CHAPTER - 2
DEVELOPMENT OF ENGINEERING COLLEGE LIBRARIES

The development of engineering college libraries has started from the very ancient period. The critical analysis of its historical evolution can help to understand the present day academic library movement.

2.1 Academic Library Movement in India:

The first libraries were only partly libraries, and stored most of the unpublished records, which are usually viewed as archives. The archeological as well as literary evidence (written by Chinese travelers in India) make it clear that writing and reading of manuscripts were regularly practiced in ancient period since the fourth century B.C. to the sixth century after Christ. This must have led to the growth and development of collection of manuscripts in important centers of learning. The important library of that period was that of Nalanda University of Bihar in the fourth century AD. The library was said to be in three grandest buildings, the area of which was called “Drama Ganja” meaning mast of religion. The other important academic library of that period was Vikramsila, Odantapuri, Somapuri, Jagadal, Mithila, Vallabhai, Kanheri, etc. During that period there was a considerable activity in South India too, and there was a tradition about the libraries in that period known as sangam age.

The Buddhist of India laid special emphasis on the writing of manuscripts and maintaining their collection. The Jains and Hindus also made immense contribution in the field of learning. They patronized education and literary activities, established innumerable institution called Upasrayas and Temple College. Acharya Nagarjuna, the founder of Mahayana Buddhism is known to have maintained a library on the top floor of the university building. It was also said that Takshila has a rich library.²

2.2 Ancient and Medieval Period:

The medieval cycle may be roughly taken to have ended with the seventeenth century. It was during the ascending phase of this cycle that the giant intellectual and spiritual leaders such as Sankara, Ramanuja and Madheva flourished.²

In this period India had got before history of classify education. In the gurukul education system it is oldest one of on the earth but before that the guru
shishya system was present in this system students were lived jointly trained orally and the data would be accepted from one age group to the next generation. In that time gurukuls were conventional educations in housing schools of wisdom typically the teacher's residence or a monastery that time knowledge education was without charge and it had frequently partial to the privileged class but students from wealthy families gave gurudakshina an unpaid payment afterward end of their studies. In the gurukuls the guru provide knowledge of religion, scriptures, philosophy, journalism, contest, statecraft, medicine astrology and "History" ("Itihaas" — actually mythology). In this period students belonging to Brahmin families and Kshatriya communities only there educated in these gurukuls and also Buddhism and Jainism created basic revolution in way in to education with their self ruled nature. The large group of early Hindu period at Ujjain, Banaras, Navadipa and Karachi and of the recent date at Bikaner, Tanjare, and Kashmir bear testimony to the assiduous core with which the libraries were formed and preserved in the country.

In the higher education the few centuries previous it saw the prosperous of higher education at “Nalanda”, “Takshashila”, “Ujjain” and “Vikramshila” Universities. During the ancient, medieval and modern periods of history in India libraries in one form or other have existed since in pre historic days is any beyond any shadow of doubt. At that time gave the knowledge of various subjects that is “Art, Architecture, Painting, Logic, Grammar, Philosophy, Astronomy, Literature, Buddhism, Hinduism, Arthashastra (Economics and Politics), Law, and Medicine” were together with the subjects skilled and each university dedicated in a particular area of learning. Nalanda, being main centre hold all branches of information and housed up to 10,000 students at its peak. British records emphasis on education while Takshila specialized in the study of medicine also Ujjain laid highlights on astronomy was extensive in the 18th century with a school for every temple, mosque or village in most regions of the country. In those universities the subjects taught included reading, writing, and “Arithmetic, Law, Astronomy, Metaphysics, Ethics, Medical Science and Religion”. All classes of students were reached by typical culture of all classes of society and conventional structures were not familiar by the British government and have been on the decline since. “Gandhiji was said, to have described the traditional educational system as a beautiful tree that was destroyed during the British rule but scholars have questioned the validity of such an argument”. The rural community pathsalas were
running regularly residence in untidy home and educated by sick-eligible teachers. Coaching was partial mostly to the 3 rupees and the resident mahajanil zamindari financial records. There were no permanent class routine, printed books, timetable, School calendar were not used and most writing was prepared on palm leaf, plantain leaf, or on sand. There were students being promoted whenever the guru was fulfilled of the learner ability no annual examination. In that time there were no desks benches, black boards or permanent place seating planning in almost certainly started mid-1700 to 1820 neither the town schools nor the tolls or Madras as were the very important midpoint of education. In 1823 Raja Ram Mohan Roy send a letter to the governor general, “Lord Amherst”, requesting that not expend government funds on starting a Sanskrit college in Calcutta but relatively employment "European Gentlemen of talent and education to instruct the natives of India in Mathematics, Natural Philosophy, Chemistry, Anatomy and other useful sciences." The existing system of education in the 20th century with its western style and subject matter was present and setup by the British following recommendations by Macaulay.  

