STATUS AND IMPACT OF INFORMATION TECHNOLOGY IN BURDWAN UNIVERSITY CENTRAL LIBRARY: A STUDY

Supervisor

PROJECT SUBMITTED TO ..... IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF .....

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Name of the Candidate

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Chapter – 1

Introduction

1.1 Background Structure of the Study

A library plays an important role in the academic institution providing access to world-class information resources and services, and stimulates academic research in the country. Hence success of any University depends upon its library, as library services are fundamental, which affect the whole educational system.

National Knowledge Commission Report mentions that libraries play a pivotal role in dissemination of knowledge. They are an extremely important element of the foundation of a knowledge economy. Higher educational libraries are experiencing a massive change in the way they function.[(39)] University libraries being part of higher education. University libraries support learning, teaching, research and other educational functions appropriate to their parent institutions. Various types of document collections are built up in University libraries. These are processed, organized, maintained and serviced for the user community. The special collections cater to the needs, not only for teaching and learning, but also for research, publication, conservation of ideas and knowledge. The new technologies especially electronic technologies have contributed to the radical changes in library and information science and practice.

Rapid advancements in computers and telecommunication technology which is known as "Information Technology" have accelerated the shift to a post industrial era characterized by information based society. Information Technology (IT) has made an impact on different sectors of human activity that the present period has come to be called

as information age. Its impact on libraries, their management and their services is no less. In the context of library and information management, IT has become synonymous with automation and modernization of libraries and information centers. The role of IT is to improve an overall efficiency of library and information services. Information technology has changed the face of library services by introducing new techniques in handling of information.

Since 1950's the developments of information technology has induced traditional libraries to transform to digital libraries. The libraries have transformed from close- access libraries of earlier times to the present day hybrid, digital, and virtual libraries. Librarians have been changed from mere storekeepers who were concerned with protection of books against theft, mutilation, and pilferage, to that of information officers, navigators, and cybrarians who encourages use in the vast ocean of reading material. They are busy in satisfying their clients who want information anytime and anywhere. Computers are being used in libraries to quickly process, store, retrieve and disseminate information. University libraries provide quicker and user oriented services with the use of IT. Users want to access Internet, databases and online searches. Success of library networking depends only on the extent of automation of each participating library. As a result, traditional concept of library is being redefined from a place to access books to one which house the most advanced media.

1.2 Use of Information Technology in University Libraries

Information technology (IT) refers to technologies which are used in collection, processing, storage, retrieval and dissemination of recorded information. For the purpose of this study, the term 'Information Technology' is used to cover all of those technologies which include computers, application of software, e-journals, e-books, e-databases,

CDs/DVDs (for abstract & academic courses), networks, Internet, communication devices, electronic information products, electronic security systems and several other compatible devices used in libraries.

The University libraries have largely been affected by the rapid changes in IT. The first and foremost IT component which can be adopted in an university library is the computer for library automation and to have an in-house database of library holdings in electronic form. Networking, multimedia and Internet are the other important technologies which can be used for faster access to information. The issues related to current technology discussed or addressed by the present day academic/technical libraries are the following:

- Library automation of library activities like acquisition, cataloguing, circulation and serials control, online public access catalogue (OPAC), Web-OPAC (Web based OPAC), MOPAC (Mobile OPAC) and other library services;
- Use of software (Proprietary sources) for library automation like SOUL, LibSys, Libsuite, Libra, Alice for Windows, Virtua, Slim+, WIN/ISIS, Virtua, e-Granthalaya etc.;
- Electronic publishing like Electronic databases, E-books, E-theses and dissertations, Electronic Periodicals (e-journals, e-newsletters, e-magazines, and e-discussion lists), Electronic publishing on CD-ROM, Print-on-Demand (POD), Digital content, Subject gateways or library portals, webzines etc.;
- Bar code technology, Smart Cards, Tattle-tape, Biometric etc. for automatic identification and data collection technology;
- Telephone, FAX, mobile phone, smart phone for disseminate the required information;
- Photocopying machine, scanner and CDs/ DVDs writer for duplicate copy;

