Winter 2-9-2021

Content Analysis of Library Websites of National Institutes in West Bengal, India: An Evaluative Study

SANTOSH KUMAR TUNGA
RISHI BANKIM CHANDRA EVENING COLLEGE, WEST BENGAL, INDIA, tungask@rediffmail.com

CONTENT ANALYSIS OF LIBRARY WEBSITES OF NATIONAL INSTITUTES IN WEST BENGAL, INDIA: AN EVALUATIVE STUDY

Dr. Santosh Kumar Tunga
Associate Librarian, Rishi Bnakim Chandra Evening College
Naihati-743165, North 24 Parganas, West Bengal, India
E-mail: tungask@rediffmail.com,

ABSTRACT
Institute libraries as resource centers and disseminators of information occupy primary place in Institute setup. Library websites integrate it resources and services and has to be taken in designing and developing from perspective of users needs. The present study is concerned with web based content analysis of library websites of Institute of National Importance in West Bengal, India. The required content information has been collected through searching, browsing and analyzing the selected library websites of said Institutes during October to December, 2020. The library websites of studied Institutes were identified from Google, Wikipedia and other E-Resources. Only five Institute libraries of IIM, Kolkata; ISI, Kolkata; IIT, Kharagpur; IIEST, Shibpur and WBNUJS, Kolkata have separate library homepage which are direct accessed by the library users. Remaining other nine studied Institute library websites are accessed through their Institute websites. ISI library, Kolkata got highest total score of 27 out of 40 points ranked with 'Very Good/Above Average', followed by IIM library with 23 points ranked with 'Good/Average'; both IIT and WBNUJS Libraries with 22 points ranked with 'Good/Average' and BI Library with 17 points ranked as 'Good/Average'. Out of fourteen Institute libraries, none of the Institute library website obtained 'Excellent' ranked of content analysis on library websites. The main purpose of this study is to guide the Library & Information Science Professionals in improving their existing Institute library websites.

KEYWORDS: Content Analysis, Institute Library Websites, Institute of National Importance, National Institutes, West Bengal, India

1. INTRODUCTION

A Website is an extension of the educational institution. Website is a collection of related web pages, images, video or other digital assets that are addressed relative to a common uniform resource locater (URL), often consisting of only the domain name, or the IP address, and root path in an Internet protocol based networks. A website is hosted on at least one web server, accessible via network as the Internet or a private local area network. Educational networking sites are also growing in use. These sites are used by educators for both professional development and as a teaching tool, and are usually restricted to selected users and not available to the general public. Website is one of the important tools to publish the activities of the college. Website will provide the details of programmes, admission, examination, fees, faculty, calendar of events, placements, research and publications, library facilities and resources (Kannappanavur, Jayaprakash & Bachalapur, 2011).

Library website has become a Sine-Qua-non for any academic institution either college or university setup to integrate its resources and services under one umbrella – known as Library Website and as such special care has to be taken in designing and developing functionable website from the perspective of user needs. In fact, the accreditation agencies like National Assessment and Accreditation Council (NAAC) advocates for Library website. Hence library websites plays dominant role in marketing their information products and services for information accessibility and use (Jange, 2014).

This paper provides a detailed account of the study and offers checklist for developing and designing better uniform type of library websites of Institutes of National Importance. The main purpose of this study is to guide the Library & Information Science Professionals in improving their existing library websites of National Institutes.

2. INSTITUTE OF NATIONAL IMPORTANCE

2.1. Bose Institute (BI), Kolkata

Bose Institute (Basu Bigyan Mandir) is a autonomous research institute of India, affiliated and funded by Department of Science and Technology, Government of India, located at Kolkata, West Bengal and also one of its oldest. The Institute was established in 1917 by Acharya Sir Jagdish Chandra Bose, the founder of modern scientific research in India. Bose was its Director for the first twenty years till his demise. Debendra Mohan Bose, who succeeded Nobel Laureate Sir CV Raman as the Palit Professor of Physics at Rajabazar Science College campus of University of Calcutta, was the Director of Bose Institute for the next thirty years. Current concentration of research is in the fields of Physics, Chemistry, Plant Biology, Microbiology, Molecular Medicine, Biochemistry, Biophysics, Bioinformatics, and Environmental Science. The Institute pioneered the concept of inter-disciplinary research in Asia and India in sync with global trends.

2.2. Indian Association for the Cultivation of Science (IACS), Kolkata

Indian Association for the Cultivation of Science is an institute of higher learning in Kolkata, India, established in 1876 by Mahendra Lal Sircar, a private medical practitioner; it focuses on fundamental research in basic sciences. It is India's oldest research institute Located at Jadavpur, South Kolkata beside Jadavpur University, Central Glass and Ceramic Research Institute and Indian Institute of Chemical Biology it is spread over a limited area of 9.5 acres. In May 2018, the Ministry of Human Resource Development announced that IACS had been granted the status of Deemed University under De-novo Category under section 3 of the University Grants Commission (UGC) Act 1956. The institute is engaged in fundamental research in various fields of Physics, Chemistry and Chemical Biology. It is one of the most active research institutes in India and publishes on an average ~ 500 research articles in peer reviewed journals. The institute emphasizes Ph D programme, the degree being provided by IACS itself. There is also full-fledged Integrated Ph D programme for post-Bachelor's students.

2.3. Indian Institute of Chemical Biology (IICB), Kolkata

Indian Institute of Chemical Biology (IICB) is a biomedical autonomous research centre in Kolkata, West Bengal, India, established in 1935 as Indian Institute of Experimental Medicine

(IIEM). It was inducted under the aegis of Council of Scientific & Industrial Research (CSIR) in 1956 and renamed to its present form in 1982. It has 6 R&D divisions:- Cancer Biology & Inflammatory Disorder, Cell Biology & Physiology, Chemistry, Infectious Diseases & Immunology, Molecular & Human Genetics, and Structural Biology & Bioinformatics.