2.3 Princely Ruler’s Period:
From the earliest times the kings and nobles of India patronized education and encouraged writing of manuscripts and their preservation. Even the princes of small states maintained their manuscripts libraries. The tradition was continued till the nineteenth century. The emperors of Timuride dynasty were patrons of learning. With the exception of Aurangzeb all the early Mughal rulers extended their support to art, music and literature. The libraries also made remarkable progress during their times. Humayun converted a pleasure house in purana quila in Delhi into a library. Akbar maintained an “imperial library” he was also instrumental in introducing reforms in the classification and storage of books. Jahangir is said to have maintained a personnel library which moved with him wherever he went. 

2.4 Up to the 17th century:
In the 17th century traditional education was continued in this period. The east India Company in India had its libraries in factories at Hoogly (Calcutta) and in Bombay toward the end of 17th century. Up to the 17th century saw the boom of higher education at “Nalanda, Takshila, Ujjain and Vikramshila” Universities. Various field
of study were studied like “Architecture, Art, Astronomy, Painting, Logic, Grammar, Philosophy, Literature, Buddhism, Hinduism, Law and Medicine” were among the subjects taught and each university specialized in a particular field of study.

2.5 Education under British Rule:
After the emergence of East India Company and later the British rule in India initially they had a limited objective of commercial benefits and then establishment of British Empire. after fulfilling their prime purpose, then they had started planning to tighten their planning to grip over Indian education comes “British records” explain that original education was extensive in the 18th century in most regions of the country with a school for every village, temple or mosque. The schools were reached by students typical of all classes of society only scholars have questioned the authority of such reasons they say that supporter of original education be unsuccessful to distinguish the significance of the widespread use of printed books in the west since the sixteenth century which guide to a outstanding evolution of knowledge. In Indian schools printed books were not used till the 1820 or still afterward in that time “Gresham's college” in London that encouraged scientific learning there were a number of such academic and scientific societies in England. The complete maintain of education is basis on the opinion promoted by Dharampal which declare that there was an all-purpose reject in Indian society and financial system with the coming of British rule. In the process of education undergo it was different there were large generalization and the literal impact of British rule on various regions at different times has to be considered further watchfully before it conclude that the curve all over the place gradually spread. He claims that pre-British schools and colleges were keep by fund of income-free land. The “East India company” with its strategy of enlarge land profits blocked this and thus ravenous the Indian education system of its economic income. In that time once more we require more complete proof to show how far “Inam lands” were taken over by the government. Other regularly military officers, zamindar and talukdars were disadvantaged of revenue-free land rather than temples, mosques, madras as. In that regards latest research has exposed that inam lands constant to live properly into the nineteenth century much more than was previously assumed. The current system of education with its western style and content was introduced and funded by the British in the 19th century. The British
established many colleges like St. Xavier's College, Sydenham College, Wilson College and Elphinstone College in India according to Prof. Emeritus M.G. Sahadevan F.R.C.P. in London the first medical college of Kerala was started at Calicut. In 1942 to 1943 during Second World War due to shortage of doctors to serve the military, the British Government decided to open a branch of Madras Medical College in Malabar which was under Madras presidency then after the war the medical school at Calicut was closed and the students continued their studies at Madras medical college.

2.6 After Independence:
The Indian economy after freedom was made to reform less than five year plans. It was acknowledged that libraries were necessary to education. It implies that as soon as freedom education turns into the duty of the states in country. The central government's simply compulsion was to bring together in technical and higher education and specifies standards of teaching values. This continued till 1976 when the education became a common duty of the state and the central government.

After 1976:
In this period later freedom from side to side a constitutional change. The center is corresponding to “MHRD” that is ministry of human resource development's department of education and together with the states; it is jointly responsible for the formulation of education policy and preparation. “NPE 1986 and rework POA 1992” saw that free and necessary education should be offer for all children up to fourteen years of age before the start of 21st century. Government of India complete a promise by 2000, 6% of the gross domestic product “GDP” will be spent on education out of which half would be spent on the primary education.

In Indian education fundamental rights for all children are that the 86th improvement of the Indian constitution makes education for all children aged 6-14 years and get into pre-school education for children less than six years of age was excluded from the provisions and the supporting legislation has not up till now been passed. In 1998 in the month of November, at the first time in “India’s Prime Minister Atal Bihari Vajpayee announced setting up of Vidya Vahini over network to link up universities, UGC and CSIR”.

5
2.7 Academic Libraries development in India:

The first college to be started in this country is the Fort William College in 1800. Sir John Colville in 1857 introduced the bill to establish universities in India. In the same year Lord Dalhousie, then the Governor General of India gives immediate consent to this bill. As a result, the first three modern universities were started at Calcutta, Bombay and Madras in 1857 based on the patterns of London University.²

**Calcutta University Library:** Calcutta University was the first to be established on January 24, 1857. On February 24, 1869 Mr. Joy Kissen Mookherjee of Uttar paradesh donated Rs. 5,000.00 to the University for Purchasing Books for the library. The senate in the year 1872 succeeded in constructing a beautiful building at a cost of Rs. 4,34,697.00. This is the first and oldest university library that was established in British India. In 1874, the library also started a collection of periodicals. In 1876-77, Calcutta University library had a good collection of books with printed catalogue service to the user. In 1934, a new library building was set up in the Calcutta University. In 1937, the Calcutta University Library appointed the professionally qualified librarian, Dr. Nihar Ranjan Roy. He, for the first time in India introduced the DDC and AACR rule for providing effective library services to the user.²

**Madras University Library:** The Madras University Library was opened in 1907. The government of India gave a special grant of Rs. 1,00,00.00 to the library to develop its book collection. In 1924, Dr. S. R. Ranganathan joined the Madras University Library as librarian. He was the first professionally qualified librarian in Indian history. Due to his active involvement he was able to receive Rs. 6,000.00 and Rs. 10,00,00.00 in the year 1926. This was the first grant to be received from the government in the history of the university libraries in India. As a result of this grant, the University Library that was in-house at the Connemara Public Library since 1908 was shifted to the new location in 1936. Again five well-trained reference librarians were appointed to provide special reference service to the user this was done for the first time in the Indian history.