- Information alerting services like Current Awareness Services (CAS) and Selective Dissemination of Information (SDI), Digital references service, Electronic document delivery services, Library websites and homepage, Web-OPAC, MOPAC, Web-based user education etc.;
- Digital cameras, Scanner, mobiles etc. for information capture;
- Floppy disks, CDs/ DVDs, pen drives, etc. for data storage.
- Digitization of physical media like books including rare & special collection, reports, periodical articles, manuscripts, photographs etc., establishing institutional repositories;
- CCTV cameras and RFID for security and documents theft and Cease fire equipments;
- Local, wide and metropolitan area networks, Library networks and consortia. Internet, Internet based communication services like Wi-Fi, E-mail, Chat or Instant messengers, Conferencing, Content publishing and delivery services;
- Library 2.0 components are Blogs, Wikis, RSS feeds, Podcasting, Instant messaging SMS, MMS, Social networking, 24x7x365 access to e-resources;
- Digital library software like Green stone, DSpace, and Fedora;
- Open source software like KOHA and NewGenLib;
- Implementation of wireless and mobile technologies for all time remote/campus wide access;

For the effective functioning of information technology in libraries, the following basic requirements are essential-sufficient fund, trained manpower, networking facilities and user education programs to be designed to educate the users about computerized databases and on-line information retrieval.

1.3 Reasons for Information Technology Applications in University Libraries

Today University libraries function under constantly changing environment and face a variety of complex challenges like information explosion, IT revolution, network evolution, shrinking library budgets, escalating prices of documents, high level of user expectations and availability of information resources in diverse media and so on. IT offers a wide range of opportunities, which could provide solutions to some of these major challenges. Universities owe responsibility of shaping the students' career in such a way that they get good education and employment. This is possible when Universities have fully automated libraries and use e-resources and services. IT surely helps to give a quick, prompt and efficient service by saving the valuable time of the students and the faculty. IT offers tremendous opportunities to provide solutions to some of these major challenges which libraries face. The following major factors have contributed to the application of IT in University libraries: Information bang, storage and maintenance problem of print document, change in users' expectations and information seeking behavior, mode of publications changes, limited budget and price increase of documents. Speedy advances in modern technologies have greatly improved the capabilities of storage, processing, retrieval, repackaging, communicating, sharing, and managing the explosive growth of information effectively and economically in the University libraries.

1.4 Impact of Information Technology on Library Environment

Rapid advances in IT have brought revolutionary changes in the concepts, organization, functioning and management of libraries. The impact of these changes is affecting all the aspects of library operations, information resources and services, staff skills requirement and users expectations. Some of the notable impacts on libraries, staff and users are:

1.4.1 Impact on Libraries: Library collection goes beyond the print materials and includes the CDs/DVDs, audio & videocassettes, e-books and e-journals. The traditional paper as medium of storage is getting replaced with electronic media. Many in-house operations in the library like book acquisition, processing, circulation, maintenance, reminders, and serials management are repetitive in nature. The need for automation arises as to reduce the effort and time required for these jobs. In India, many national and international origin software are commercially available for library automation. The library networking and resource sharing is more often carried out effectively through Internet and Intranet. In Burdwan University Central Library, UGC- INFONET consortium are in action. Besides this, many E-Journals subscribed from EBSCO, J-Gate, IEEE, ASCE, ASTM Digital Library etc. Reprography services has been used for copies of the documents. Internet technology provides wide scope for communication and information search across the globe. Application of information technology has contributed immensely for the improvement in provision of quick, quality services in the libraries.

1.4.2 Impact on Library Staff: Information technology has changed the duties, responsibility and functions of the library professionals. The changing environment forces the librarian to become IT skilled, dynamic, ready to accept the changes and challenges, and outfit the requirements of library users.

1.4.3 Impact on Library Users: Library users can remote access the worldwide information through their desktops without any time and distance limitations (24 x 7 x 365 days). Current users need to possess basic technical skills to access the information in electronic media. In the age of technology users have multiple sources of information such as Internet, commercial and non-commercial information service providers. As a result, the library is not the only source of information provision for users.

1.5 Definitions of the Terms and the Concepts

This being a social science oriented research many terms and concepts do not have precise definitions. Yet an attempt is made to clarify the meaning, scope and operational definitions of certain important terms and concepts used in the study.