2.4. Indian Institute of Engineering Science and Technology (IIEST), Shibpur

Indian Institute of Engineering Science and Technology, Shibpur, is a public technical and research university located at Shibpur, Howrah, West Bengal. It is recognized as an Institute of National Importance under Ministry of Education by the Government of India. It comes under the Council of National Institutes of Technology. In June 2014, Govt. of West Bengal appointed IIEST Shibpur as the Mentor Institute for Indian Institute of Information Technology (IIIT), Kalyani, which was inaugurated in June the same year In 2020, IIEST was elevated from the status of GFTI to a National Institute of Technology (NIT), under the Ministry of Education, Government of India. The institute's Ramanujan Central Library occupies 3,000 m^2 (32,000 sq ft) and houses 158,000 books, 41,000 bound volumes of journals, and a collection of documents, such as patents, standards, technical reports and pamphlets.[20] The library has old and rare books and journals of the nineteenth century.

2.5. Indian Institute of Information Technology (IIIT), Kalyani

The Indian Institute of Information Technology Kalyani has been setup with an objective to produce best-in-class human resources in IT and to harness the multidimensional facets of IT in various domains. IIIT Kalyani strives to evolve into a world-class academic institution with the highest quality of education and research facilities and produce industry ready IT graduates to meet the industry demands. IIIT Kalyani has been set up at Kalyani, West Bengal by Government of India (MHRD), Government of West Bengal and industry partners on a Not-for-profit Public Private Partnership (N-PPP) basis. The industry partners of IIIT Kalyani are Coal India Ltd. and Rolta Foundation for the present. The institute is run by the Board of Governors of IIIT Kalyani whose members include the representatives of Ministry of Education, Government of India, Government of West Bengal, industry partners and eminent people from academia, industry and civil society. IIIT Kalyani has been attributed the status of Institute of National Importance (INI) by the Cabinet in March 2017.

2.6. Indian Institute of Management (IIM) Kolkata

Indian Institute of Management Calcutta is a public business school located in Joka, Kolkata, West Bengal, India. It was the first Indian Institute of Management to be established, and has been recognized as an Institute of National Importance by the government of India in 2017. Programmes offered by IIM Calcutta include a two-year full-time MBA, a one-year MBA for experienced executives, and a Doctor of Business Administration programme. IIM Calcutta is one of only three triple accredited business schools in India, and the first to get the recognition. It is also the only business school in India which is a part of the CEMS Global Alliance in Management Education.

2.7. Indian Institute of Science Education and Research (IISER), Kolkata

Indian Institute of Science Education and Research Kolkata (IISER-K) is an autonomous public research university in science and education field located in Nadia district, West Bengal, India. It was established by the Ministry of Human Resource

Development in 2006 and promoted to the status of an Institute of National Importance in 2012 vide the NIT Amendment Act. It is one of seven Indian Institutes of Science Education and Research, and was the first of the IISERs to be established along with IISER Pune. It is considered to be one of the leading institutes of India in terms of research output, and was ranked 5th in the country by the Nature Index. The institute has five major departments: biological sciences; chemical sciences; sciences; mathematics and statistics; and physical sciences. It also has minor departments such as the department of computational science and data science, along with a department of humanities and social sciences.The institute jointly runs the Göttingen-Kolkata: Open shell systems (G-KOSS) in fundamentals of molecular spintronics with Georg-August-Universität Göttingen.

2.8. Indian Institute of Technology (IIT), Kharagpur

Indian Institute of Technology (IIT), Kharagpur is a public technical and research university established by the government of India in 1951. It is the first of the IITs to be established and is recognized as an Institute of National Importance. In 2019 it was awarded the status of Institute of Eminence by the government of India. The institute was initially established to train scientists and engineers after India attained independence in 1947. However, over the years, the institute's academic capabilities diversified with offerings in management, law, architecture, humanities, etc. IIT Kharagpur has an 8.7-square-kilometre (2,100-acre) campus and has about 22,000 residents. Internationally, IIT Kharagpur was ranked 281 in the QS World University Rankings of 2020, 56 in Asia in 2020 and 23 among BRICS nations in 2019. It was ranked 401–500 in the world by the Times Higher Education World University Rankings of 2020, 59 in the Emerging Economies University Rankings of 2020[67] and 32 in Asia in 2020.

2.9. Indian Statistical Institute (ISI), Kolkata

Indian Statistical Institute (ISI) is a public research university which is recognized as institute of national importance in 1959 act of the Indian parliament. It grew out of the Statistical Laboratory set up by Prasanta Chandra Mahalanobis in Presidency College, Kolkata. Established in 1931, this university of India is one of the oldest and most prestigious institutions focused on statistics, and its early reputation led it to being adopted as a model for the first US institute of Statistics set up at the Research Triangle, North Carolina by Gertrude Mary Cox. SI has its headquarters in Bonhooghly (Baranagar), Kolkata, West Bengal. It has four subsidiary centres focused in academics at Delhi, Bangalore, Chennai and Tezpur, and a branch at Giridih. Originally affiliated with the University of Calcutta, the institute was declared an institute of national importance in 1959, through an act of Indian parliament, Indian Statistical Institute act, 1959. ISI functions under the Ministry of Statistics and Programme Implementation (MOSPI) of the Government of India. Key areas of expertise of ISI are Statistics, Computer Science, Mathematics, Mathematical Economics, Operations Research and Information Science and it is one of the few research oriented Indian schools offering courses at both the undergraduate and graduate level.

2.10. National Institute of Pharmaceutical Education and Research (NIPER), Kolkata

National Institute of Pharmaceutical Education and Research is an Indian public Pharmacy research university, located in Kolkata, West Bengal, India. Out of seven National Institutes of Pharmaceutical Education and Research (NIPERs), it is granted

the Institute of National Importance status. It offers 2-year MS (Pharm.) programmes[] and doctoral programmes pharmaceutical sciences. National Institute of Pharmaceutical Education and Research, Kolkata was ranked 27 in India by the National Institutional Ranking Framework (NIRF) pharmacy ranking in 2020.

