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Status of Engineering College Libraries in Bhubaneswar Region of Odisha, India: A Comparative Study

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Abstract

The aim of the present study is to explore the current status of engineering college libraries in Bhubaneswar region of Odisha, India. A questionnaire based survey has been conducted in the selected engineering college libraries in Bhubaneswar region of Odisha and tried to assess the current status of staff, collection, services, Information Technology infrastructure, *etc.* The copies of well structured questionnaire have been distributed among the ten engineering college libraries in Bhubaneswar in the month of March 2019, out of which, six college libraries have been responded positively. It was found that all the responded engineering college libraries were providing Internet and Wi-Fi services and have adopted open access system to its collection. The library of ITER has the highest number of books (1,25,000) in its collection, whereas, the library of CVRCOE has 65,874 and the SIOT has 60,800 books. Further, The library of CVRCOE has 1,19,526 e-books and 778 e-journals, whereas, the library of ITER has 1,00,000 e-books and the library of HCOE has 5,000 e-books in its collection. It is also found that all the libraries under study were automated their activities and services with the implementation of professional library management software, as well as offering open access to its collection. Based on the findings, the researchers were also suggested that all the libraries under study must be concentrate on service quality and for that, libraries should regularly take the feedback from the users so that necessary improvement can be done as per the actual prerequisite of the users’.

Keywords: Engineering colleges, Engineering libraries, ICT, Internet, Information services, Staff, Collection, Budget, Library status, Assessment

Introduction

In this era of Information and Communication Technology (ICT), the world is turned over in a global village. Every walk of human life has drastically changed due to wide effect of computer and information technology. In this change scenario, education sector is also not exception to this. Now, the education system is totally depending on computers or information and communication technology. Library is an important part of education system at every level; hence, a library may play a very important role in imparting quality education by providing information and resources timely. Libraries are now treated as access point to

acquire knowledge and skills at a faster pace. These days, due to need of the hour, the libraries are providing better support to access electronic information and resources on a wide range of topics, such as e-Databases, e-Journals, e-Magazines, e-Books, e-Audio, e-Images, Digital Library Projects, e-Exhibitions, e-Subject Guides, e-Newsletters, e-Conference Proceedings and Web search tools *etc.*

As any library will play a very pivotal role for providing updated and relevant information resources to every type of patterns, engineering colleges and their libraries will also play a very crucial role for imparting technical knowledge and producing future engineers. For acquiring engineering education and technical skills, engineering colleges will play a very important role in which future engineers get highly expertise. Similarly, libraries of engineering colleges will also play a very crucial role for providing updated information resources to the engineering students or future engineers so that they may get relevant information for their success or future endeavour.

Engineers play a key role in the development of an organization as well as for any nation. Due to technological challenges faced worldwide, engineering and technical colleges have now the extra liability to provide better engineering and technical education to the future engineers or technocrats so that they will acquire highly technological competencies. Therefore, in this challenging era of ICT, there is a need to establishing good engineering colleges.

To evaluate the current status of libraries of different specialization in different parts of India, a lot of studies have been conducted in past but very few studies were conducted on engineering colleges. From Eastern part of India, no such type of studies has been found. Therefore, a study was planned to fill this gap and will try to know the current status of engineering college libraries in Bhubaneswar region of Odisha state, which is situated in eastern part of India.

Bhubaneswar

Bhubaneswar is the capital city of the state of Odisha in the eastern part of India, which is also known as the temple city of India. Bhubaneswar is the land of Kalinga and has some of the finest temples, which are made in the Kalinga architectural style. Bhubaneswar is well connected with world's famous religious place, *i.e.*, Jagannath Puri Dham and Sun Temple at Konark, which forms the golden triangle. Bhubaneswar is one of the first planned cities in India and a hub of education and Information Technology (IT), which hosts some of India's best institutions such as the Indian Institute of Technology (IIT), All India Institute of Medical Sciences (AIIMS), National Institute of Science Education and Research (NISER), National Institute of Fashion Technology (NIFT), Kalinga Institute of Industrial Technology (KIIT), Kalinga Institute of Social Sciences (KISS), Regional Institute of Education (RIE), International Institute of Information Technology (IIIT), and Central Institute of Freshwater Aquaculture (CIFA), *etc.*

In Odisha State, particularly in Bhubaneswar region, has many institutions for engineering, management, medical, law, energy, social sciences and in other field of specializations for the purpose of higher education and research, which has its own reputation throughout India.