**Bombay University Library:** The Bombay University library was established very lately due to the lack of donation. It was the university authorities of Bombay that
offered a donation of Rs. 20,000.00 for construction of library building. In 1931, a very special grant of Rs. 10,000 was given by Kikabhai and Meneklen the sons of late Premchand Roy. In 1939, the Central government provides a special grant of Rs. 50,000.00 to the University of Bombay library to strengthen its collection.

**Punjab University Library:** -Punjab University was established in 1882 and in the year 1908 Punjab University Library was opened.

**Banaras Hindu University Library:** -Banaras Hindu University was established in 1916. In 1926-27 the construction of the library was made by the handsome donation of Rs. 2,00,000.00 by the late Sir Siyaji Rao, the Maharaja of Borada.

**2.8 Education Commission:**

A brief history in India happening during British time and focus on engineering is introduced in the ministry human resource development of Rao committee it is called as Rao committee report in the education system. In this committee chairmanship held Dr. D.S. Kothari and fallows Chairman UGC began its task on 2 Oct. in 1964 it was total sixteen members and it was divided in to 11 Indians and 5 foreign experts. In this commission had explained figure of international resolutions in the teaching and learning field as well as scientific field. In 1974 the college of engineering, Guindy, Madras open as a survey school, in 1847 engineering college at Rookie, in 1854 at Pune started Poona civil engineering college, in 1856 Bengal engineering college at Shibpur, in 1916 Banaras Hindu University, in 1917 Visvesvaraya college of engineering at Nagpur and in 1920 Harcourt Butler Technological Institute at Kanpur”. In 1945 the Sarkar Committee was appointed for advanced technical education in India also it propose opening of higher technical institutes based on the Massachusetts institute of technology in the four regions of India. The five Indian institutes of technology resulted in the setting up of at Kharagpur in1950, in1958 at Mumbai, in 1959 at Kanpur, in 1960 at Madras and in1961 at Delhi it was new added on to the previous four. In 1945 the “All India Council for Technical Education” was setup to manage all technical education likes diploma, degree and post-graduate in the country. Figure 2.1 showing the creation of some of the most important Indian engineering institution in the country. There have
been some official working group set up to study and revitalize engineering education in the country.

![Figure 2.1: Time Line of Indian Engineering Education](image)

Table 2.1 in the following table shows that several of the reputed engineering colleges and institutions likes IITs and NITs are extremely discriminating in their admission process with the number of seats being only 1 to 2% of applying. There has been a significant increase in the engineering colleges and their recommendation presents records of the chief committees. There is a number of engineering colleges have been setup it is preferred career choice for students at the 12th level in India. Private engineering colleges have been set up mechanism for accreditation (NBA) and "umbrella agency", the quality of engineering education association to run engineering education is suspect to the AICTE.

In that regards many questions are stands. Has the system of engineering education been able to supply the engineers necessary for the increase of the Indian financial system? Has the engineering education method give the study and growth direction necessary for our engineering? Is there a need to change the advanced engineering education system in India in the situation of globalization? Answer these above questions it is apparent that since freedom India had created a large number of
knowledgeable, eligible engineers who have supplied to the success of many Indian business and industries. A large number of our engineering graduates have also made an effect in the company world internationally. Although these positive outcomes for important study of style is necessary for previous we can challenge to make any advice for the future it is clear cut answers to above questions.

