



A CONTENT ANALYSIS OF TOP 10 NATIONAL INSTITUTIONAL RANKING FRAMEWORK'S (NIRF) RANKED NATIONAL INSTITUTE OF TECHNOLOGY's LIBRARY WEBSITES

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ABSTRACT

This is a content analysis study of library websites of the top 10 NIRF (National Institutional Ranking Framework) 2023, India National Institute of Technology (NIT). The data were collected through the online survey, observation, and informal communication with NIT library staff. A well-structured checklist was prepared for the selected NITs. The findings of the study were based on the services offered for the library users through their websites/webpages, and it had other important information that would be useful for any users or information seekers, such as digital collections, references, circulation, journals, books, book bank facilities, rare books, standards, databases, OPAC, and technical reports. Based on the different information collected, the overall score which is based on the information contained to the respective NIT's library websites, and finally, a ranking list was prepared. All the selected NIT's library websites have information regarding books, journals, e-books, e-journals, open sources/useful links, OPAC links, current awareness service, reference service, single window search, circulation service, and bibliographic service. Only 2 of the selected libraries have web 2.0 technology implemented on their library websites. All findings and recommendations were provided to understand the areas in which libraries should work hard to benefit their users and fulfill all five laws of library science.

Keywords - Content Analysis, Web pages, Websites, Library Websites, NIRF, NIT, E-Content.

1. INTRODUCTION

In India, National Institutes of Technology (NITs) are considered as some of the best, reputed, and prestigious institutes that provide technical education and are fully funded by the Ministry of Education, Government of India. NITs are governed by the 2007 Act of the National Institutes of Technology, Science, Education, and Research, which provides the status of "Institutions of National Importance" and lays down their powers, duties, and framework for governance (NIT Council, 2023) Institute websites are very essential and play a crucial role in promoting the institute and its facilities for the educational fraternity. The study is focused on the library websites of the top 10 NIRF NITs in India in 2023. Library is the heart of any academic institute. They fulfil the information needs of the user, but their scope is limited if they do not have a library website. A good library website easily attracts the information seeker with the help of showcasing their collection, facilities, services, and other information within or outside the boundaries of any institute. To save the time of a library user the library website had all the necessary information which could be helpful to get the desired information from library due to lack of information available in the library website users not interesting to visit the library however the required information is available in the library. This study will be helpful to point out the necessary parameters that a library website contained and what action can be taken to improve the library website in the current digital world of learning.

This study employ content analysis of library websites of library websites of National Institutional Ranking Framework's top 10 ranked National Institutes of Technology in India. Content analysis of library websites is popular field of research in library and

information science as published website content becomes the primary source of information and play a vital role in attracting users of the library and help them to fulfill the gap between library services and users of the library which improves the footfall of the library and also play a vital role to improve the NIRF ranking in coming years. This study develops evaluation criteria for the selected NIT's library websites content.

1.1 The National Institutional Ranking Framework

The National Institutional Ranking Framework (NIRF) was approved by the Ministry of Human Resource Development (MHRD) and launched by India's Minister of Human Resource Development on 29 September 2015. The credibility of an Indian educational institution is established through the NIRF ranking. The rankings achieved by these institutions assist students in selecting the most suitable college to enroll in. Furthermore, the NIRF ranking fosters a healthy competition among various institutes, encouraging them to enhance their operations and other aspects in order to secure a position in this prestigious ranking. This framework outlines a methodology to rank institutions across the country. The methodology draws from the overall recommendations and broad understanding arrived at by a Core Committee set up by MHRD to identify the broad parameters for ranking various universities and institutions. The parameters broadly cover "Teaching, Learning, and Resources," "Research and Professional Practices," "Graduation Outcomes," "Outreach and Inclusivity," and "Perception (NIRF India, 2023)."