Engineering Education

“Engineering education started in USA during 1819-1824 with a one year programme and four year programme starting in 1850s. The first half of 20th century registered very high growth in engineering education institutions in USA, Great Britain and other European countries. In India we can trace the development of engineering education with the setting of the College of Engineering, Guindy in Madras (Started as survey school in 1790) and then some of the notable institutions were established in India like the Civil Engineering College in Roorkee in 1848, Engineering College in Madras offering course in mechanical engineering in 1894, Civil Engineering College in Shibpur, Calcutta in 1856 (named Bengal Engineering College in 1920) and Poona Civil Engineering College at Pune in 1864, Banaras Hindu University (1916), Visvesvaraya College of Engineering (1917) and Harcourt Butler Technological Institute, Kanpur (1920). It was during the first half of twentieth century that many universities started engineering colleges but the growth of engineering education in India accelerated in later part of the twentieth century. There are more than 10,000 engineering colleges in India presently. The implementation of recommendations of knowledge commission has tremendously boosted the growth of engineering institutions with the entry of private sector in the arena” (Kanojiya, Jaiswal, & Deepti, 2012, p. 146). Bhanu Partap (2016) has discussed in his paper that “engineering education in India is broadly structured into three levels viz. the Industrial Training Institutes (ITIs) offer certificate courses, Polytechnics offer diploma courses and Engineering colleges, Engineering departments in universities, NITs, IITs, and other higher education institutes offer graduate and higher degree courses”. As per the latest report issued for 2018-19 by the All India Council of Technical Education (AICTE), there are 10,398 diploma and post-diploma, degree offering institutions in the country with an annual intake capacity of over 35.51 lakh. The AICTE has also reported that there is 4,397 degree-granting (B.Tech./B.E.) engineering colleges in India, which has the capacity of annual student intake of 15.81 lakh.

AICTE and Engineering Education

“The All India Council for Technical Education (AICTE) was set up in November 1945 based on the recommendations of CIBE to stimulate, coordinate and control the provisions of educational facilities and industrial development of the post war period. At that time, mandate of AICTE basically covered only Programmes in Engineering and Technology. The growth of industries in the Country, just after independence, also demanded the need for qualified professionals in other fields such as Business Management, Architecture, Hotel Management, Pharmacy, Applied Art and Craft, *etc.* The Policy Shift during eighties towards involvement of Private and Voluntary Organizations in the setting up of Technical and Management Institutions on self financing basis ushered in an era of unprecedented expansion of the Technical Education System, a trend which has continued during successive Five Year Plans. It was in this context that AICTE was given statutory powers by the AICTE Act of Parliament in 1987, with a view to ensure the proper planning and coordinated development of Technical Education System throughout the Country” (Approval Process Handbook- AICTE, 2018-19, p. 12-13).

Literature review

The status of engineering college libraries have been quite extensively investigated from time to time in different parts of the country but it is not possible to cover here all the studies. Therefore, only a few relevant studies have been discussed here as follows:

Deka (2013) conducted a study to know the status of ICT application in college libraries of Dhemaji District of Assam and found that there is no facility of Internet, Wi-Fi, Fax, *etc.* in the surveyed colleges and even the librarians who were working in those colleges, have not basic ICT skills. On the other hand, a study was conducted by Mehar Singh (2013) to know the status of engineering college libraries in Sonipat District of Haryana and noticed that the majority of the engineering college libraries had implemented automation to improve the quality of services, however, none of the libraries had the availability of CAS/SDI and indexing/abstracting services for their users. While surveying Government engineering college libraries in Punjab to know the trends in ICT usage, Rattan (2013) noticed that around 65% of the users were availing the facility of computerized circulation in their libraries, whereas, 50% of the respondents were of the view that existing computer terminals are not sufficient for the present use and wants to enhance the facility. A similar type of study was also conducted by Talukdar (2013), in which he tried to explore the current status of application of ICT in engineering college libraries of Guwahati and found that all the college libraries under study were using SOUL 2.0 library management software for automation purposes and were providing ICT based library services like Circulation, OPAC, Access to online journals and Internet services, *etc.* A survey was conducted to explore the present status of engineering college libraries in Sri Venkateswara University area, Andhra Pradesh and observed that a big majority of the libraries (93%) were using Dewey Decimal Classification scheme to classify the documents and were providing good Internet facility, whereas, around 80% libraries in engineering colleges under study were not been operated in separate buildings (Balu and Reddy, 2014). To know the status of engineering college libraries in Dehradun region of Uttarakhand, a survey was conducted by Bhanu Partap (2015) and found that 26.66% libraries had less than 10,000 books in its collection and 93.33% libraries were subscribing electronic journals, whereas, all the responded libraries were not have sufficient staff at lower level to provide good library services. In an another study, Bhattacharya and Das (2015) have tried to investigate the present status of e-resources available in the engineering college libraries of West Bengal and noticed that 85% colleges were providing access to electronic databases to its users and 94% of the colleges under study were subscribing to the different e-journal packages (Databases) mentioned in the AICTE handbook. Anasane (2016) has tried to explore the status of engineering college libraries in Vidharbha region of Maharashtra and found that more than 78% libraries in Vidarbha region do not meet the prescribed norms and standard of AICTE for building, staff, collection and services, even did not appointed adequate staff (Excluding Librarian) as per the AICTE norms and standards, hence, the libraries were unable to provide efficient and better services to their users. In an another study conducted by Bhanu Partap (2016) to know the current status of engineering college libraries of Ambala District of Haryana and found that out of 10 responded libraries, only one library had more than 50,000 books in its collection and subscribing more than 80 journals, however, the researcher had also suggested that the