1.5.1 Information: Information as a data that has been proceed into a form that is meaningful to the recipient. Information is something that can be recorded, communicated and computed with. Information includes oral, written documentary and non-documentary, statistical, pictorial graphic, descriptive, bibliographic and other forms from formal, informal to electronic medias.

1.5.2 Communication: Communication is the process by which people exchange information or express their feelings. Information exchanged between individuals through a common system of symbols, such as, language, signs and gesture and exchange of thoughts and opinions so we can say where there is a communication, there is information associated with IT.

1.5.3 Information Technology: Information technology means the application of computer and communications technologies for gathering, processing, storage, retrieval and dissemination of information. Information technology use in libraries includes computers, telecommunications, networks, storage and a wide range of other related technologies.

1.5.4 Impact: Oxford Dictionary and Thesaurus (2001) defines impact as immediate effect or influence, or consequence. Impact is the power of an event and idea to produce changes and move the feelings.

1.5.5 Library Automation: Library automation may be defined as the application of automatic and semi-automatic data processing machines (computers) to perform

traditional library housekeeping activities like acquisition, cataloguing, circulation, and serial control. In recent times even the related topics such as information retrieval, automatic indexing, abstracting, and networking of automated system are also treated as part of library automation. Library automation is a process of adding electronic resources to its bibliographic resources and replacing its human performance with electronic process.

1.5.6 Technical Services: All the activities and processes concerned with obtaining, organizing and processes library material for use, i.e. acquisition, classification and cataloguing.

1.5.7 User: The term 'user' refers to the population of the institutes/colleges included in the study. Hence it includes active as well as potential users of these institutions. This study is confined to the following three categories of Burdwan Univesity Central Library users: (i) Faculty members (ii) Scholars' and (ii) Students.

1.5.8 User Services: User services are those, which provide data, information and documents to the users at the right time either in anticipation or on demand. Reference service, circulation, documentation services, and bibliographical references are user services.

1.5.9 Electronics Resources: 'Electronic resources' is defined to include the sources available on electronic media like computers, CD/DVD, information networks, e-books and e-journals which can be used through electronic devices.

1.5.10 Digital Library: A digital library is a library consisting of digital materials and services. Digital items are stored, processed and transferred via digital (binary) devices and networks. Digital services are delivered digitally over computer networks. Through digital library many simultaneous users can access a single electronic copy from many locations.

Chapter – 2

Review of Literature

2.1 Introduction

In the first chapter the structure of the thesis, Use of Information Technology (IT) in University Libraries, Reasons of IT applications in University Libraries, Impact of IT on library environment and Definition of the terms and concepts like information, communication, technology, impact etc. This chapter explains the reviews of the related literature on the IT applications in academic libraries in different environments which have been published in journals, books, theses and other research publications.

A literature review is an evaluative report of information on the topic under the investigation. The review summarizes, evaluates and clarifies the literature. It gives a theoretical base for research and help the researcher determine the nature of research. It also helps the researcher to have an insight into the tested methods, procedures and interpretations of similar studies conducted elsewhere. The literature review on the topic provides the context for research by looking at what work has already been done in the research area under the investigation. It identifies the various aspects of study so far not touched by other researchers, and to find any suitable method of conducting research, if possible. A goal of review of literature is to make the reader up-to-date with current literature on a topic and forms the basis for another goal, such as future research that may be needed in the area. The literature review is a critical look at the existing research that is significant to the work. It evaluates the existing work shows the relationships between different works, and how it relates to the present work under investigation.

Any review of literature of the study forms an integral part of the research. Existing documents (monographs, text books, reference books, Ph. D theses and dissertations), articles from journals and newspapers (print and electronic), historical records, proceedings of conferences, government reports and statistical information, and research reports, related with the current study are formed the basis of the research work during the early stages of the study. The information gathered from the literature review is then combined with the results of the primary research to reach the overall conclusions of the research.