**Given below in the table 2.1 Major Committees and Recommendations**

<table>
<thead>
<tr>
<th>Committee</th>
<th>Title</th>
<th>Year</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarkar committee</td>
<td>“Higher Technical Institutions for the post-war Industrial Development”</td>
<td>1945</td>
<td>Setting up of Indian Institutes of Technology</td>
</tr>
<tr>
<td>Thacker committee</td>
<td>“Postgraduate Engineering Education and Research”</td>
<td>1959-1961</td>
<td>Funding for 100 PhDs annually</td>
</tr>
<tr>
<td>Nayudamma committee</td>
<td>“Postgraduate Education in Engineering &amp; Technology”</td>
<td>1979-1980</td>
<td>Post graduate minimum qualification for industry, Research &amp; Development etc.</td>
</tr>
<tr>
<td>Nayudamma committee</td>
<td>“IIT Review”</td>
<td>1986</td>
<td>Greater litheness in Academic programs, Focus on engineering research, Faculty mobility.</td>
</tr>
<tr>
<td>P.rama Rao committee</td>
<td>“Reshaping Postgraduate Education in Engineering &amp; Technology”</td>
<td>1995</td>
<td>21 months Master of technology. improved scholarship amount, Assured employment for Master of technology National Doctoral Programs</td>
</tr>
<tr>
<td>R.A. Mashelkar committee</td>
<td>“Strategic Road Map for Academic Excellence of Future RECs”</td>
<td>1998</td>
<td>Conversion of RECs into NITs with the status of a Deemed to be University and structural changes in governance</td>
</tr>
<tr>
<td>U.R. Rao committee</td>
<td>“Revitalizing the Technical Education”</td>
<td>2003</td>
<td>Regional imbalance to be removed, Faculty shortage to be addressed, Need for planning and manage in the working of AICTE</td>
</tr>
<tr>
<td>P.rama Rao committee</td>
<td>“IIT Review”</td>
<td>2004</td>
<td>Increase under graduate output of IITs Fund infrastructure improve, Add new IITs but maintain quality</td>
</tr>
</tbody>
</table>

The above table explains about role of committee after independence that engineering and technological education found a great improve in the development of technical education has been one of the main achievement of the freedom period. In 1945 the creation of the “All India Council of Technical Education” and in 1947 the
Report of the scientific manpower committee has a distant success power in this expansion. In 1956 the reports of the “Engineering Personnel Committee” and in 1961 the “Committee for Postgraduate Engineering Education and Research” gave energy to higher level technical education. The enlargement of educational services has been strange throughout the previous decade. In 1987 graduates in engineering double up within a distance of 10 years that is in 1996 from about 30,000 to 60,000. During the same period in the polytechnic diploma holders amplified from 56,560 to 95,283. Today a broad account of the improvement of technical education since independence.¹

2.9 Recent development of “Engineering Education in India”:

In India, the Indian education system is usually ‘marks-based’ system in that way a few conduct test have been prepared to complete left with the “marks-based” scheme that’s why to find out which has follow to cases of despair and suicides among students. In that regards in 2005 the Kerala government bring in a “grades-based” scheme in the expectation that it will facilitate students to back off from the ruthless competition and rote learning and will be capable to concentration on productive features as well as personality development. Innovation education started by “Alumni of Harvard, XLRI” is an open up in this topic this association has previously developed model schools.⁵

An essential subject for the opportunity victory of Indian industry is the progress of engineering education in India. Since independence, the first concentration of government policy was to give the engineers required for the increasing financial market. India has the capability to be a wide-reaching technology controller. Indian industry is competing worldwide in software and even in areas such as automobiles, chemicals and engineering tools. Indian engineers have conventional their status for engineering and drawing skill. The settings up of the Indian Institutes of technology the regional engineering colleges and their successive conversion to the “National Institutes of Technology” were intention at complete this. Engineering in India is chosen option for brilliant students at the 10+2 level. This has resulted in engineering colleges mainly in the private sector. In spite of this industry leaders complain about the absence of quality engineers for their industry. This is escort by substantial unemployment rates together with graduating engineers.
It is seen that a regional inequality in engineering degrees with “Tamil Nadu, Andhra Pradesh and Karnataka” having the maximum number of engineering graduates per population. There is a lack of widely available records on India’s engineering education system. A contrast of a small number of select Indian institutions some institutes are given as Indian institute of technology, National institute of technology and private engineering college expose certain attractive effect with keep a record fad in the student intake, number of engineering graduates, post-graduates and PhDs. In sort out to get these we used statement of production and authorized strength percentage and their craze. India gave about 2.3 lack engineering degrees, 20000 engineering master’s degrees and about 1000 engineering PhDs in 2006. India’s doctorate degrees are below than 1% of graduate engineering degrees the percentages of doctorate degrees to engineering degrees is large amount of higher for majority of the other countries studied (9% Engineering Education in India USA, 10% UK, 8% Germany, 3% Korea).

In international level observation it is clear that most Indian institutions have not effectively progress from ‘under-graduate’ teaching institutions to teaching and research institutions. In this above discussion the largest advantages of the top engineering colleges in India is the high selectivity nearly 2% to 3% of the candidates are chosen. It is much lesser than reputed international universities. However the engineering education system has been not capable to fascinate the top engineering students on the way to post graduate studies. The Indian institute of technology and Indian institute of science give to below than 1% of the technology graduates in the country, 20% of the Master of technology and 40% of the PhDs. only about 1% or less of the graduating Bachelor of technology group of students of an IIT go for a Master of technology in India, while only 2% of the graduating Master of technology group chooses for PhD in India. About 75% of the engineering graduates are educated at the private engineering colleges.