colleges need to strengthen their libraries in terms of staff positions, buildings, collection development policy and salary structure to the professionals. To know the status of ICT infrastructure and services of libraries of SRMSWCET Bareilly and DBITE Dehradun, a comparative study was conducted by Bhanu Partap and Tiwari (2018) and observed that librarians had not been treated as faculty members in both of the college libraries, whereas, the library of SRMSWCET- Bareilly had strong collection as compared to the library of DBITE- Dehradun.

Statement of the problem

Bhubaneswar is one of the fastest developing and smart cities of India and also recognized as hub of education in Odisha State, where many educational institutions have been setup by the state Government of Odisha and the Government of India. Most of the institutions are funded by private managements and some are Government funded also. There are lots of engineering colleges also in the region, which offers engineering and technical education and have some reputation in their area. These colleges offer diploma, undergraduate, post-graduate and doctoral courses in engineering education. A study of the status of their libraries could reveal some interesting facts. Therefore, a study of engineering colleges of Bhubaneswar region was planned, to know the current status of their libraries and to know how much these libraries are ready to meet the growing and rapidly changing expectations of future engineers.

Scope and limitation of the study

The present study is confined to the current status of engineering college libraries in Bhubaneswar region of Odisha, India. The study is limited to those engineering college libraries, which have responded to the request for filling up the questionnaire.

Objective of the study

The present study was intended to know the current status of Engineering College Libraries in Bhubaneswar region of Odisha, India, however, the following objectives of the study were intended to be achieved:

- Status of availability of staff and staff development policy
- Status of collection and collection development policy
- Status of various types of services being provided
- Availability of physical infrastructure and resources
- Status of automation of library system and services
- Status of Information Technology (IT) infrastructure
- Status of budget provision

Research Methodology

Based on the objectives of the study and review of literature, a well structured questionnaire was prepared to collect the data from the selected engineering colleges. The data were collected by visited personally to the engineering colleges during February-March 2019. In some cases, multiple visits were also made to seek maximum response from the concerned colleges and telephonic conversation was also made for seeking clarifications regarding given information in the questionnaires returned by them. In the month of February-March 2019, ten engineering colleges were selected on randomly basis for conducting the survey to know the current status of their libraries. Out of ten engineering college libraries, six libraries were

responded positively by filling the questionnaires timely so six valid questionnaires have been used for data analysis and interpretation. Thus overall response rate has been achieved @60% and the collected data have been analysed by using simple percentage analysis method.

Data analysis and results

The analysis of data as per the objectives of the study is presented in the following tables:

Table 1: General profile of responded engineering colleges

Sr. No.	Name of the college	Year of Estb.	Affiliation with	Approved by	Courses offered	Financial status
1.	OEC	1986	Biju Patnaik University of Technology	AICTE, Govt. of Odisha	B.Tech., M.Tech., Diploma	Self Finance
2.	ITER	1997	Shiksha 'O' Anusandhan	AICTE, UGC, Govt. of Odisha	B.Tech., M.Tech., M.Sc., BCA, MCA	Self Finance
3.	CVRCOE	1997	Biju Patnaik University of Technology	AICTE, Govt. of Odisha	B.Tech., M.Tech., Ph.D., Diploma, MBA, MCA, Marine	Self Finance
4.	COEB	1999	Biju Patnaik University of Technology	AICTE, Govt. of Odisha	B.Tech., M.Tech., Diploma	Self Finance
5.	HCOE	2000	Biju Patnaik University of Technology	AICTE, Govt. of Odisha	B.Tech., M.Tech., Diploma	Self Finance
6.	SIOT	2001	Biju Patnaik University of Technology	AICTE, Govt. of Odisha	B.Tech., M.Tech., Diploma	Self Finance