2. REVIEW OF LITERATURE

There are several articles on content analysis of the websites but no one focused on the NIT's library website content of top NIRF ranking institutes who play a vital role in the development of the country and to produce good engineers, scientists and academicians. A recent study by (S. and Kannappanavar, 2023) on the library websites or web page content of the top 20 NIRF-ranked pharmacy institutes in India, and their findings suggested adding more information to library websites to attract more users. (Kaushik, 2023) Studied the top 50 engineering colleges under the list in QS World University ranking library websites with the method of content analysis and pointed out the need for the improvement of the libraries' websites in terms of technology and more informative. Wani (2021) discussed the selected library websites of IIMs and revealed that they are not promoting their libraries and services on social media platforms, which have the power to attract users exponentially. She also pointed out some important parameters and suggested evaluating the website from time to time and updating the library website regularly. Rahman and Sadik (2020) studied the ten selected library websites of Delhi University colleges with details about their offered services, information, and facilities. The study was conducted with the help of a structured checklist of selected college library websites and findings suggested the adoption of more user friendliness and a need to publish the latest resources and related information on the websites. Ibrahim, Musa and Bello (2020) studied the library websites of selected Nigerian universities. (Ukwattage, 2019) conducted a similar study on the library websites of selected 16 health sciences institutes in Sri Lanka by Ukwattage and focused service on research guide, citation tools, bibliography help, and other instructional material available in the library. Devi and Verma (2018) studied the library websites of 19 IITs and 29 NITs and pointed out that the library website of IIT Kanpur was in the first rank while that of NIT Agartala was in the lowest rank. They also suggested that regular updates to library websites were crucial to attracting users. Zwier (2017) studied the 200 community pharmacy websites in the UK, Australia, Canada, the Netherlands, British Columbia, and Manitoba and concluded that they had controversial combinations of clinical and commercial services which help to set parameters of a library website content to attract more and more library users.

3. OBJECTIVES OF THE STUDY

The major objectives of the study are as follow:

- To study the domain extension of the library websites.
- To study the various facilities, resources available on the library website.
- To study what kind of information is available on the website.
- To study what web technologies are being used for delivering library service to the users.
- To put forward recommendations based on the outcome of the study.

4. METHODOLOGY

For the study, a deep search of selected top 10 NIRF ranking NIT's library website was done during August–September 2023. The study starts with the institute website and ends with the respective library websites. The parameters for evaluation were identified from the previous literature and create a checklist. A detailed study of the content available on the websites and web pages was done, and a well-structured checklist was prepared using Microsoft Excel for all selected NITs. The collected data were used to prepared and presented in tabular form and calculated with sample correlation methods. These are provided in Appendix-1 with the name of the NIT's and their abbreviation used and URL addresses.

5. DATA ANALYSIS

5.1 Domain Extension

The initial iterations of domain extensions, also referred to as Top-Level Domains (TLDs), were established with the intention of organising domain names into distinct categories. These extensions, such as .com, .net, .edu, ac.in, .org, and others, are recognisable as the final component of a website's address. Initially, each extension served a specific function and indicated the nature of the website. While this still holds some truth, the system has become less rigid over time. These domain name extensions have now become an integral aspect of any website's identity. Consequently, we will delve into the definition of domain name extensions, their purpose, and provide you with guidance on selecting the most suitable extension for your website. The library websites of 90% of selected NITs have the same domain extension as ".ac.in" (or 9 institutes) but only 10% (or 1 institutes) of NITs have a different domain extension, ".edu".

Table 1
Domain Extension

S. No.	Domain	No. of Institute	Percentage
1	.ac.in	9	90
2	.edu	1	10
Total		10	100

5.2 Accessibility of Library Websites

Accessibility of a library website or webpages plays an important role for any user who visited the library website / webpage very first time. If users faced difficulties to find out the library website / webpage link then it affects the users excitement for searching the information. Table 2 shows the selected NITs library website/web page accessibility from where a user can land at the library website. It was observed that the associated library website or webpage link was found under the facilities menu, academics menu, or central facilities menu of the institute website. The table shows that the percentage of website/webpage links under the facilities menu was 40%, the academic menu was also 40%, and 20% of website links were found under the central facilities menu.

Table 2
Accessibility of Library Websites

S. No.	Website Location	No. of Institute	Percentage
1	Facilities	4	40
2	Academics	4	40
3	Central Facilities	2	20
Total		10	100

5.3 Availability of Library Websites/Webpages

Now a days libraries are not only providing the conventional or curriculum based information to its users but they provides information related to every subject available in the world and other services too to its users through which they are trying to fulfill all its demand of information. Webpages are not enough to showcase all the offered service to its users from any library. Table 3 shows the library website availability, and it was observed that 60% of selected NIT library websites had separate websites and 40%

had separate webpages under the institute website.