The presented executive formation makeup of private colleges results in very small financial self rule with keeping up fees and payment accounting for 80% of the budget plan. There is above one thousand and hundred private engineering colleges however a position of the top fifty engineering colleges shows a small percentage of private colleges and in excess of 90% of the private engineering colleges are affiliated colleges those have little academic self government. A comparison of the Indian
technology colleges with number of the most important institutions of the world illustrate that it is potential for institutions to have student to faculty ratio of 15:1 or more and up till now keep a considerable research output. The challenge for our technical engineering education system is to builds the changeover from mostly teaching institutions to teaching and research institutions. In the article examine reviewed journal publications per faculty and UG engineering degrees per faculty are worked as guide of the research and teaching output of institutions. The largest parts of Indian institutions are improving their research output but are below the norms attained by particular of the best international institutions. We developed a normative situation that increases the output of quality engineering graduates from rank 1 (IITs, IISc) and rank 2 National institutes of technology. It is include that the open of a National PhD scheme strings of plan are necessary to attract our brightest students to follow research. It would necessitate association and assurance from industries, strength ending existing PhD programed and research services and facilitating excellence jobs for the doctoral students. One of the biggest restrictions for the expansion of engineering education in the country is the deficiency of quality faculty. There needs to be a high level think that evaluation the higher engineering and technical education system in India and afford path for future growth. When less number of PhDs out comes it is linked to the issue of salaries and motivation for engineering educators. In that regards next steps to address this must think incentivizing presentation, better public and industry relation and a recurrent analysis procedure. In this study there is a need for the industry government and academic to create approach for engineering and technical skill education in India. We have also needed of system to recognize imperative areas and regulation that should expand and develop strategy and institutions that assist. It is important to appreciate the real tendency in numbers of placements, salaries, employability and research output and evaluate standard performance with new other institutions. Today in the world of science it is really must for awareness of the realism should form the origin of rule conversions that guarantee to the engineering education system assembles the varying requirements of the industry and civilization.¹
2.10 Engineering College Development in Maharashtra State:

Between 1948 and 1960, the states of Maharashtra and Gujarat were together. An engineering college at Ahmadabad, a separate polytechnic at Pune and two model polytechnics, one at Bombay and another at Ahmadabad were started. Along-with this, technical high schools and high school centers were started to orient the students towards the engineering profession. The concept of technical high school centre was a novel concept, in that; it could cater to the need of purely academic schools in the locality of very low cost in terms of infrastructure and running expenditure.

In 1960 started novel period in technical education actions in formation of the state of Maharashtra for the purpose of grew to large extent manpower with industrial development. In that regards latest industrial training institutes like polytechnics and engineering colleges had been started. These institutes formed technically qualified supervisors, expert workers and shop floor and creative engineers. In the 1978 the amount of degree level institutes rose to 16, the diploma level institutes to 50. Also, post-graduate facilities were developed in nine institutions. Similarly, the ITIs in 1987 technical high schools also increased in almost every district, excepting the four districts of Ahmednagar, Wardha, Gadchiroli and Raigad. In four districts had a government polytechnic, degree and diploma courses wise increase because various admirable students were not capable to get admission to these courses because of limited seats in government and government aided college or institutes. In that way to provide chance to the aspiring students, the Maharashtra government determined to funding arrangement to private, social and educational managements to startup un-aided engineering colleges and polytechnics. In order to make possible checking and progress of technical institutes and courses due to very large growth the Directorate of technical education was divided in 1984 and the Directorate of Vocational Education and Training was formed. The charge of industrial training institutes, technical certificate course institutes in the state was given to new directorate and responsibilities of degree and diploma level institutions in engineering and technology.  

6
2.10.1 Quantitative Growth of Engineering Education in the State:

The present status of various types of institutes with the sanctioned intake is given in the subsequent tables below:-

Table 2.2: Quantitative growth of engineering programs under DTE-Decade wise-2007

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Type of Course</th>
<th>Details of growth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Year of reference</td>
</tr>
<tr>
<td>1)</td>
<td>PG degree courses in Engineering and Technology</td>
<td>1980</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1990</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2007</td>
</tr>
<tr>
<td>2)</td>
<td>Degree in Engineering and Technology</td>
<td>1980</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1990</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2007</td>
</tr>
<tr>
<td>3)</td>
<td>Diploma in Engineering and Technology</td>
<td>1980</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1990</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2007</td>
</tr>
</tbody>
</table>

1 Excluding 4 new institutes approved by AICTE having sanctioned intake of 960.

The advancements in technology necessitated starting additional new courses in the rising zones to supply to the requirements of society and engineering industry. That’s why; the authorization to the non-aided institutes was approved for the courses in newest technologies. Thus, non conventional diploma and degree courses titled Industrial Electronics, Computer and Information Technology, Petroleum and Polymer, Biomedical Engineering, Construction Technology, etc. were granted permission. Similarly, diploma courses such as Leather Technology, Packaging Technology, tool design, plastics and polymer Engineering etc. These courses are on going through Government institutions under the ‘World Bank’ supported project to
advance the industry-institute interface and to representation the students to industrial working, Sandwich pattern courses were instituted, both at Degree and Diploma level.