The general profile information of responded engineering colleges in Bhubaneswar region of Odisha (India) is reflected in Table 1. It is evident from the above table that Orissa Engineering College (OEC)-1986 is the oldest established engineering college in Bhubaneswar region. On the other hand, Institute of Technical Education and Research (ITER) was established in 1997, while C.V. Raman College of Engineering (CVRCOE) was also established in 1997 and College of Engineering Bhubaneswar (COEB) was established in 1999 followed by Hi-Tech College of Engineering (HCOE)-2000 and Silicon Institute of Technology (SIOT) was established in the year of 2001. The OEC, CVRCOE, COEB, HCOE and SIOT are affiliated to Biju Patnaik University of Technology, Bhubaneswar. Since its inception, ITER was affiliated to Utkal University, Bhubaneswar and then to Biju Patnaik University of Technology, Bhubaneswar. In 2007, University Grants Commission (UGC) in its Act of 1956 Under Section 3, ITER was upgraded to the status of Deemed to be University in the name of *Shiksha 'O' Anusandhan*, Bhubaneswar. The programs offered by all the responded engineering colleges are recognize and approved by the AICTE, Government of Odisha and UGC. All the responded engineering colleges under study were offering B. Tech. and M. Tech. programs. The OEC, CVRCOE, COEB, HCOE and SIOT are also offers Diploma program in various branches of engineering, whereas, among the responded colleges, only CVRCOE offers Doctoral program in addition to its core courses. Apart from

this, ITER also offers M.Sc., BCA and MCA courses in addition to core courses, while CVRCOE also offers MBA, MCA and Marine courses. All the responded engineering colleges were self financed, and run by private management committees or board.

Table 2: Profile of responded engineering college libraries-I

Sr. No.	Name of the college	Separate library building	Budget preparation	Library Advisory Committee (LAC)	Written book selection policy	Written weeding out policy
1.	OEC	Yes	Yes	Yes	Yes	Yes
2.	ITER	Yes	Yes	Yes	No	No
3.	CVRCOE	Yes	Yes	Yes	No	Yes
4.	COEB	No	No	No	Yes	Yes
5.	HCOE	No	Yes	No	Yes	Yes
6.	SIOT	No	Yes	No	Yes	Yes

The data given in Table 2 represents that the OEC, ITER and CVRCOE were operated their libraries in separate building, while in COEB, HCOE and SIOT, the libraries were being operating in one of the floor of main building of the college. The OEC, ITER and CVRCOE had the provision of Library Advisory Committee (LAC), whereas, there is no such type of committee had existed in COEB, HCOE and SIOT. So far concerned with provision of budget preparation, except COEB, all the libraries of responded engineering colleges were preparing their annual budget. On the other hand, the libraries of OEC, COEB, HCOE and SIOT have framed written weeding out policy, while the libraries of ITER and CVRCOE have not any such type of policy. Similarly, all the responded engineering college libraries under study, except ITER, have framed written weeding out policy.

Table 3: Profile of responded engineering college libraries-II

Sr. No.	Name of the college	Total membership	Total seating capacity	Adequacy of present provision of seats	Access system for collection	Alternative arrangement for electricity
1.	OEC	2210	80	Yes	Open	Yes
2.	ITER	2525	1500	Yes	Open	Yes
3.	CVRCOE	5360	450	Yes	Open	Yes
4.	COEB	3459	35	Yes	Open	Yes
5.	HCOE	2050	100	Yes	Open	Yes
6.	SIOT	4455	216	Yes	Open	Yes

Among the responded engineering college libraries, the library of CVRCOE has the highest membership of users (5360) as highlighted in the Table 3, whereas, the library of SIOT has 4455 members followed by COEB (3459), ITER (2525), OEC (2210) and HCOE (2050) respectively. So far concerned with the seating capacity in the reading halls of library, the ITER has the maximum seating capacity (1,500) followed by CVRCOE (450), SIOT (216), HCOE (100), while in the libraries of OEC (80) and COEB (35) has very less seating capacity. All the engineering college libraries were positively responded that the present provision of seats is quite adequate in their reading halls and have proper alternative arrangement for power backup during electric failure. All the responded engineering college libraries were follow open access system for its collection so that users would see all the

relevant collection together and get access the same freely without asking any help of library staff.

Table 4: Library staff

Sr. No.	Name of the college	Staff status								Librarian's Qualification	Staff development policy	Adequacy of supporting staff	Satisfaction with salary, status and working conditions
		Librarian	Deputy Librarian	Assistant Librarian	Library Assistant	Professional Assistant	Library Restorer	Library Attendant	Library Cleaner				
1.	OEC	1	1	2	1	-	-	2	2	MLIS, Ph.D.	Yes	Yes	Yes
2.	ITER	2	-	4	7	-	-	3	2	MLIS, Ph.D.	Yes	Yes	Yes
3.	CVRCOE	1	-	11	2	-	-	4	2	MLIS, Ph.D.	Yes	Yes	Yes
4.	COEB	1	-	3	2	-	-	-	2	MLIS	Yes	Yes	No
5.	HCOE	1	1	2	-	-	-	-	2	MLIS, Ph.D.	Yes	Yes	Yes
6.	SIOT	1	1	2	2	-	-	-	3	MLIS, Ph.D.	Yes	Yes	Yes