2.11. National Institute of Technology (NIT), Durgapur

The National Institute of Technology, Durgapur (formerly Regional Engineering College, Durgapur), was established by an Act of Parliament in 1960 as one of the eight such colleges aimed to function as a pace setter for engineering education in the country and to foster national integration. It is a fully-funded premier Technological Institution of the Government of India and is administered by an autonomous Board of Governors. The Institute is a University which awards B.Tech., M.C.A., M.Sc., M.B.A., M.Tech. and Ph.D. degrees to students after their successful completion of the specified courses. The Library as one of the important central facilities of the Institute supports the study, teaching, research and development programmes of the Institute. It is housed in a separate building having three floors on a plinth area of 1000 Sq. metres. The library has a collection of 1.7 lakh volumes of books which includes Text Books, Reference Books & Bound volumes of Journals, Standards etc. The Library subscribes to about 120 current Journals. Library operations have been automated with the help of an integrated library software package, LIBSYS-4.

2.12. S N Bose National Centre for Basic Sciences (SNBCBS), Kolkata

S N Bose Centre for Basic Sciences (SNBCBC), Kolkata is an Autonomous Research Institute under Department of Science and Technology, Government of India in 1986 as a registered society. The centre was established to honour the life and work of Prof. S. N. Bose who was a colossal in theoretical physics and has made some of the most fundamental conceptual contributions in the development of Quantum Mechanics and Quantum Statistics. The objectives for which the S. N. Bose National Centre is established, are to foster, encourage and promote the growth of advanced studies in selected branches of basic sciences, to conduct original research in theoretical and mathematical sciences and other basic sciences in frontier areas, to provide a forum of personal contacts and intellectual interaction among scientists within the country and also between them and scientists abroad and to train young scientists for research in basic sciences. It has four departments Astrophysics and Cosmology, Chemical, Biological & Macro-Molecular Sciences, Condensed Matter Physics and Material Sciences and Theoretical Sciences and there are four units such as Thematic Unit of Excellence on Computational Materials Science, Thematic Unit of Excellence on Nanodevice Technology, Unit for Nanoscience and Technology and Technical Research Centre.

2.13. Saha Institute of Nuclear Physics (SINP), Kolkata

The Saha Institute of Nuclear Physics (SINP) is an institution of basic research and training in physical and biophysical sciences located in Bidhannagar, Kolkata, India. The institute is named after the famous Indian physicist Meghnad Saha. Soon after laying of the Foundation Stone for the building by Dr Syamaprasad Mookerjee the Institute of Nuclear Physics was founded. The year is 1949. When the building was formally inaugurated by Madame Irene Joliot-Curie on 11 January 1950, a date now accepted as the Foundation Day, the Institute was fully functional. Foundation stone for a students' Hall, on a piece of land just behind the campus was laid by K D Malavya in early January, 1956. A few days later, on 16th February Professor Saha

passed away. Some time after this the Institute was renamed as Saha Institute of Nuclear Physics. At SINP, research in the Nuclear Sciences has its genesis in the activities pioneered and led by Prof. Meghnad Saha in 1940. A journey which started around the design and development of a small cyclotron and measurement of fission cross-section of 235U by a limited number of dedicated workers, has traversed a long path in exploring the secrets of atoms, nuclei and molecules by using, at present, the state of the art techniques and involving different groups of people spread across the country.

2.14. West Bengal National University of Juridical Sciences (WBNUJS), Kolkata

The West Bengal National University of Juridical Sciences was established under the WBNUJS Act, 1999 (West Bengal Act IX of 1999) adopted by the West Bengal Legislature in July, 1999. The University was notified under Clause (f) of Section 2 of the UGC Act, 1956 in August 2004 and has been granted permanent affiliation by the Bar Council of India in July 2005. NUJS is considered one of the best amongst the elite national law schools in India built on the five-year law degree model proposed and implemented by the Bar Council of India. The university offers a five-year integrated B.A./BSc. LLB (Hons.) degree programme at the undergraduate level and a Master of Laws (LLM) programme at the postgraduate level. Admission to the former programme is through the Common Law Admission Test, a highly competitive, nationwide common entrance examination, held jointly by fourteen of the seventeen national law schools. NUJS also offers M Phil, Ph D and diploma in business laws and other programs. It also offers a number of online courses that attract students from 17 countries across the world so far.

LITERATURE REVIEW

A considerable number of content analysis has been conducted on various Central university, Deemed university, Technical university, General state university and college library websites in India such as:

The study has analyzed and compared the content and usability of central universities of central zone of India according to university grant commission parameters. It found that only IGNTU have the accessibility of web page in which directly link on parent homepage. Study showed that every central university library websites provides facility of daily news and having contacts on their library websites. 100% of central library's subscribe e-book, e-journal, list of e-journal, e-database, CD/DVD (Kumar and Singh Mir, 2017).

A survey conducted on content analysis of central university library websites of Delhi. The study shows that maximum library websites are well developed and designed to enrich with e-resources. It is revealed that Jawaharlal Nehru University library website is the best and South Asian University library website is worst according to evaluation criteria. Through this study, researchers found that Jawaharlal Nehru University library websites provide the best products and services than other central university library websites in Delhi (Singh and Gautam, 2016)..

It was carried out the study and analyzed the contents available in the library webpage of the Central Universities of the North Eastern States in India. The study is based on the information available in the library webpage of the concerned universities. A checklist was designed and the library web pages were evaluated based on the previous evaluations of websites conducted by

different authors. It is also observed in the study that there are universities which have a very few web pages and information available. Further, it is observed that there are also some universities whose library links are not working (Verma and Devi, 2015).

The study evaluated content of Central University Libraries Websites in India focusing on the information like features of the library websites, online library services, links to other information sources, value added services and so on (Prakash, 2013).

They have conducted a comparative study of 20 central universities and 19 institutes of national importance including Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIMs) academic libraries from India using a a method to measure Overall Website Performance Calculation (OWPC) and Criteria-wise Website Performance Calculation (CWPC) of library websites (Shukla and Tripathi, 2010).