2.10.2 Statistical Information of Engineering Education Institutes in the State:
The consolidated statistical information pertaining to the engineering education in the state of Maharashtra is given below:-

Table 2.3: Program-wise Number of Institutes along with sanctioned intake under DTE-2007

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Type of College</th>
<th>No. of institutes</th>
<th>Sanctioned Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Engineering Colleges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a)</td>
<td>Government</td>
<td>6</td>
<td>2140</td>
</tr>
<tr>
<td>b)</td>
<td>Government Aided</td>
<td>12</td>
<td>2596</td>
</tr>
<tr>
<td>c)</td>
<td>Unaided</td>
<td>152</td>
<td>50955</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>170</td>
<td>55691</td>
</tr>
</tbody>
</table>

Table 2.4: Program-wise Development: Details

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Govt. Aided</td>
<td>6</td>
<td>7</td>
<td>9</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Unaided</td>
<td>0</td>
<td>33</td>
<td>77</td>
<td>153</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>44</td>
<td>90</td>
<td>170</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.5: Total Intake capacity in Engineering Degree colleges

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Degree Colleges</td>
<td>1865</td>
<td>14682</td>
<td>22740</td>
<td>55691</td>
</tr>
</tbody>
</table>

2.11 Engineering College Development and Physiography of Vidarbha Region:

In Vidarbha region it consists of Western Vidarbha region in Maharashtra state again it also consists of Nagpur Division and Amravati Division. Area covered by in this region it is 31.6% and total population holds up area of Maharashtra has 21.3%. Its boundaries are the state of Madhya Pradesh to north- Chhattisgarh to east,
Andhra Pradesh to south and Marathwada and Khandesh regions of Maharashtra to west situated in central India. Vidarbha has it’s confess prosperous cultural and chronological background individual rest of Maharashtra. It is covers an area of 94.426 sq. km. with total population 20,630,987 according to the 2001 census. Presently it comprises 11 districts the leading city in Vidarbha has Nagpur and secondly has Amravati follows by Akola, Bhandara, Buldana, Gadchiroli, Wardha, Washim, Gondia, Chandrapur and yavamal. In this region majority of Vidarbhians speaks varhadi likes mother tongue Marathi.

Vidarbha was famous in ancient times Rukmini to whom Lord Krishna married was a princess of Vidarbha Many saints and holymen have blessing this land. “Shri saint Gajanan Maharaj” Shegaon, the birth place of “Matoshri Jijamata Shinkhed Raja”, the religious centre of the “Mahanubhav Panth Riddhpur”, the holy Shrine of Jains Shirpur and the world famous geological wonder “Lunar lake”, Mahakavi Kalidas Ramtek, Gandhiji’s Wardha and Vinobaji’s Paonarare situated in this region.

This region gave birth to the great sons of the soil like “Loksant Shri Gadge baba, Rashtrasant Shri Tukdoji Maharaj, the creative thinker Shri Gulabrao Maharaj”, the well known educationist Bhausaheb Dr. Panjabrao Deshmukh and the great social worker Baba Amte through their work and teaching they gave a new direction to the people of the society.

In latest times there have been call for a separate state of Vidarbha, because of the constant abandon from the Government of Maharashtra concerning this region and the incompetent political leaderships in Vidarbha except for a few farmers in the state are living in most horrible situation difference to the rest of India.\textsuperscript{4}
Development of Engineering Colleges in Vidarbha Region-

In the Vidarbha region so many new Universities establish but only two Universities have running engineering colleges that are ‘S.G.B. Amravati University’ and ‘R.T.M. Nagpur University’. Only 15 engineering colleges have running under or affiliated to Sant Gadge Baba Amravati University, and 40 engineering colleges have running under or affiliated to Rashtrasant Tukadoji Maharaj Nagpur University. In Vidarbha region engineering colleges involving district wise divided in two divisions that are Amravati division and Nagpur division. Amravati divisions engineering colleges affiliated to Sant Gadge Baba Amravati University and Nagpur divisions engineering colleges affiliated to Rashtrasant Tukadoji Maharaj Nagpur University.

List of engineering colleges district wise affiliated to S.G.B Amravati University given below.

AMRAVATI DISTRICT
2) “V.Y.W.S.Prof. Ram Meghe Institute of Technology and Research, Anjangaon Bari road, Badnera, Amravati”, Dist. Amravati (1983), EN.804
3) “Sipna Shikshan Prasarak Mandals College of Engineering & Technology, In front of nemani godown badnera road Amravati”, Amravati (1999), EN.809
4) “Shri Hanuman Vyayam Prasarak Mandals College of Engineering and Technology, H.v.p.m campus Amravati”, Dist. Amravati (2002), EN.810
5) “Shri Dadasaheb Gawai Charitable Trust’s Dr.Smt. Kamalati Gawai Institute of Engineering & Technology, Darapur”, Dist. Amravati (2008), EN.812
6) “Maratha Shikshan Sanstha, P.R.Patil College of Engineering, pote estate kathora road Amravati”, Dist. Amravati (2008), EN.814

AKOLA DISTRICT
9) “Shri Shivaji Education Society’s College of Engineering and Technology, Murtizapur road, highway Akola”, Dist. Akola (1983), EN.803

BULDANA DISTRICT

YAVATMAL DISTRICT
14) “Jawaharlal Darda Institute of Engineering &Technology, Mide, lohara Amravati road, Yavatmal”, Dist. Yavatmal (1996), EN.808
List of engineering colleges district wise affiliated to Rashtrasant Tukadoji Maharaj Nagpur University given below