The data given in Table 4 reveals the present status of staff provision in the responded engineering college libraries in Bhubaneswar region of Odisha (India). It was noticed that all the responded engineering colleges have appointed qualified librarian in their libraries with at least master degree in library and information science. Among the responded engineering college libraries, except COEB, all the librarians were also possessed Ph. D. degree besides core degree program. So far concerned with other library positions, the library of OEC, HCOE and SIOT have one deputy librarian as well to support their librarians. On the other hand, all the libraries under study have also appointed assistant librarians ranges from two to eleven. Except the library of HCOE, the position of library assistant was also filled by all the libraries under study ranges from one to seven, while the libraries of OEC, ITER and CVRCOE have also appointed library attendants in its premises ranges from two to four. Apart from the library professionals, all the libraries under study, except SIOT, have the provision of two library cleaners in their premises, whereas, the library of SIOT has appointed three library cleaners for cleanliness of premises and providing better hygienic environment to their users. All the responded engineering colleges under study have promoted their library staff to enhance their skills by joining technical workshops, seminars and conferences. With regard to the adequacy of supporting staff in libraries, all the responded engineering college libraries were admitted that the present provision of supporting staff is quite sufficient. The library staffs of OEC, ITER, CVRCOE, HCOE and SIOT have showed their satisfaction towards their salary, status and current working conditions, whereas, the staff of COEB were not fully satisfied.

Table 5: Print collection in libraries

Sr. No.	Name of the college	Books	Journals	Magazines	Newspapers
1.	OEC	25,000	18	20	05
2.	ITER	1,25,000	32	10	10
3.	CVRCOE	65,874	151	35	09
4.	COEB	10,450	12	16	03
5.	HCOE	36,000	50	35	10
6.	SIOT	60,800	75	10	05

The current status of print collection in responded engineering college libraries is given in Table 5 and it is very clear from the above table that the library of ITER has the highest number of books (1,25,000) in its collection followed by the library of CVRCOE (65,874), SIOT (60,800), HCOE (36,000), OEC (25,000) and COEB (10,450) respectively. So far concerned with the print journals, maximum number of journals has been subscribed by CVRCOE library (151) followed by the library of SIOT (75), HCOE (50), ITER (32), OEC (18) and COEB (12) respectively. The libraries of CVRCOE and HCOE have been subscribing 35 magazines each, whereas, the libraries of ITER and SIOT have been subscribing 10 magazines each. On the other hand, the library of OEC has been subscribing 20 magazines, while the library of COEB has been subscribing 16 magazines for its readers. With regard to newspapers' subscription, the libraries of ITER and HCOE have been subscribing ten newspapers each for their readers, whereas, the libraries of OEC and SIOT have been subscribing five newspapers each followed by CVRCOE (09) and COEB (03) respectively.

Table 6: Electronic collection in libraries

Sr. No.	Name of the college	e-Books	e-Journals	CDs/DVDs	Audio-Visuals	Online Databases
1.	OEC	1,360	15	100	90	11
2.	ITER	1,00,000	16	20	Nil	16
3.	CVRCOE	1,19,526	778	5,427	528	03
4.	COEB	764	05	150	47	Yes
5.	HCOE	5,000	35	485	50	65
6.	SIOT	600	60	798	165	25

The data pertaining to electronic collection in the responded engineering college libraries under study is given in Table 6. It is evident from the above table that the library of CRCOE has purchased maximum number of e-books (1,19,526) among the responded engineering college libraries followed by the libraries of ITER (1,00,000), HCOE (5,000), OEC (1,360), COEB (764) and SIOT (600) respectively. So far concerned with e-journals, the library of CVRCOE has been subscribing 778 e-journals followed by SIOT (60), HCOE (35), ITER (16), OEC (15) and COEB (05) respectively. Apart from this, the library of CVRCOE has also 5,427 CDs/DVDs in its collection; whereas, the library of SIOT has 798 CDs/DVDs followed by HCOE (485), COEB (150), OEC (100) and ITER has only 20 CDs/DVDs in its collection. On the other hand, the library of CRVCOE has also 528 audio-visuals in its collection, while SIOT has 165 audio-visuals followed by the library of OEC (90), HCOE (50) and COEB (47) respectively. The ITER has not any audio-visual collection in its library. With regard to the online databases, the library of HCOE has been subscribing 65 online

databases, whereas, the library of SIOT has been subscribing 25 online databases for its users followed by the library of ITER (16), OEC (11) and CVRCOE (03) respectively. The library of COEB has also been subscribing online databases but at the time of survey, the library has not given the name and numbers of online databases.