Table 3
Availability of Library Websites/Webpages

S. No.	Availability	No. of Institute	Percentage
1	Separate Website	6	60
2	Separate Webpage	4	40
Total		10	100

5.4 LMS Software

The Library Management System (LMS) should be comprehensive, easy-to-use, and adaptable solution designed to automate all internal processes of libraries, regardless of their size or specialization. Both Koha and Libsys LMS software are user-friendly, efficient, and meets all necessary standards and support for multiple languages, as well as Barcode and QR Code functionality. Table 4 indicates the library management system software used at the selected NIT's for all its inventory management, however LMS are not just for inventory management software nowadays it provides all required information related to the library services and its collection.. It was found that 70% of selected NIT libraries used Koha which is open source LMS and 30% used LibSYS which is a proprietary software.

Table 4
LMS Software

S. No.	LMS Software	No. of Institute	Percentage
1	Koha	7	70
2	LibSYS	3	30
Total		10	100

5.5 Basic Information

Table 5 shows the basic information a library website generally provides. From the table, we observed that library services were provided by 100% of websites, while library history, library working hours, library statistics, library staff information, and ICT infrastructure were provided by 90% of websites. Library building infrastructure and library information were provided by 80% of websites. Library sections and blocks, library membership details, library rules and regulations, new arrivals, library circulars and notice boards, and membership form-related information were provided by 70% of the websites. Magazines and newspapers, library news and events, and library mission, vision, and objective related information were provided by 60% of the websites. 50% of the library websites provided information regarding the photo gallery, video gallery, and book bank.

Table 5
Basic Information

S. No.	Basic Information	No. of NITs	Percentages
1	About the Library/History	9	90
2	Library working hours	9	90
3	Library Building Infrastructure	8	80
4	Library Statistics	9	90
5	Library staff/ Contact Info	9	90
6	Library Services	10	100
7	Library Sections/Blocks	7	70
8	Magazines and Newspapers	6	60
9	Photo /Video Gallery	5	50
10	ICT Infrastructure	9	90
11	Library Membership Details	7	70
12	Library Rules/Regulations	7	70
13	Library News/Events	6	60
14	New Arrivals	7	70
15	Library Circular/Notice Board	7	70
16	Mission/Vision/objectives	6	60

17	Membership Forms	7	70
18	Book Bank	5	5
19	Library Committee	8	80

5.6 Library Collections

Library collections are in a constant state of evolution in order to meet the needs of communities and support the missions, goals, and objectives of libraries. These collections can either be general, encompassing a wide range of materials on various subjects, or subject-specific, focusing on a particular subject or discipline. In addition, some libraries possess special collections that consist of rare materials or historically valuable items, which are being digitized and made accessible through digital special collections. All libraries strive to develop and manage their collections in a way that ensures their relevance and preservation for future use. Every library always tries to fulfil the information needs of their users, and to cater to this need, they procure a large number of collections in print and digital formats. From Table 6, we found 100% information regarding books and journals.

Table 6
Library Collections

S. No.	Physical Collection	No. of Institutes	Percentage
1	Books	10	100
2	Journals	10	100
3	Theses/Dissertation	3	30
4	Bound Volumes	6	60
5	Rare Books	3	30
6	Magazines	7	70
7	Technical Reports	9	90
8	Conference Proceedings	9	90
9	Abstracts	6	60
10	Standards	8	80

5.7 Digital Collections

The swift shift from traditional in-person learning to online learning due to the global restrictions enforced during the COVID-19 pandemic, with the aim of enhancing accessible education, required the utilization of a variety of methods and resources. After the COVID-19 pandemic, the demand for digital content rapidly increased. Some other reasons are also involved in attracting libraries as well as users to digital content. So a good digital collection is also required, and the information regarding digital content held by any library should be provided on the library website. Table 7 shows the e-books, e-journals, and open sources regarding the information provided by the 100% websites.

Table 7
Library Collections

S. No.	Digital Collections	No. of Institutes	Percentage
1	E-Books	10	100
2	E-Journals	10	100
3	Database	8	80
4	DELNET	4	40
5	NDL	5	50
6	Open sources /Useful links	10	100
7	CD ROM Collection	7	70
8	E-theses	6	60
9	IR (Institutional Repositories)	6	60
10	Consortium	5	50
11	E-ShodhSindhu	7	70
12	Patents	6	60
13	CD/DVD	7	70
14	Question Bank	5	50
15	Recent Publications	7	70
16	Faculty Publications/IRINS	7	70

5.8 Library Services and Facilities

The utilization of ICT in libraries has already made a significant influence on the way individuals discover and retrieve information. Presently, the increasing popularity of e-resources is further contributing to the transformation of user habits. In this evolving scenario, libraries are striving to adapt their services to these new circumstances while also catering to the requirements of patrons who depend on conventional resources. Numerous library patrons are enthusiastic about witnessing the expansion of digital services offered by libraries. A library website should have information related to the services and facilities offered to its users. Table 8 shows the OPAC, CAS, reference services, single window search, circulation service, and bibliography service-related information provided by the 100% library websites.