The study analyzed the content information available in Deemed University Library websites of Karnataka state. The study reveals that 100% of deemed university library websites provided information About Institutions, About Library, Copyright, Books, Journals , and about 89% of deemed universities provided information about working hours, library sections, and about Back volume of journals, it is found from the study that 100% of deemed university libraries subscribing e-journals, e-books, and e-databases, and 44% of deemed universities provided Facebook and twitter facilities (Savitha, 2016).

They evaluated websites of Deemed Universities in Tamilnadu. They discussed about deemed universities inception, library content etc. The authors revealed that the deemed universities in Tamilnadu are having the details about library collections, digital library, library timings in their websites. They have also mentioned that most of the deemed university libraries didn't have contact details and new arrivals information (Krishnakumar and Nirmala, 2014).

A content analysis has been made of the websites of technical university libraries to ascertain that libraries are effectively utilizing their respective websites to provide trouble-free access to electronic journals available in the library. The study reveals that technical university libraries are trying to set up useful websites but the library websites of most of the institutes seem to be at primitive stage (Vasishta, 2013).

An evaluative study has been conducted on the library websites of Universities in Karnataka comprising of 16 General State Universities including a Central university and eight subject based universities of Karnataka state. The study evaluates these library websites and results are reported with respect to its content, information pertaining to library basics, services, collections, search tools, number of links, performance grade, load time and page size (Jange, 2014).

It has been investigated and presented the content analysis of Goa University affiliated Engineering College Library Websites in Goa. The data was collected from the websites of the concerned engineering college libraries through a checklist prepared for this purpose. The websites of the libraries were thoroughly scanned and analyzed, based on the analysis we have

ranked them. The main purpose of this paper is to guide the librarians in improving their library websites. There is a need to design and develop a unique type of library websites containing resources and services of their individual libraries and also providing links to other IIT libraries (Hugar, 2019).

The study analyzed that the content of the selected autonomous engineering colleges affiliated to VTU. There is a growing number of ways and means to contact users and to provide library services. Thus the present library website should provide various web based library services to their users (Chikkamanju, 2015).

They analyzed the content of engineering colleges Library Websites. They studied that an informative preview of the contents and design of Engineering colleges libraries in Tumkur district. Website is the strongest tool to publish the information about the activities of the institute (Kannappanavar, Jayaprakash and Bachalapur, 2011).

It is clear from the above reviews that considerable studies are conducted on the content analysis, evaluation and use of the Central University, Deemed University, Technical University, general State University and College library websites conducted in other states/parts of India. Similar studies of either University and College library websites or Institute library websites in eastern India were not conducted. So it is useful to conduct this type of study to develop more meaningful library websites of Institutes of National Importance, West Bengal, India.

3. OBJECTIVES OF THE STUDY
Present study aims to know about the content information available in library websites of Institute of National Importance in West Bengal, India. The main objectives of this study are:
- ➢ To know the number of Institute of National Importance functioning West Bengal
- ➢ To investigate the basic information available in these Institute library websites
- ➢ To know the library collection, library services and links to other resources available in Institute library websites
- ➢ To identify the type of content and basic features made available on library websites
- ➢ To prepare the comparative checklist of Library websites of National Institutes
- ➢ To find out the rank list of Institute library websites

4. MATERIALS AND METHODS
A web-based survey was conducted to locate and evaluate the content of library websites of Institute of National Importance located in West Bengal, India during October to December, 2020. During this process fifteen Institute websites or webpages were appeared under this investigation. But only one Institute i.e. All India Institute of Medical Sciences (AIIMS), Kalyani, did not provide any information about university libraries, which was not selected for the present study. Hence the library websites of other fourteen Institute of National Importance in West Bengal are analyzed for the study purpose. Content information was collected through searching, browsing and analyzing the selected Institute library websites. The library websites of studied Institutes were identified from Google, Wikipedia and other E-Resources. The investigator has employed evaluation methodology for studying the content analysis on library

websites of National Institutes in West Bengal. Further, the collected data was tabulated and analyzed for the purpose of interpretation and discussion.

5. RESULTS AND DISCUSSION

Out of fifteen selected Institute of National Importance in West Bengal, India only one Institute i.e. All India Institute of Medical Sciences (AIIMS), Kalyani, did not provide any information about university libraries, which was not selected for the present study. Hence the library websites of other fourteen Institute of National Importance in West Bengal, India are analyzed for the study purpose.

5.1. Institute of National Importance in West Bengal State

Table 1 reveals the list of fifteen National Institutes in West Bengal, India with status, year of establishment and website address in West Bengal State.

Table 1
List of Institute of National Importance in West Bengal

Sl. No.	University Located at Kolkata	Abbre-viation	Type	Esta-blished	URL
1	All India Institute of Medical Sciences, Kalyani	AIIMS	AI	2019	www.aiimskalyani.edu.in
2	Bose Institute, Kolkata	BI	ARI	1917	www.jcbose.ac.in
3	Indian Association for the Cultivation of Science, Kolkata	IACS	DU	1876	www.iacs.res.in
4	Indian Institute of Chemical Biology, Kolkata	IICB	ARI	1935	www.iicb.res.in
5	Indian Institute of Management, Kolkata	IIM	AI	1961	www.iimcal.ac.in
6	Indian Institute of Science Education and Research, Kolkata	IISER	AI	2006	www.iiserkol.ac.in
7	Indian Statistical Institute, Kolkata	ISI	AI	1959	www.isical.ac.in
8	Indian Institute of Technology, Kharagpur	IIT	AI	1951	www.iitkgp.ac.in
9	Indian Institute of Engineering Science and Technology, Shibpur, Howrah	IIEST	AI	1856	www.iiest.ac.in
10	Indian Institute of Information Technology, Kalyani	IIIT	AI	2014	www.iiitkalyani.ac.in
11	National Institute of Technology, Durgapur	NIT	AI	1960	www.nitdgp.ac.in
12	National Institute of Pharmaceutical Education and Research, Kolkata	NIPER	AI	2007	www.niperkolkata.edu.in
13	Saha Institute of Nuclear Physics, Kolkata	SINP	ARI	1949	www.saha.ac.in
14	S N Bose National Centre for Basic Sciences, Kolkata	SNBNCB	ARI	1986	www.bose.res.in
15	West Bengal National University of Juridical Sciences, Kolkata	WBNUJS	NLU	1999	www.nujs.edu