Table 7: Financial status of libraries

Sr. No.	Name of the college	Budget allocation during last five years				
		2014-15	2015-16	2016-17	2017-18	2018-19
1.	OEC	10,500	15,900	23,000	26,078	31,000
2.	ITER	5,84,277	9,59,337	8,54,656	1,20,373	13,00,000
3.	CVRCOE	54,00,000	59,00,000	65,00,000	78,00,000	85,00,000
4.	COEB	68,500	90,500	2,05,000	3,59,860	5,00,000
5.	HCOE	15,000	17,460	19,000	25,000	31,000
6.	SIOT	5,00,000	7,00,476	9,08,000	13,50,000	15,00,000

The data given in Table 7 reflected the financial status of engineering college libraries under study during the last five years and it has been found that CVRCOE is the leading engineering college, which allocates highest budget to its library during last five years (2014-15 to 2018-19) followed by SIOT, ITER, COEB, HCOE and OEC. During the financial year 2018-19, the CVRCOE has allocated 85 lakhs of rupees to its library, followed by SIOT (15 lakhs), ITER (13 lakhs), COEB (5 lakhs), HCOE (31 thousands) and OEC (31 thousands) respectively.

Table 8: Book acquisitioned during last five years

Sr. No.	Name of the college	Book acquisitioned during last five years					Total
		2014-15	2015-16	2016-17	2017-18	2018-19	
1.	OEC	70	85	95	90	110	450
2.	ITER	397	563	600	1,082	1,200	3,842
3.	CVRCOE	2,375	7,200	3,850	9,153	6,159	28,737
4.	COEB	120	175	250	327	437	1,309
5.	HCOE	40	48	53	60	75	276
6.	SIOT	450	680	755	957	1,034	3,876

Table 8 shows the status of book acquisitioned during last five years by the engineering college libraries under study. It is evident from the data given in above table that the library of CVRCOE has added 28,737 books in its collection during the last five years, which is highest among all the other responded engineering college libraries in Bhubaneswar region of Odisha (India), followed by SIOT (3,876), ITER (3,842), COEB (1,309), OEC (450) and HCOE (276) respectively.

Table 9: Technical activities performed

Sr. No.	Name of the college	Classification Scheme	Cataloguing Code	Subject Heading List	Book Purchase Policy	Journal Subscription Policy	Ordering of Books	Stock Verification in Last Five Years	Books Weeded Out from the Stock Verification in Last Five Years
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1.	OEC	DDC	AACR-II	Sears List	Vendor	Direct order/ Vendor	As and when required	5 times	02
2.	ITER	DDC	AACR-II	Sears List	Vendor	Vendor	Six monthly	4 times	1,500
3.	CVRCOE	DDC	AACR-II	Nil	Vendor	Vendor	As and when required	2 times	4,213
4.	COEB	DDC	AACR-II	Sears List	Vendor	Vendor	As and when required	2 times	300
5.	HCOE	DDC	AACR-II	Nil	Direct order/ Vendor	Direct order/ Vendor	As and when required	3 times	01
6.	SIOT	DDC	AACR-II	Sears List	Direct order/ Vendor	Direct order/ Vendor	As and when required	5 times	5,000

The data pertaining to technical activities performed by the engineering college libraries under study is given in Table 9 and it was noticed that all the responded libraries were using Dewey Decimal Classification (DDC) scheme for classification and AACR-II for cataloguing of documents. For the purpose of allocating subject heading to the documents, Sears List of Subject Headings (SLSH) is being used by the concerned libraries under study, except the libraries of CVRCOE and HCOE. On the other hand, all the engineering college libraries under study were purchasing books and subscribing journals either through vendor or direct order. All the libraries were purchasing books as and when they received the requisition of the books from the concerned faculties or departments throughout the year, except ITER, which was purchasing books once in six months. During the last five years, all the libraries under study were conducted stock verification and it was found that the libraries of OEC and SIOT were conducted stock verification for five times, whereas, the libraries of CVRCOE and COEB were conducted stock verification for only two times followed by the library of ITER (Four times) and HCOE (Three times). After completing the stock verification process, the library of SIOT has weeded out total 5,000 books from its collection during the last five years, whereas, the library of CVRCOE has weeded out 4,213 books from its collection, followed by the library of ITER (1,500), COEB (300), OEC (02) and HCOE (01) respectively.