2.2 Areas of Research Studies

Thus review of literature is carried out to understand the recent developments of information technology in library and information environment, services quality and its measurements in library services. The literature is divided in the following six aspects. The investigator presents the important studies carried out on the following areas of the topic under investigation:

2.2.1 Studies on Library Automation

2.2.2 Studies on Information and Communication Technologies in Libraries

2.2.3 Studies on Use of E-Resources

2.2.4 Studies on Internet Use and Resource Sharing through Networking

2.2.5 Studies on Impact of Information Technology on Libraries and Users

2.2.6 Studies on Status and New Aspects of Academic Libraries with Special University Libraries

Today, much literature is available on the technological aspects of libraries which reports on the rapid growth of IT use, but not much on their impact on users and libraries of India especially in Rajasthan. Hence availability of books and journal articles in

this area is also limited. However, considerable amount of literature deals with the new technology and its impact. Only research studies, which are directly related to the present study, have been reviewed**.**

The following various studies and surveys are conducted on IT in libraries –

2.2.1 Studies on Library Automation

Library automation started in developed countries in 1940's, and in India late 70s in few special libraries, which has now reached to almost all the university libraries of the country. It is yet to take off in college libraries in India owing to various problems. The first use of computers in library and information centers in India was reported at INSDOC (now NISCAIR) in 1965. An automated library is one where a computer system is used to manage one or several of the library's key functions such as acquisitions, circulation, cataloguing, serials control and the online public access catalog. Computers are used to store as well as for information processing. There are many benefits to automating the information available in libraries, for both the staff and users alike: improved customer service and easier access to information.

K. R. Mulla and M. Chandrashekara conducted a survey of engineering college libraries in Karnataka on use of integrated library software. The survey provided an implicit view of the professional experiences of the librarians in computerizing their house keeping operations. It is observed that 13.73 per cent of the engineering libraries are not automated for reasons which varied from library to library such as lack of computer facility, financial problems, lack of trained manpower and inadequate library collection. The trends of effective use of integrated library software in the selected

area of research revealed that a big number of libraries in Bangalore region were automated. [35]

K. R Mulla's, M. Chandrashekara's and V.G. Talawar's useful study on usage and performance of various library software modules in engineering colleges of Karnataka gives a status report on software packages used by the various libraries, and opinions of the librarians about the performance of the different modules of the software they have used. It is observed that libraries lack computer facilities. However, in a few libraries, management is not interested to spend amount for automation. Only few libraries are suffering with lack of trained manpower. It is found that serials control and acquisition modules are less used by librarians because acquisition process is different from software to software and from library to library.[37]

Y. Srinivasa Rao's and B.K. Choudhury's case study of National Institutes of Technology (NIT) libraries in India on library automation facilitation concludes that computer in libraries automation makes the library system, resources, and services more attractive and interactive in helping libraries to meet users' expectations. To see the true picture of the provision of automation facilities among NIT libraries, this study has been conducted. The study makes it clear that automation facilitation among NIT libraries is still in the developmental stages due to various technical, professional, and administrative reasons. [52]

Prabhat Singh Rajput and Sanjeev Kumar Jain conducted survey in Madhav Institute of Technology and Science (MITS), Atal Bihari Vajpayee Indian Institute of Information Technology & Management (ABV-IIITM), Maharana Pratap College of Technology (MPCT), Institute of Technology & Management and other colleges of

Gwalior. The lack of staff, hesitancy and lack of attitude towards automation, lack of administrative support and unsatisfactory library software problems are the major hindrances to speedy automation. The impact of automation on library is quite obvious as it has created new type of work, prompted redefinition of certain functions, influenced interpersonal relations, and transformed traditional organizational structure into new institutional entities. [44]

Abdul Azeez T. A. has presented a paper on TKM College of Engineering (TKMCE), Kollam (Kerala) library automation system. The present system of TKMCE Library Automation System has all the advantages of the computerized information system. A low cost in-house library automation system has been developed. The TKMCE Library Automation System aims at providing a comprehensive computerized solution to the needs of the library routines such as data entry, circulation control, catalogue access, etc. The system provides an overall view of the above functions. The package is user friendly and menu driven. Special efforts have been made during the design and development stage to ensure data integrity and security. This package facilitates fast retrieval of information and error free statistics. The Library is using Visual Basic 6.0 as front end and MS Access 7.0 as back end under Windows 98 environment. [1]