ARI= Autonomous Research Institute, AI=Autonomous Institute, DU=Deemed University, NLU=National Law University,

IIEST, Shibpur, Howrah is the oldest institute established in 1856, followed by IACS, Kolkata in 1876, BI, Kolkata under Department of Science and Technology, Government of India established in 1917 and IICB, Kolkata under CSIR established in 1935. Out of 15 national institutes, IACS, Kolkata is a Deemed University; WBNUJS is a National Law University. BI, under Department of Science and Technology, Government of India; IICB, under CSIR, Government of India; SINP, under Department of Atomic Energy, Government of India; and SNBNCBS, under Department of Science and Technology, Government of India are Autonomous Research Institute and other remaining nine institutes are Autonomous Institutes in West Bengal.

5.2.   Library website Profile of Institute of National Importance in West Bengal
Table 2 shows the library website profile of Institute of National Importance in West Bengal state.

Table 2
Library Website Profile of Institute of National Importance

Sl. No.	Name of the University Library, Name of the Universities & Library Website Address	Library Webpage	Content-Structured /Linear Text
1	AIIMS, Kalyani	No	
2	Library, BI, Kolkata www.jcbose.ac.in/library	Yes	Linear
3	Library, IACS, Kolkata www.iacs.res.in/library.html	Yes	Structured
4	Library & Documentation, IICB, Kolkata www.iicb.res.in/service/library	Yes	Linear
5	B C Roy Memorial Library, IIM, Kolkata www.library.iimcal.ac.in	Yes	Structured
6	Library, IISER, Kolkata www.iiserkol.ac.in/web/en/facilities/library	Yes	Linear
7	Library, Documentation and Information Science Division, ISI, Kolkata www.ldisd.isical.ac.in	Yes	Structured
8	Central Library, IIT, Khragpur www.library.iitkgp.ac.in	Yes	Structured
9	Ramanujan Central Library, IIEST, Shibpur www.library.iiest.ac.in:30000/dqpas and www.iiest.ac.in/IIEST/Library	Yes	Linear
10	Library, IIIT, Kalyani www.iiitkalyani.ac.in/php/Library.php	Yes	Linear
11	Library, NIT, Durgapur www.nitdgp.ac.in/library	Yes	Linear
12	Library, NIPER, Kolkata www.niperkolkata.edu.in/library	Yes	Linear
13	Library, SINP, Kolkata www.saha.ac.in/web/library-home	Yes	Linear
14	Library, SNBNCB, Kolkata www.newweb.bose.res.in/facilities/Library	Yes	Linear

15	Library and Information Centre, WBNUJS, Kolkata www.nujs.edu/nujs-library.html and http://nujslib-ic.wix.com/lawlibrary	Yes	Structured

Only five Institute libraries of IIM, Kolkata; ISI, Kolkata; IIT, Kharagpur; IIEST, Shibpur and WBNUJS, Kolkata have separate library homepage which are direct accessed by the library users. The content of only five Institute Libraries of IACS, IIM, ISI, IIT and WBNIJS is structured. Remaining other nine studied Institute Library websites are accessed through their Institute websites which are linear type. Only one Institute AIIMS, Kalyani established in 2019, did not have library webpage/homepage.

5.3. Basic Information of Institute Libraries

Table 3 reveals the basic information of fourteen Institute of National Importance libraries in West Bengal state.

Table3
Basic Information of Institute Libraries

Sl. No.	Website Content on Basic Information	BI	IACS	IICB	IIM	IISER	ISI	IIT	IIEST	IIIT	NIT	NIPER	SINP	SNBNCB	WBNUJS	Total (14)
1	About Library	Y	Y	Y	Y	-	Y	-	Y	Y	Y	-	Y	Y	Y	11
2	Contact Us	Y	Y	Y	-	-	Y	Y	Y	Y	Y	-	Y	-	Y	10
3	FAQ's	Y	-	-	-	-	Y	-	-	-	-	-	-	-	Y	3
4	Library Hours	Y	-	-	Y	-	-	-	Y	Y	-	-	Y	Y	Y	7
5	Library Rules	-	-	-	Y	-	Y	Y	-	-	-	Y	-	-	Y	5
6	Library Staff	Y	-	-	Y	Y	-	Y	-	-	-	Y	-	-	Y	6
7	Membership	-	-	-	-	Y	Y	-	-	-	-	-	Y	Y	-	4
8	Photo Gallery	Y	-	-	-	-	Y	Y	-	-	-	-	Y	-	Y	5
9	Publication	-	-	-	-	-	Y	-	-	-	-	Y	Y	-	-	3
10	Library Services	Y	Y	Y	Y	-	Y	Y	-	-	Y	-	-	Y	Y	9
	Total Score (Max.10)	7	3	3	5	2	8	5	3	3	3	3	6	4	8	-
	Percentage (%)	70	30	30	50	20	80	50	30	30	30	30	60	40	80	-

Above table shows that Library websites of six Institutes such that BI, IACS, IICB, IIM, ISI and WBJUJS were provided basic information on About Library, Contact Us and Library Services. Three Institute library websites like BI, IIM and WBJUJS were provided Library Hours, Library Staff and Photo Gallery. Eleven Institute library websites were provided maximum information on About Library, followed by ten Institute library websites provided information on Contact Us and nine Institute library websites provided information on Library Services.

While both ISI and WBNUJS library website provided majority 80% of the basic information, whereas, BI library websites provided 70% of the basic information and followed by SINP library websites with 60%. IISER library provided very less 20% information on their library websites.

5.4.   Library Collection

Table 4 displays the library collection of library websites of Institute of National Importance in West Bengal state.