Table 8
Library Services and Facilities

S. No.	Services	No. of Institutes	Percentage
1	Remote access	8	80
2	OPAC link	10	100
3	Reprographic	6	60
4	ILL/document delivery	8	80
5	Current Awareness Service	10	100
6	Newspaper clipping	5	50
7	Reference Service	10	100
8	Single window search	10	100
9	Circulation Service	10	100
10	Referral Service	8	80
11	SDI	9	90
12	Bibliographic Service	10	100
13	Feedback	2	20
14	Social Networking	2	20
15	Leave Comment	2	20
16	FAQ's	1	10
17	RSS Feed	0	0
18	Ask a Librarian	7	70

5.9 Research Support Services

A plagiarism detection tool utilizes sophisticated database technology to compare your text with previously published content by other individuals, online articles, and indexed material, analyzing for similarities against a database of existing online content. These tools are commonly employed by academic institutions and universities to conduct similarity checks on various types of written work, including articles, theses, dissertations, research papers, conference papers, and any other written material that an author wishes to assert as their original creation. Grammar checker provide various advantages for improving the writing skills. They save time by efficiently scanning and detecting errors in your text. Additionally, they enhance accuracy by identifying mistakes that you may have overlooked, ultimately improving the quality of writing Citation tools, also known as bibliography tools or citation managers, are software applications designed to assist in locating, organizing, and annotating sources, as well as streamlining the citation and bibliography formatting processes. Table 9 shows the services offered by the libraries in India for the research community and found that similarity or plagiarism check software-related service information was provided by only 50% of library websites, grammar

check-related information was provided by only 40%, citation tools were provided by only 20%, and paraphrasing-related information was provided by 0% of library websites.

Table 9
Research Support Services

S. No.	Research Support Service	No. of Institute	Percentage
1	Plagiarism Checker	5	50
2	Grammar Checker	4	40
3	Citation Tools	2	20
4	Paraphrase Tool	0	0

5.10 Miscellaneous Services

Apart from the conventional library services offered by the respective libraries, there are some other important services which helps library users a lot to utilized the services offered. As user orientation programs which conducted starting of each new session to give a brief about what are the services library offered to its users and how to avail these services. Similarly others services as mentioned in the Table 10 are benefitted to the users of the library and the information should be published at the library website /webpages. The library website should provide information related to some other important services to its users, as shown in Table 10.

Table 10
Miscellaneous Services

S. No.	Services	No. of Institute	Percentage
1	E-Learning	9	90
2	User Orientation programs	7	70
3	Workshop	6	60
4	Seminar	6	60
5	E-resource training	4	40
6	Book Recommendations	8	80
7	360 degree view	0	0
8	Instant Chat	1	10
9	Book Exhibition	5	50
10	Library App	1	10

5.11 Ranking Library Websites/Webpages

Table 11 shows the overall ranking of the selected NIT library websites or webpages, which is calculated based on the offered services and published information on their website or webpages provided in tables from 1 to 10. NIT Karnataka had the highest score and got

the 1 rank, and NIT Calicut had the least score and got the 10 rank. Figure 1 shows the different views in chart format of the respective rank and score of the selected institute.

Table 11
Ranking of Library Websites/Webpages

Ran k	Name of the Institute	Abbreviation	Total Score
1	National Institute of Technology Karnataka, Surathkal	NITK	91.02
2	National Institute of Technology Rourkela	NITRKL	89.74
3	Malaviya National Institute of Technology	MNIT	76.92
4	National Institute of Technology Tiruchirappalli	NITT	74.35
5	National Institute of Technology Silchar	NITS	64.1
6	Visvesvaraya National Institute of Technology, Nagpur	VNIT	57.69
7	Dr. B R Ambedkar National Institute of Technology, Jalandhar	NITJ	53.84
8	National Institute of Technology Warangal	NITW	51.28
9	National Institute of Technology Durgapur	NITDGP	50
10	National Institute of Technology Calicut	NITC	38.46