Table 10: Services provided by libraries

Sr. No.	Name of the college	CAS/SDI	Reprography	Print-out	Opening hours	Access system	Period of loan	Fine charges
1.	OEC	Yes	Yes	Yes	12	Open	UG- 15 days, PG- 15 days, T- 1 month, NT- 1 month	Rs. 1/-
2.	ITER	Yes	Yes	Yes	14	Open	UG- 15 days, PG- 15 days, T- 1 month, NT- 1 month	Rs. 2/-
3.	CVRCOE	Yes	Yes	Yes	13	Open	UG-14 days,	Rs. 1/-

							PG- 30 days, T- 6 months, NT- 6 months	
4.	COEB	Yes	Yes	Yes	09	Open	UG- 15 days, PG- 15 days, T- 1 month, NT- 1 month	Rs. 2/-
5.	HCOE	No	Yes	No	08	Open	UG- 14 days, PG- 14 days, T- 20 days, NT- 20 days	Rs. 1/-
6.	SIOT	Yes	Yes	Yes	9.30	Open	UG- 14 days, PG- 14 days, T- 1 month, NT- 1 month	Rs. 1/-

Table 10 shows the different common services provided by the libraries under study to their users. It was found that all the responded engineering college libraries were providing reprography services to their users. On the other hand, all the libraries were providing CAS/SDI and printout services to the users, except the library of HCOE. The library of ITER is being opened for 14 hours daily to its users, whereas, the library of CVRCOE is kept open for 13 hours daily, followed by the library of OEC (12 hours), SIOT (9.30 hours), COEB (9 hours) and RCM (8 hours) respectively. All the responded libraries were being followed open access system for accessing their collection. The libraries of OEC, ITER and COEB were issuing books to the undergraduate students for 15 days, whereas, the library of CVRCOE, HCOE and SIOT were issuing books to the undergraduate students for fourteen days. By the library of CVRCOE, the books were being issued to the post-graduate students for 30 days, while the library of OEC, ITER and COEB were issuing books for 15 days. On the other hand, the libraries of HCOE and SIOT were offering issue return services for 14 days to its post graduate students. In CVRCOE, the books for teachers were being issued for six months, whereas, in OEC, ITER COEB, and SIOT, the books were being issued to the teachers for one month. Similarly, for non-teaching staff, the books were being issued for six months in CVRCOE, whereas, the library of OEC, ITER, COEB and SIOT issuing books for one month to the non-teachers. With regard to fine charges for late deposited books, the libraries of ITER and COEB were charging Rs. 2/- per book per day from the users, whereas, the libraries of OEC, CVRCOE, HCOE and SIOT were charging Rs. 1/- per book per day as overdue charges.

Table 11: Library automation

Sr. No.	Name of the college	Automation Status	Library Management Software	Activities/Module implemented	Internet facility	Wi-fi facility
1.	OEC	Yes	LibSys	Cataloguing, Circulation	Yes	Yes
2.	ITER	Yes	LibSys	Cataloguing, Circulation	Yes	Yes
3.	CVRCOE	Yes	LibSys	Cataloguing, Circulation	Yes	Yes
4.	COEB	Yes	LibSys	Cataloguing, Circulation	Yes	Yes

5.	HCOE	Yes	Koha	Cataloguing, Circulation	Yes	Yes
6.	SIOT	Yes	LibSys	Cataloguing, Circulation	Yes	Yes

The data given in Table 11 highlights the status of library automation in engineering college libraries in Bhubaneswar region of Odisha and it was observed that all the libraries under study were automated their activities and services. LibSys library management software is being used by all the engineering college libraries under study, except the HCOE, in which Koha integrated library management software is being used for automation purposes. All the libraries were automated two modules of software on priority basis, *i.e.*, cataloguing and circulation so that the main work of library will go smoothly. Another side, all the engineering college libraries were offering Internet and Wi-Fi services to their users.

Table 12: IT infrastructure

Sr. No.	Name of the college	Computers	Printers	Scanners	Barcode readers	UPSs	Servers	CCTV cameras	Video-Conferencing lab	LCD Projector
1.	OEC	06	03	03	05	06	01	Yes	Yes	Nil
2.	ITER	20	10	10	20	01	15	Yes	Yes	Nil
3.	CVRCOE	15	05	05	10	10	01	Yes	Nil	01
4.	COEB	06	03	03	03	06	01	Yes	Yes	02
5.	HCOE	12	05	05	10	12	01	No	Yes	01
6.	SIOT	15	04	04	04	10	01	Yes	Yes	05

The data pertaining to status of Information Technology (IT) infrastructure in engineering college libraries in Bhubaneswar region of Odisha (India) is given in Table 12. It is evident from the above table that the ITER library has maximum number of computers (20) among the other engineering college libraries, whereas, the libraries of CVRCOE and SIOT each have 15 computers, followed by the libraries of HCOE (12), OEC (06) and COEB (06) respectively. Similarly, the library of ITER has ten printers, while, the libraries of CVRCOE and HCOE have five printers each, followed by the library of SIOT (04) and the libraries of OEC and COEB have three printers each in their premises. On the other hand, ITER library has ten scanners, followed by the libraries of CVRCOE and HCOE, which have five scanners, while the libraries of OEC and COEB have three scanners each and SIOT has four scanners in their premises.