Table 4
Library Collection

Sl. No.	Website content on collection	BI	IACS	IICB	IIM	IISER	ISI	IIT	IIEST	IIIT	NIT	NIPER	SINP	SNBNCB	WBNUJS	Total (14)
1	CD/DVD	-	-	-	Y	-	-	-	-	-	-	-	-	-	Y	2
2	Digital repository	-	Y	Y	-	-	-	-	-	-	-	-	-	-	Y	3
3	E-Resources	Y	Y	Y	Y	Y	-	Y	-	-	Y	Y	-	Y	Y	10
4	Institutional repository	Y	Y	-	-	-	-	Y	-	-	-	-	Y	Y	-	5
5	Library collection	-	Y	Y	Y	-	Y	-	Y	-	Y	-	Y	Y	-	8
6	New arrivals	-	-	-	Y	-	-	Y	-	-	-	-	Y	-	-	3
7	Print books	-	-	-	Y	Y	Y	-	-	Y	-	-	-	-	Y	5
8	Print journal	-	Y	-	Y	-	Y	-	-	-	-	-	-	-	Y	4
9	Question papers	-	-	-	-	Y	Y	Y	Y	-	Y	-	-	-	Y	6
10	Total Score (Max. 7)	2	5	3	6	3	4	4	2	1	3	1	3	3	6	-
	Percentage (%)	20	50	30	60	30	40	40	20	10	30	10	30	30	60	-

The maximum ten Institute library websites provided information on E-Resources in their websites, followed by eight Institute library websites provided information on Library Collection and six Institute library websites provided information on Question Papers.

While both IIM and WBNUJS provided majority 60% information of the library collection, whereas, IACS provided 50% information on library collection, followed by both ISI and IIT with 40% information availability on different types of library collection in their library websites. IIIT and NIPER provided very less 10% information on library collection.

5.5.   Electronic Resources

Table 5 describes the library collection in their library websites of Institute of National Importance in West Bengal.

Table 5
Electronic Resources

Sl. No.	Website content on electronic resources	BI	IACS	IICB	IIM	IISER	ISI	IIT	IIEST	IIIT	NIT	NIPER	SINP	SNBNCB	WBNUJS	Total (14)
1	Digital Archive	-	Y	Y	-	-	Y	-	-	-	-	-	-	-	Y	4
2	E-Books	Y	Y	-	Y	-	Y	Y	Y	-	Y	-	Y	Y	-	9
3	E-Databases	-	Y	-	-	-	Y	Y	Y	-	-	-	-	-	-	4
4	E-Journals	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	Y	Y	Y	12
5	E-Theses	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-	2
6	Links to other Reference Websites	Y	-	-	Y	-	Y	Y	-	-	Y	-	Y	Y	Y	8
	Total Score (Max. 7)	3	4	2	3	1	6	5	3	1	2	-	3	3	3	-
	Percentage (%)	50	66.6	33.3	50	16.6	100	83.3	50	16.6	33.3	-	50	50	50	-

From the table it reveals that twelve Institute library websites were provided majority information about E-Journals. Nine Institute library websites were provided information on E-Books and Eight Institute library websites were provided information on Links to other reference websites.

ISI library website provided 100% information on electronic resources followed by IIT library websites provided 83.3% information and IACS library with 66.6% information on electronic resources. IISER and IIIT provided very less 16.6% information on electronic resources. NIPER have not provided any information about the content of electronic resources.

5.6. Library services
Table 6 provides information about the availability of library services in library websites of Institutes in West Bengal state.

Table 6
Library Services

Sl. No.	Website content on library services	BI	IACS	IICB	IIM	IISER	ISI	IIT	IIEST	IIIT	NIT	NIPER	SINP	SNBNCB	WBNUJS	Total (14)
1	Circulation	-	-	-		-	Y	Y	-	-	-	-	-	-	Y	3
2	ILL	-	-	-	Y	-		-	-	-	Y	-	-	-	-	2
3	Library services	Y	Y	Y	Y	-	Y	Y	-	-	Y	-	-	Y	Y	9
4	Online book renewal	-	-	-	Y	-	-	-	-	-	-	-	-	-	-	1
5	Online library services	-	-	-	Y	-	-	Y	-	-	-	-	-	-	-	2
6	OPAC	Y	Y	Y	Y	Y	Y	Y	Y	-	Y	-	Y	Y	Y	12
7	Reference services	-	-	Y	-	-	-	-	-	-	-	-	-	Y	-	2
8	Reprography services	-	-	Y	Y	-	Y	-	-	-	Y	-	-	Y	-	5
	Total score (Max.8)	2	2	4	6	1	4	4	1	-	4	-	1	4	3	-
	Percentage (%)	25	25	50	75	12.5	50	50	12.5	-	50	-	12.5	50	37.5	-

Twelve Institute library websites provided information on OPAC. Nine library websites provided information on library services and five libraries provided information on Reprography Services on their websites.

IIM library provided 75 % information on library services, followed by IICB, ISI, IIT, NIT and SNBNCB library provided 40 % information on library services. IISER, IIEST and SINP library websites provided very less 12.5% information on library services. NIPER have not provided any information about the content on library services.

5.7.   Features of University Library Websites

Table 7 reveals the features of library websites of Institutes of National Importance in West Bengal state.

Table 7
Features of University Library Websites

Sl. No.	Website content on features of library websites	BI	IACS	IICB	IIM	IISER	ISI	IIT	IIEST	IIIT	NIT	NIPER	SINP	SNBNC	WBNUJ	Total (14)

#	Feature															Score
1	Ask a Librarian	Y	-	-	-	-	Y	-	-	-	-	-	-	-	Y	3
2	Direct Link	-	-	-	Y	-	Y	Y	Y	-	-	-	Y	-	Y	6
3	Download Forms	Y	-	-	-	Y	Y	Y	-	-	-	-	Y	-	-	5
4	Registration/Login	--	-	-	-	-	-	Y	Y	-	-	Y	-	-	-	3
5	Remote access to e-resources	Y	-	-	Y	-	Y	Y	Y	-	-	-	-	-	-	5
6	Single Widow Search	-	-	-	Y	-	Y	-	-	-	-	Y	-	-	-	3
	Total Score (Max. 6)	3	-	-	3	1	5	4	3	-	-	2	2	-	2	-
	Percentage (%)	50	-	-	50	17	83	67	50	-	-	33	33	-	33	-

From the table it is found that six Institute libraries are accessed directly by any library users. Five Institute libraries provided the facility of Remote access to e-resources. Three Institute libraries provided information on Ask a librarian, Registration/Login and single window search on their websites.