NAGPUR DISTRICT
1) “Laxminarayan Institute of Technology, Amravati road Nagpur”, Dist.- Nagpur EN.902
2) “Ankush shikshan sanstha’s G H Raisoni college of engineering, Digdoh, Hingna road, Nagpur”, Dist. - Nagpur EN.906
3) “Karmavir dadasaheb Kannamwar college of engineering, nandanvan, Nagpur”, Dist. - Nagpur EN.907
4) “Priyadarshani college of engineering, Hingna road, Nagpur”, Dist. - Nagpur. EN.908
5) “Shri Ramdeo babakamla Nehru engineering college, Gittikhadan, katol road, Nagpur”, Dist. - Nagpur. EN.909
6) “Yeshwantrao Chavan college of engineering, wanadongri, Nagpur”, Dist.- Nagpur. EN.910
7) “Vodithala education society’s Kavikulguru Institute of technology and science, Ramtek”, Dist. - Nagpur. EN.911
8) “Sanmarg shikshan sanstha’s Smt. Radhikatai pandav college of engineering, Umrer road, Nagpur”, Dist. - Nagpur. EN.913
9) “B.C.Y.R.C’s Umrer college of engineering, Umrer”, Dist. - Nagpur. EN.914
10) “Lokmany Tilak Jankalyan Shikshan Sanstha’s, Priyadarshani Institute of engineering and Technology, Mouza Shivangaon, Khasara, Hingna road Nagpur”, Dist. – Nagpur. EN.915
11) “Anjuman College of engineering and Technology, Sadar, Nagpur”, Dist. – Nagpur. EN.916
12) “National Power Training Institute, ( Under the Ministry of power, Govt. of India), South Ambazari road, Gopal nagar.Nagpur”, Dist. – Nagpur. EN.917
13) “ST. Vincent Pallotti college of engineering and Technology, Wardha road, Nagpur”, Dist.- Nagpur. EN.918
14) “Guru Nanak Institute of engineering and Technology, Kalmeshwar”, Dist. – Nagpur.EN.920

16) “Shri Bhagwati Chaturvedi college of engineering, Harpur Nagar, Nagpur”, Dist. – Nagpur.


18) “Lokmanya Tilak Jankalyan Shikshan Sanstha’s, Priyadarshani Indira Gandhi College of engineering, Hingna road Nagpur”, Dist. - Nagpur.

19) “Shree Vidyarthi Sudhar Sangha college of engineering and research, Wandongari, Nagpur”, Dist. – Nagpur.


23) “Backward Class Youth Relief Committee, Shrimati Rajashri Mulak college of engineering for womens, Nandanvan Nagpur”, Dist.- Nagpur.


27) “Dr. Brahmannd B. Karanjekar, Wainganga college of engineering and Management, Dongargaon Wardha road, Nagpur”. Dist.- Nagpur.


31) “Ankush Shikshan Sanstha’s G.H. Raisoni Institute of engineering and Technology for Women, Hingna wadi road, Nagpur”. Dist. - Nagpur. **EN. 951**

**WARDHA DISTRICT**

32) “Bapuraoji Deshmukh college of engineering, Sevagram”, Dist.- Wardha. **EN. 912**

33) “JMSS Shri Shankarprasad Agnihotri college of engineering, Sindhi (Meghe)”, Dist.- Wardha. **EN. 919**

34) “Datta Meghe Institute of engineering, Technology and research, Savangi (Meghe), Yavatmal road Wardha”, Dist.- Wardha. **EN. 927**

35) “Shree Bapuraoji Deshmukh Foundation, Suresh Deshmukh college of engineering, Selukate, Wardha”, Dist. – Wardha **EN. 944**


**CHANDRAPUR DISTRICT**

37) “Government college of engineering, Chandrapur”, Dist.– Chandrapur. **EN. 901**

38) “Rajiv Gandhi college engineering, research and Technology, Chandrapur”, Dist.- Chandrapur. **EN. 905**

**GONDIA DISTRICT**

39) “Gondia education Society’s Manoharbhai Patel Institute of engineering and Technology, Gondia”, Dist. – Gondia. **EN. 904**

**BHANDARA DISTRICT**

40) “Sanmarg Shikshan Sanstha, Madhukarrao Pandav college of engineering, Billewada”, Dist. – Bhandara. **EN. 949**

**2.12 Development of Engineering Colleges and Physiography of Western Vidarbha Region:**

Western Vidarbha region is the part of Vidarbha region in Maharashtra state. In Maharashtra state consist of Amravati Division. It has covers the borders the state of Madhya Pradesh to north, Nagpur Division to east, Aurangabad Division to south and
Nasik Division in west Situated in Western Vidarbha region. Distribution of population to District wise with male and female distributed that is Amravati male-1345614, female- 1261546 and Akola male- 841253, female- 788986 and yavatmal male- 1265681, female- 1192590 and Buldhana male- 1147403, female- 1085077 and Washim male- 526094, female- 494122. In Western Vidarbha region have total population of 9948366 according to the 2001 census of the Government of India. Presently it comprises 5 districts the largest city in Western Vidarbha region is Amravati follows by Akola, Buldhana, Washim, and yavamal. A majority of Vidarbhians speak Marathi. 

