiring, organizing, preserving, analyzing, interpreting, filtering and communicating information in a meaningful way to the clientele with a variety of needs. These libraries of technical institutes play a significant role in supporting research and development at technical organizations by acquiring and maintaining the library resources and by rendering effective and a wide range of library and information services to their users. The main objective is to maximize their utility by expand the size of library collection and services through the use of Information and Communication Technology (Thakur, 2006).

4.4 Objectives of the Libraries of Technical Institutes

The objectives of the libraries of technical institutes are to provide the up-to-date information and the latest report about the research and developments within and outside the country to students, researchers, scientists, experts, managers and technocrats who are involved in promoting the interests of the organization. The clienteles of libraries of technical institutes require exact, up-to-date, accurate and timely information for their different needs, research works and other programmes. Without exact up-to-date and timely information, the research work and programmes of the organization may not progress in the manner expected.

The library acts as a crucial resource and learning centre of the organization to meet the information needs of its users for the growth and overall development of the
organisaton. The main objective of a library of technical institute is to meet the information needs of its users for the growth and overall property of the organization. The library acts as a crucial resource and learning centre of the institute to meet the information needs of its clientele for the growth and overall development of the organization. Value of information and information services to organizations depends to the extent the information provided meets the expectations and requirements of their users. Information can be from any source. It could be from electronic databases, books, journals, reports, proceedings and reference services provided by library professionals.

Today, users need information that should not only be accurate, timely and relevant but also presented, interpreted and filtered in a meaningful way. Collection and dissemination of data and information and the creation and sharing of knowledge are crucial to the success of an organization in the age of global competitiveness (Thakur, 2006).

### 4.5 Functions of Libraries of Technical Institutes

As in any other type of library, acquisition, organization and dissemination of materials and information are the three main functions of the libraries of technical institutes. It has been assessed that the growth of scientific literature doubles every ten to fifteen years, and the libraries of technical institutes have to struggle hard to collect, weed out, preserve and to communicate the information to manage quality services to its clientele.

The primary functions of libraries of technical institutes are to provide timely, exact and up-to-date information to the students, scientists, research workers and
technologists in their areas of specialization. The collection and communication systems and functions are different in between a general and a library of technical institute.

Some significant functions of libraries of technical institutes are as under:

- Development of resource centre containing books, periodicals, research/ project reports, grey literature and others and non book material, such as microfilm/ microfiches, slides, audio video cassettes, CD-ROMs and online databases.
- Online list of new editions, journals subscribed and discontinued in the library from time to time and routing of periodicals and current contents of periodicals.
- Generate the online documentation activities the library bulletins, newspaper clippings on latest research and developments, list of theses, dissertations and research project reports, bibliographical references and OPAC (Online Public Access Catalogue) and to specify the current and new services of the library.
- Develop and provide Current Awareness Service (CAS) on demand and in anticipation of the interest of the organization.
- Indexing of journal articles, reports and their abstracting.
- SDI service- Provide pinpointed and precise information to satisfy the profile of users. Computerize the library activities of the organization, including acquisition, cataloguing, circulation, serials control, document delivery, interlibrary loan, resource sharing, etc.
- Systematic organization and management of reading materials for easy access.
- Translation of foreign language scientific literature.
- Develop the scholarly publications from scientists, research scholars and technical personnel and enable them to be accessible through intranet and extranet.
• Develop the Knowledge Management System of the organization by integrating the online and in-house databases and capture the expertise and technical knowledge from the scientists, technical people and intellectuals, etc. (Thakur, 2006).

4.6 Nature of Collection Development in the Libraries of Technical Institutes

In the libraries of technical institutes, the standard of collection development is based on the variety and numbers of readers served and on the goals on which the library operates. The collection determines the character of a library. Because of the effectiveness and quality of library service depends upon the total collection of the library.

The method of developing the library collection may be changed to a greater extent with the changing of time and situations. Keeping in view the needs and interest of the clientele, the libraries of technical institutes select the reading and other materials with proper evaluation. The basis of the development mainly depends on the financial support, availability of space, readers demand both in the present and future and well equipped staff.

S. R. Ranganathan had said rightly that “Library is a growing organism”. Information technology has impacted the whole world and library & information science is no more exception to it. Television box is considered to be an idiot box but PC/ Laptop/ Notepad are considered to be Intellectual Interactive Box (I I Box). This means a friendship with information communication technology is must in libraries of technical institutes in this digital environment.
From the above discussion, we may sum up that these different technical institutes under state government along with various private institutes have the potential of making technical education accessible to all sections of society in India without compromising on the quality of education.

The All India Council for Technical Education (AICTE) should make proper planning, formulation and maintenance of norms and standards, quality assurance through accreditation, funding in priority areas, monitoring and evaluation, integrated development and management of technical education in the country.

The libraries of technical institutes should constantly gauge and examine users’ needs in the rapidly changed technological era. Library professionals should change their mindset and tradition of just waiting for users to come to the library. Moreover, they should be more proactive in marketing or marketing their library services they have. Therefore, it is necessary to make dedicated efforts to prepare themselves for the future.