ISI library provided 83% information on features of library websites, followed by IIT with 67% information and BI, IIM and IIEST with 50% information on features of library websites. IACS, IICB, IIIT, NIT and SNBNC library have not provided any information regarding the features of library websites.

5.8. Comparative Checklist of Library Websites of Institutes

Table 8 shows information about the overall ranking of the library websites of Institute of National Importance during study period.

Table 8
Comparative Checklist of University Library Websites

University Library Websites	Basic Information (out of 10)	Library Collection (out of 10)	Electronic Resources (out of 6)	Library Services (out of 8)	Features (out of 6)	Total score out of 40
BI	7	2	3	2	3	17
IACS	3	5	4	2	-	14
IICB	3	3	2	4	-	12
IIM	5	6	3	6	3	23
IISER	2	3	1	1	1	8
ISI	8	4	6	4	5	27
IIT	5	4	5	4	4	22
IIEST	3	2	3	1	3	12
IIIT	3	1	1	-	-	5
NIT	3	3	2	4	-	12

NIPER	3	1	-	-	2	6
SINP	6	3	3	1	2	15
SNBNCBS	4	3	3	4	-	14
WBNUJS	8	6	3	3	2	22
Total	63	46	39	36	25	209

From the above table it is found that ISI provided maximum information in their library website with 27 points score which is the highest points among the fourteen Institute in West Bengal, followed by IIM with 23 points as 2nd highest and both IIT and WBNUJS with 22 points as 3rd highest. Among the website contents of the Institute library websites, 'Basic Information' is provided by majority of the Institute libraries, followed by information on 'Library Collection', 'Electronic Resources' and 'Library Services'. Very less information is provided on 'Features'.

5.9.   Ranking of University Library Websites

A quantitative five-point rating scale was designed to evaluate checklist of Institute library websites in West Bengal during study period. The five-point rating scale was fixed equally based on the maximum score of 40 points. The range for the rating scale is as follows:

Range of Points	Results
01 - 08	Very Poor/Need Improvement
09 - 16	Poor/ Below Average
17 - 24	Good/Average
25 - 32	Very Good/Above Average
33 - 40	Excellent

Table 9 describes that out of fourteen Institute libraries, none of the Institute library website obtained 'Excellent' ranked of content analysis on library websites. All the Institute library websites were ranked with 'Average', 'Below Average', and 'Need Improvement'.

Table 9
Ranking of Institute Library Websites

Institute Library Websites	Total Score out of 40	Rank	Rating Scale	Results
Indian Statistical Institute (ISI) Library	27	1	25 - 32	Very Good/ Above Average
Indian Institute of management (IIM) Library	23	2	17 – 24	Good/Average
Indian Institute of technology (IIT) Library	22	3	17 - 24	Good/Average
West Bengal National University of Juridical Sciences (WBNUJS) Library	22	3	17 – 24	Good/Average
Bose Institute (BI) Library	17	4	17 – 24	Good/Average
Saha Institute of Nuclear Physics (SINP) Library	15	5	09 – 16	Below Average
Indian Association for the Cultivation of Science (IACS) Library	14	6	09 – 16	Below Average
S N Bose National centre for Basic	14	6	09 – 16	Below Average

Sciences (SNBNCBS) Library				
Indian Institute of Chemical Biology (IICB) Library	12	7	09 – 16	Below Average
Indian Institute of Engineering Science and Technology (IIEST) Library	12	7	09 – 16	Below Average
National Institute of Technology (NIT) Library	12	7	09 – 16	Below Average
Indian Institute of Science Education and Research (IISER) Library	8	8	01 – 08	Very Poor
National Institute of Pharmaceutical Education and Research (NIPER) Library	6	9	01 – 08	Very Poor
Indian Institute of Information Technology (IIIT) Library	5	10	01 – 08	Very Poor
Total	209	-	-	-

ISI library got highest total score of 27 out of 40 points ranked with 'Very Good/Above Average', followed by IIM library with 23 points ranked with 'Good/Average'; both IIT and WBNUJS Libraries with 22 points ranked with 'Good/Average' and BI Library with 17 points ranked as 'Good/Average'. Six Institute libraries of SINP, IACS, SNBNCBS, IICB, IIEST and NIT are ranked with 'Below Average'. The Institute library websites of three Institutes IISER, NIPER and IIIT are ranked with 'Very Poor/Need Improvement'.

6. FINDINGS

Major findings of present study on content analysis of library websites of Institute of National Importance in West Bengal during the study period are as follows:

➢ Only five Institute libraries of IIM, Kolkata; ISI, Kolkata; IIT, Kharagpur; IIEST, Shibpur and WBNUJS, Kolkata have separate library homepage which are direct accessed by the library users. Remaining other nine studied Institute library websites are accessed through their Institute websites.

➢ One AIIMS, Kalyani in West Bengal which was established in 2019, did not have library webpage/homepage during the study period.

➢ Both ISI and WBNUJS library website provided majority 80% of the basic information, whereas, BI library websites provided 70% of the basic information and followed by SINP library websites with 60% of basic information in their library websites.

➢ IIM and WBNUJS provided majority 60% information of the library collection, whereas, IACS provided 50% information on library collection, followed by both ISI and IIT with 40% information availability on different types of library collection in their library websites.

➢ ISI provided maximum information in their library website with 27 points score which is the highest points among the fourteen Institute in West Bengal, followed by IIM with 23 points as 2nd highest and both IIT and WBNUJS with 22 points as 3rd highest.