![Western Vidarbha Region map](image)

**Figure 2.3 Western Vidarbha Map**

**Development of Engineering Colleges -**

Under study western vidarbha region in Amravati Division engineering education started Government, College of engineering at Amravati in 1964 with only three courses that is electrical, civil, mechanical engineering and they develop the UG and PG courses in 1968 that is electronics, instrumentation, computer science, electrical, civil, mechanical, and they redevelop in 1988 with only two courses computer science in PG and information technology in UG courses. “V.Y.W.S. Prof. Ram Meghe Institute of Technology and Research at Badnera, Amravati” started in 1983 with only two courses that is civil and electronics and telecommunication and they develop computer science, mechanical in 1986, environmental engineering,
production engineering, electronics in 1994, computer science, PG in 1995, IT in 2001, cad, cam in 2003, civil, IT, PG courses in 2009. “Sipna Shikshan Prasarak Mandal’s College of Engineering & Technology at Amravati” started in 1999 with four courses that is computer science, electronics and telecommunication, instrumentation, MBA and they develop IT, UG course in 2002 and PG course in 2009, computer science PG course in 2010. “Shri Hanuman Vyayam Prasarak Mandal’s College of Engineering and Technology at Amravati” started in 2002 with four courses in UG and PG that is computer science, electronics and telecommunication, IT and MBA. Another non-aided college “Shri Dadasaheb Gawai Charitable Trust’s Dr. Smt. Kamalati Gawai Institute of Engineering & Technology at Darapur”, Dist. Amravati started in 2008 with four courses that is electrical, computer, IT, civil electronics and telecommunication and they develop in 2012 with computer science, electronics and telecommunication courses in PG. Chaitanya Bahuuddeshiya Sanstha, “G.H.Raisoni College of Engineering and Management at Badnera”, Amravati started in 2008 with four courses that is electrical and power engineering, electronics, computer science, IT and they develop in 2010 with civil, mechanical in UG and in 2011 with electronics and telecommunication in PG course. “Indira Bahuuddeshiya Shikshan Sanstha, College of Engineering at Ghatkheda, Amravati”, started in 2008 with four courses that are mechanical, electronics and telecommunication, computer science, IT and they develop in 2010 with civil in UG course and in 2012 with mechanical, civil in PG courses. “Shri Shivaji Education Society’s College of Engineering and Technology at Akola” started in 1983 it is also old college with four courses that is chemical engineering, production engineering, polymer science and rubber technology, B arch, and they develop in 1984 with textile engineering and in 1985 with mechanical engineering, civil engineering in UG courses and in 2002 with computer science, IT course. “Shri Sant Gajanan Maharaj College of Engineering at Shegaon”, Dist. Buldana started in 1983 with only two courses that are electronics and telecommunication, electrical power system engg. and they develop in 1993 with mechanical engg. and in 1994 with computer science, MBA, and in 1996 with electrical power system engg. in PG course and in 2000 with electronics and telecommunication in PG course and in 2001 with IT in UG course and in 2012 with computer science, mechanical engg. in PG course. “Paramhansa Ramkrishna Maunibaba Shikshan Santha’s Anuradha Engineering
College at Chikhli”, Dist. Buldana started in 1993 with four UG courses that is computer science, mechanical, chemical engg., textile engg. and in 2000 with IT in UG course, and in 2005 with electronics and telecommunication in UG course, and in 2012 with mechanical engineering in PG course. Dwarka Bahuuddeshiya Gramin Vikas Foundation, Rajeshri Shahu College of Engineering at Buldana started in 2008 with four UG courses that is computer science, IT, electronics and telecommunication engg., mechanical engg., and they develop in 2010 with electrical engg. in UG course. “Janata Shikshan Prasarak Mandal’s Babasaheb Naik College of Engineering, at Pusad”, Dist. Yavatmal started in 1983 with four UG courses that is civil engg., mechanical, electronics and telecommunication, computer science and they develop in 2001 with UG course IT and in 2010-11 with PG course that is civil engg., electronics and telecommunication and in 2011-12 with PG course that is mechanical engg., computer science engg. “Jawaharlal Darda Institute of Engineering &Technology at Yavatmal” started in 1996 with four UG courses that is mechanical engg., electronics and telecommunication, chemical engg., textile engg., and they develop in 2000 with UG course that is computer science and in 2002 with UG course that is IT. Dr. Bhausaheb Nadurakar College of Engineering and Technology at Yavatmal started in 2007 with four UG courses that is computer science, electronics and telecommunication, IT, Bio medical, engg., and they develop in 2011 with UG course that is mechanical engg., and PG course electronics.

2.13 Conclusions:
Under study Development of engineering college libraries and their academic Movement in India with discuss about the ancient, medieval period, princely Ruler’s period, up to the 17th century, education under British Rule, after Independence 1976. Academic libraries development in India that is Calcutta University Library, Madras University Library, Bombay University Library, Punjab University Library, Banaras Hindu University Library. Education Commissions Review of past reports and recent developments in engineering Education in India, Maharashtra State, Vidarbha Region and Western Vidarbha Region.
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