Rank and Score

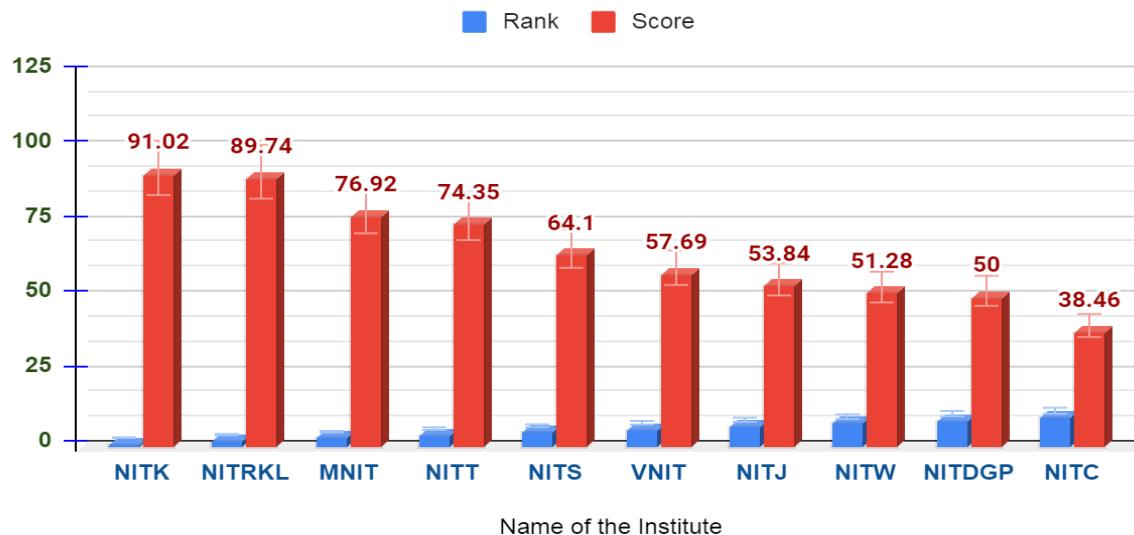


Figure 1 Ranking and Score**6. FINDINGS**

The information published on the library websites of selected NIT's lacks uniformity. 90% of the selected institutes utilise the .ac.in domain, while only 10% use .edu. The majority of libraries, over 60%, are named "Central Library" or simply "Library." More than 60% of library website links can be found under the facilities section of the main institute website. Over 70% of library websites have a dedicated domain. Koha is the library management system software used by more than 70% of the libraries. 30% of library websites are developed using Joomla. Over 90% of library websites contain information on library history, working hours, infrastructure, statistics, staff, services, and more. All library websites provide information on books, journals, e-resources, links, OPAC, services, and more. Only 20% of library websites offer feedback, social networking, and comment services. FAQs are present on only 10% of library websites, while librarian services are available on 70%. Instant chat and library apps are available on only 10% of library websites.

NIT Karnataka ranks the highest, followed by NIT Rourkela and Malaviya National Institute of Technology, Jaipur.