➢ out of fourteen Institute libraries, none of the Institute library website obtained 'Excellent' ranked of content analysis on library websites. All the Institute library websites were ranked with 'Average', 'Below Average', and 'Need Improvement'.

- ➢ ISI library got highest total score of 27 out of 40 points ranked with 'Very Good/Above Average', followed by IIM library with 23 points ranked with 'Good/Average'; both IIT and WBNUJS Libraries with 22 points ranked with 'Good/Average' and BI Library with 17 points ranked as 'Good/Average'.
- ➢ Six Institute libraries of SINP, IACS, SNBNCBS, IICB, IIEST and NIT are ranked with 'Below Average'.
- ➢ The Institute library websites of three Institutes IISER, NIPER and IIIT are ranked with 'Very Poor/Need Improvement'.

7. RECOMMENDATION
The following recommendations may be suggested for improvement of library websites of Institute of National Importance West Bengal, India:
- ➢ The Library websites of Institute of National Importance in West Bengal should arrange or organize the content information in uniform structure way.
- ➢ The Institute library websites should more attractive and informative by which library users can easily access and capture the required information as per needs.
- ➢ It is suggested to have a dedicated library professional team to look after the library website and update it at regular interval.
- ➢ The library websites of Institute should focus attention to fulfill the information needs of the library users.
- ➢ This checklist may be used as a standard guideline for improving library websites of Institute of National Importance in West Bengal

8. CONCLUSION
The main purpose of this paper is to guide the librarians of Institutes and also library and information science professionals in improving their library websites. It is observed in the present study that all studied library websites of Institute of National Importance are different among themselves in many ways. There is a need to design and develop a unique and uniform structured type of library websites of National Institutes located in West Bengal, India during the study period for providing maximum resources and services to their library users and also providing links to other Institute libraries in India. The updating of library websites is very necessary to provide correct and accurate information to the library users and to save their time and energy. User feedback and comparison of Institute library websites with other Institutes is very important. This article gives a detailed account of the study and offers suggestions for developing and managing better library websites of Institute of National Importance.

9. REFERENCES

All India Institute of Medical Sciences (AIIMS), Kalyani. Available: www.aiimskalyani.edu.in

Bose Institute (BI), Kolkata. Available: www.jcbose.ac.in

Indian Association for the Cultivation of Science (IACS), Kolkata. Available: www.iacs.res.in

Indian Institute of Chemical Biology (IICB), Kolkata. Available: www.iicb.res.in

Indian Institute of Engineering Science and Technology (IIEST), Shibpur. Available: www.iiest.ac.in

Indian Institute of Information Technology (IIIT), Kalayani. Available: www.iitkalyani.ac.in

Indian Institute of Management (IIM), Kolkata. Available: www.iimcal.ac.in
Indian Institute of Science Education and Research (IISER), Kolkata. Available: www.iserkol.ac.in

Indian Institute of Technology (IIT), Kharagpur. Available: www.iitkgp.ac.in

Indian statistical Institute (ISI), Kolkata. Available: www.isical.ac.in

National Institute of Pharmaceutical Education and Research (NIPER), Kolkata. Available: www.niperkolkata.edu.in

National Institute of Technology (NIT), Durgapur. Available: www.nitdgp.ac.in

S N Bose National Centre for Basic Sciences (SNBNCBS), Kolkata. Available: www.bose.res.in

Saha Institute of Nuclear Physics (SINP), Kolkata. Available: www.saha.ac.in

West Bengal National University of Juridical Sciences (WBNUJS), Kolkata. Available: www.nujs.edu

Chikkamanju, (2015), "Content analysis of the autonomous engineering college library websites affiliated to Visveswaraya Technological University (VTU), Belgaum, Karnataka: A Study". *International Journal of Academic Library and Information Science,* Vol. 3 No. 9, pp. 258-268.

Hugar, J. G. (2019), "Content analysis of engineering college library websites in Goa". *Library Philosophy and Practice (e-journal).* 2320

Jange, S. (2014), "Library websites of universities in Karnataka state: An evaluative study". *Journal of Advances in Library and Information Science*, Vol. 3 No. 3, pp.195-202.

Kannappanavar, B. U, Jayaprakash Mr, & Bachalapur M M, (2011), "Content Analysis of engineering college library websites". *Library Philosophy and Practice (e-journal).* 673. http://digitalcommons.unl.edu/libphilprac/673

Krishnakumar, P. & Nirmala, P. J. (2014), "Websites of Deemed universities in Tamilnadu: an analysis of library content". *Indian Journal of Information Sources and Services*, Vol. 4 No. 1, pp. 38-44.

Kumar, S. & Singh Mir, M. (2017, June), "Content analysis of central universities library websites of central region of India: a survey". *International Journal of Scientific & Technology Research*, Vol. 6 No. 6, pp. 283-286.

Prakash, B. (2013), "Contents of central university library websites in India: an analysis". *E-library Science Research Journals*, Vol. 2 No. 1, pp.1-8.

Savitha, K. S. (2016), "Content analysis of deemed university library websites of Karnataka state: A study". *International Journal of Digital Library Services*, Vol. 6 No. 1, pp. 87-93.

Singh, M. P., & Gautam, V. K. (2016), "Content analysis of websites of central university libraries". J*ournal of Information Technology*; Vol. 3 No. 2, pp. 1-14.

Shukla, A. & Tripathi, A. (2010), "Establishing content awareness evaluation criteria for library websites: a case study of Indian Academic library websites". *Annals of Library and Information Studies*, Vol. 57 No. 4, pp. 403-416.

Vasishta, Seema. (2013), "Dissemination of Electronic Journals: a content analysis of the library websites of technical university libraries in North India". *Electronic Library,* Vol. 31 No. 3, pp. 278-289

Verma, M. K., & Devi, K. K. (2015), "Content analysis of central universities library websites of North Eastern States in India: A Study". *Journal of Research in Librarianship*, Vol. 2 No. 5, pp. 48-59.