A case study conducted by K.R, Mulla, A.S Shivakumar and M. Chandrashekar on automation of HKBK College of Engineering (Bangalore) Library & Information Centre. The study concluded that administration and maintenance in a library can be made more efficient and effective with the use of computers to help in doing many jobs. For instance, activities like housekeeping operations such as acquisition, cataloguing, serial control and circulation section can be performed quickly with having full control on the library collection. Avoiding the duplication of work saves lot of time. The automated library can

provide extended services to the users of the library. The paper described in detail the development of automation procedures and applied tools. [38]

Harish Chandra's case study on library automation strategy of the Central Library of Indian Institute of Technology of Madras discusses the automation strategy adopted, major automation areas and also outlines the various factors need to be considered by the librarians while formulating automation strategy for their respective libraries. The web based library and information services offered to end users and CD-ROM activities are also described. [10]

S. P. Singh investigates computer applications in six Indian Institutes of Technology (Bombay, Delhi, Guwahati, Kanpur, Kharagpur and Madras) libraries and concludes that they are in a position to provide instantaneous access to information on a worldwide basis through on-line access and networking. Keeping pace with the changing environment, all IIT libraries have taken steps to transform themselves into electronic libraries. Different aspects have been covered under study are hardware, software, applications, databases, CD-ROMs, online search services, networking and marketing of products and services. [49]

2.2.2 Studies on Information and Communication Technologies in Libraries

Information technology is influencing all key functions of libraries. At the same time, it is affecting the information seeking behavior of readers too. In modern times many new information and communication technologies are used in libraries like open source software, RSS (Really Simple Syndication) application, bar code technology, RFID (Radio Frequency Identification), CD-ROMs/ DVDs, smart cards, biometric, library 2.0, MIS (Management Information System), implementation of wireless and mobile

technologies for all time remote/campus wide access etc. The following studies are reflected theses technologies:

M. Krishnamurthy and H.M. Rajashekara have presented a paper on current trends in wireless technologies in academic libraries. Paper elaborates the Wi-Fi technology in detail about the components, functions, area of applications, issues, and challenges. Users access the information from the departments, hostels and computer centres and also from the libraries. Wi-Fi technology has highlighted the importance of achieving capability among databases and information products, hardware and software, input formats, processing, data exchange, output formats has to be address. Its main focus is utilizing the resource in a productive manner. [(28)]

Praveen Babel's study on application of information technology (IT) in the libraries of the state and deemed universities of Rajasthan concludes that in Rajasthan University libraries have been applying ICT for providing efficient services and resources, but present efforts are not enough. Though a few libraries have basic hardware and software facilities, yet ICT based resources and services are not reaching to the expected extent. 56.49 per cent of the users are browsing UGC-INFONET journals frequently and 50.18 per cent of the users are using OPAC. 31.63 per cent of the users rate speed of the Internet slow. 41.74 per cent of the users have indicated that use of ICT is significant to their academic/research work and 25.96 per cent of the users are not satisfied with the present application of ICT in their libraries. 74.73 per cent users indicate that they are not getting training in ICT based library services, but indicated that training would have been useful. The study concludes that most of the university libraries in Rajasthan need proper ICT infrastructure and library staff has to be trained properly to make use of the e-resources. [(6)]

S. Dhanavandan's, S. Mohammed Esmail's and M. Nagarajan's study on information communication technology infrastructure facilities in self financing engineering college libraries in Tamil Nadu find that the Autolib software takes the first position and Libasoft the second and in house prepared software takes the third position in the utilization of the library application software. The digital library software (GSDL, DSpace software and Greenstaone software) are also use in few libraries. The possession of DELNET occupies the first position, INFLIBNET the second, ERNET the third, INDONET the fourth, and NICNET the last. All the libraries provide circulation and reference services to the users, but less number of libraries provide the CAS, SDI and referral services to the users. 91 (65 per cent) libraries are the members of INDEST- AICTE consortium which provides e-journals facility to the users. [(12)]

Y. Srinivasa Rao and B.K. Choudhury have presented a study on computer infrastructure facilities and services at National Institutes of Technology libraries in India. In it they conclude that, many NIT libraries could expand their infrastructure capacities to offer better services to students, researchers, faculty, and staff. However, the influence of computer infrastructure facilities on library services clearly indicates that further improvement is needed. With respect to electronic equipment, three-fourth of libraries have barcode scanners. 90 per cent of NIT libraries provide e-journals and e-books. 85 per cent of the libraries indicate that they provide electronic catalogue, CD-ROM and audio/video services frequently. 70 per cent of libraries prefer to provide orientation programmes and training services to users and staff. [(51)]