7. RECOMMENDATION

- All library websites try to adapt the same domain extension to maintain the uniformity for academic institution.
- The location of the library website / webpage link at the main websites of the institute is easy to locate to save the time of the user and its interest to search the desired information.
- All institution libraries have their own websites to showcase all its offered services to its users.
- Koha software offers a highly intuitive interface and is cost-effective, posing a greater challenge to traditional LMS software like LibSys. One standout feature of this software is its browser-based functionality, allowing for multiple operations to be performed simultaneously. The 'Tools' module serves as the central hub for customizing any module according to the specific needs of a library. Batch functions, such as patron import, patron card creation, batch patron deletion/anonymization, and batch item modification, are made effortless for libraries that frequently handle large volumes of repetitive tasks. While Koha's circulation reports and statistics are robust, they may not be as user-friendly as those in LibSys. Ultimately, only specialized staff with programming knowledge and skills can effectively utilize these advanced functions. Librarians should adopt open-source software for library management and build library websites and apps to save funds and use it for other library services.
- The libraries have to find an alternative solution to cater to the present challenges to develop a good library collection included the transition to electronic materials, pricing models and restrictions associated with electronic resources, and the long-term retention of materials. Another concern is the censorship of library materials, as well as the increasing number of book challenges occurring in higher educational libraries. Despite these challenges, libraries and their collections will persist and expand, continuing to provide desired information to the individuals and communities they serve. The demand and use of digital resources by the users of the libraries have increased after the COVID-19 pandemic. It becomes the easiest and fastest mode of getting the desired information with a few clicks. The libraries, which have the e-resources and are associated with good databases, could attract more and more library users, either from home or from remote locations, using remote access tools. Libraries have been in existence for centuries, while computer technology and digitization emerged in the twentieth century. Traditional libraries serve as repositories of history and knowledge, providing public access to a wide range of information and perspectives. However, access to these resources in traditional libraries is limited to specific user communities. In the present day, libraries enable users to access knowledge from around the world through the use of ICT applications. Like their traditional counterparts, modern libraries select, acquire, catalog, preserve, and make their contents available by offering a range of services on their websites or webpages. They aim to blend the age-old concept of libraries with modern technology, effectively steering it in a new direction.
- All library websites have the facility to collect feedback, comments, and suggestions to enhance library services. The library staff always tries to their best efforts to provide the required information to the users of the library.
- Librarians and their teams try to connect through social media platforms to provide the desired information, influence them to visit the library to get the information they required in details with the help of library staff and to attract more users with showcase the library services offered and fulfill their information needs.
- A librarian and his or her team try to build a separate library website on an open-source platform and update and upgrade it with the latest technology.

- The library should provide information related to the number of visitors and users who used the different services.
- All libraries have the research support services or tools to its research fraternity such as plagiarism checker software, grammar check, citation tools.
- Library staff should regularly updates the information published on the library websites /webpages regarding all the necessary services they have in the libraries for their users.
- All libraries have their own library repositories which help to archives the institutional publications.
- All libraries have a unique name devoted to the eminent persons in the fields of libraries and information science.

8. CONCLUSION

Library website /webpage content played a crucial role in attracting the library users, in other words it is a marketing technique to promote its services. Libraries websites/webpages significance are now increasingly seen as a reflection of the library's impact on society and the nation as a whole. The advent of information and communication technologies (ICTs) has changed how users perceive libraries, shifting the focus from the materials they hold to the way services are provided to meet their needs. As a result, the value of libraries is no longer solely based on the collection of materials, but rather on their ability to fulfill user's demands of information and tools to retrieve that information from the digital world. This study is focused on the library websites of the top 10 NIRF-ranking NITs in India. The library is the heart of any academic organisation; it fulfils the information demands of its users. Library websites play a crucial role in the digital age of teaching and learning, so the library website should contain the latest information on their website, adopt new technology to reach out to their users, and provide the library services in a rapid manner with quality content. In short, we can say the library website is the mirror of the library nowadays. Any library in the digital age is evaluated by any user to visit the library website first. The library websites/webpages are dynamic and user friendly interface. If the information contained in the library website is not up-to-date then user's interest may be affected for using the library services, whether they have the best services among the libraries, but without promotions and displays of the offered services by the library, those services are worthless. Content management open source system would be used by the library professional to developed the library websites if they are little familiar with ICT applications. From the study, we conclude that there is a need for libraries to adapt to the latest technology, such as Web 2.0 technologies, which include feedback, social media and social networking, blogs, RSS feeds, FAQs, 360 views of the library, asking a librarian, library apps which help them attract and connect with more and more users. If the library websites/webpages improve the content published for their users and adopted the latest technology and updates it regularly then the number of users may be increased

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Appendix-1

S. No.	Name of Institute	URL of Library Website
1	National Institute of Technology Tiruchirappalli	https://www.nitt.edu/home/students/facilitiesnservices/library/
2	National Institute of Technology Karnataka, Surathkal	https://library.nitk.ac.in/joomla/
3	National Institute of Technology Rourkela	https://library.nitrkl.ac.in/
4	National Institute of Technology Warangal	https://www.nitw.ac.in/path/?dept=/facilities/library
5	National Institute of Technology Calicut	https://www.library.nitc.ac.in/
6	Malaviya National Institute of Technology	https://library.mnmit.ac.in/
7	National Institute of Technology Silchar	http://library.nits.ac.in/
8	Visvesvaraya National Institute of Technology, Nagpur	https://vnit.ac.in/library/
9	National Institute of Technology Durgapur	https://nitdgp.ac.in/p/library
10	Dr. B R Ambedkar National Institute of Technology, Jalandhar	http://202.164.58.103/library/