So far concerned with availability of barcode readers and UPSs, the library of ITER has 20 barcode readers and one UPS, followed by the library of HCOE, which has ten barcode readers and 12 UPSs, CVRCOE has ten barcode readers and ten UPSs, OEC has five barcode readers and six UPSs, COEB has three barcode readers and six UPSs and SIOT has four barcode readers and ten UPSs in its premises. All the engineering college libraries under study have servers and video-conferencing lab in their premises, except the library of CVRCOE. The facility of CCTV surveillance was available in all the libraries under study, except HCOE. The libraries of CVRCOE, COEB and HCOE and SIOT have LCD projectors also, whereas, the libraries of OEC and ITER have not this facility in their premises.

Major findings

Based on the results, some of the major findings may be summarized as given below:

- Orissa Engineering College (OEC)-1986 is the oldest established engineering college in Bhubaneswar region, particularly in Eastern India
- All the engineering college libraries under study, except COEB have been preparing annual budget
- The highest number of library members registered in CVRCOE (5,360) among the responded engineering college libraries, whereas, the library of SIOT has 4,455 members and COEB has 3,459 registered members
- All the engineering college libraries under study have followed open access system for their collection
- All the engineering colleges have appointed well qualified librarians in their libraries, who have doctoral degree in library and information science, except COEB, who have appointed master degree holder
- The library staffs of all the responded engineering colleges, except COEB have replied that they are satisfied with their salary structure, status and current working conditions
- The library of ITER has the highest number of books (1,25,000) in its collection, followed by the library of CVRCOE (65,874), SIOT (60,800), HCOE (36,000), OEC (25,000) and COEB (10,450) respectively
- The library of CVRCOE has subscribing 151 print journals, whereas, the library of SIOT has subscribing 75 print journals, followed by the library of HCOE (50), ITER (32), OEC (18) and COEB (12)
- The library of CVRCOE has purchased 1,19,526 e-books and subscribing 778 e-journals, whereas, the library of ITER has purchased 1,00,000 e-books and the library of HCOE has purchased 5,000 e-books
- The CVRCOE is the leading engineering college among the other responded colleges, which allocates highest budget to its library during last five years (2014-15 to 2018-19), followed by the SIOT, ITER, COEB, HCOE and OEC respectively
- The library of CVRCOE has added 28,737 books in its collection during the period from 2014-15 to 2018-19, followed by SIOT (3,876), ITER (3,842), COEB (1,309), OEC (450) and HCOE (276) respectively
- All the responded engineering college libraries are using Dewey Decimal Classification (DDC) scheme for classification and AACR-II for cataloguing of documents
- The ITER has kept open its library to its users for 14 hours, whereas, the library of CVRCOE is being opening about 13 hours daily, followed by the library of OEC (12 hours), SIOT (9.30 hours), COEB (09 hours) and HCOE (9 hours) respectively
- Open access system for collection is being followed by all the responded engineering college libraries under study
- The activities and services in all the libraries under study have been automated with the implementation of professional library management software and all the libraries have been offering Internet and Wi-Fi services to their users

- All the engineering college libraries have good quality Information and Communication Technology (ICT) infrastructure in its premises

Suggestions

Although, all the engineering college libraries in Bhubaneswar region of Odisha (India) under study have good infrastructure, Information Technology applications and other aspects of services from the users' point of view, however, there are some issues or lacunas have also been found during the study, which needs to be resolved or needs to be concentrated. In OEC, COEB and HCOE, more concentration should be given to budget allocation and collection building, *etc.* In this era of technology and digitization, everyone desired that their required information must be in electronic or digital form so more and more electronic resources must be procured by all the libraries under study as well as information technology infrastructure should be regularly reviewed. Nowadays, nobody have much time to get their desired information, hence, users want quick and quality information. Therefore, it is hereby suggested that all the libraries under study must be concentrate on service quality and for that, libraries should regularly take the feedback from the users so that necessary improvement can be done as per the actual prerequisite of the users'.

Conclusion

The present research work was undertaken to study critically about the current status of selected engineering college libraries in Bhubaneswar region of Odisha (India). The study was carried out in view of various aspects like staff, collection, services, Information Technology (IT) infrastructure, finance, automation status, *etc.* After getting the results, it can be concluded hereby that all the engineering college libraries under study were privately managed and depending for finance on their respective management bodies. The library staffs of all the responded engineering college libraries, except COEB have been satisfied with their salary, status and current working conditions. Further, it is also found that in some of the libraries under study, there is a lot of books were found missing during the stock verification process, hence, they needs to be more careful and attentive. In the end, it can be said in conclusion that all the libraries of engineering colleges under study must be give some priority on service quality aspects so that ultimate user satisfaction would be achieved.

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