K. R. Mulla and M. Chandrashekara conducted a study on the effective use of online public access catalogue (OPAC) in the libraries of engineering colleges in Karnataka. The study clearly highlighted the need for an education programme module for users to

promote the effective usage of OPAC. An attempt was made through this study to present the difficulties faced by users at engineering college libraries, in searching information using OPAC. This paper provided useful empirical evidence for librarians and the research community on the usage of OPAC in libraries of engineering colleges.[34]

Manjunatha Keralapura's case study reflects of technology and customer expectation in academic libraries (special reference to technical/ management libraries in Karnataka). He finds that the customers of academic libraries (in particular technical/ management education in India), consider their institute's library as the first choice for their information requirements. The expectations of customers of these libraries are high towards resources and services. Finally, technology is only a facilitating tool, and it is the people who make or mar the system. Staff members need to be self- motivated, service-minded and caring towards users. Their satisfactions, rewards and comforts need to be addressed by the parent organisation. [27]

Seema Vasishta's study on roadmap for RFID implementation in Central Library, PEC University of Technology, Chandigarh gives brief idea about the emerging RFID technology, its importance in the library management system and its working. It describes the basic and optional components required for smooth working of the exercise. The aim has been to consider how to extend RFID applications to academic library keeping in view the shortage of funds and scarcity of supporting staff. The article illustrates a vivid picture about how RFID technology is acting as a boon for libraries thereby highlighting the key benefits of RFID like reliability, high speed inventorying, automated and materials handling. [56]

Kaling Borang's and Gautam Kumar Sarma's survey deals with application of ICT in two major academic libraries of Arunachal Pradesh i.e., Rajiv Gandhi Central University

Library and North Eastern Regional Institute of Science and Technology (NERIST) Library. It discusses the status of library automation, different software packages used for automation, OPAC, use of e-resources and the extent of their use in library operations of these two libraries. This paper throws light on the problems and difficulties being faced by the library in applying ICT in the libraries. [9]

R. Mishra, Rajesh Kumar and D. P. Tripathi have presented a study on CD-ROM collection management and development of a web interface by using WINISIS/GENISIS at P. K. Kelkar Library of IIT Kanpur. The paper describes the processes involved in managing the CD-ROM collection at P. K. Kelkar Library. The paper also discusses the importance of CD-ROM in relation to de-stressing library collection. It outlines the planning and processes involved in organizing CD-ROM collection on shelves and development of a user interface through open-source software, i.e., Winisis and GenisisWeb. [33]

M. Haneefa investigates the application of information and communication technologies in special libraries of Kerala. A total of 30 libraries belonging to four categories of institutions (1) Central Government (2) State Government (3) Central Government autonomous and (4) State Government autonomous. The analysis reveals that though the libraries had hardware, software, and communication facilities to some extent, ICT-based resources and services are not reaching the users to the expected extent. Library automation in special libraries in Kerala is largely commenced during the period 1990-2000. CDS/ISIS is used more in the libraries than any other software. [18]

Mehtab Alam Ansari and Amita have presented a paper on the awareness and use of OPACs in five libraries of Delhi. The paper deals with the applicability and utility of

OPACs in five libraries of New Delhi. These libraries are IIT, Delhi Library, JNU Library, Dr. Zakir Husain Library of Jamia Millia Islamia, NISCAIR and the DESIDOC. The paper finds that the OPAC system has changed the traditional concept of access to library resources. It allows simple as well as complex searches. Document access is still one of the most important approaches of users to visit the library, and a study of the effectiveness of OPAC is useful in this respect. Results show that users face problems of recall and precision. However, in some searches users are not able to find relevant documents on account of various factors. [(2)]

T. B. Ghosh presented a study on application of RFID technology in Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat. RFID (Radio Frequency Identification) is the latest technology used in different industries for security and theft detection. The paper defines the concept of RFID technology. Components of RFID systems used by the SVNIT library are discussed. Advantages, shortcomings and remedies of RFID systems, financial implications are explained with special reference to SVNIT library. It has been found that the system is costly and there are some demerits also. However as a user of RFID technology the author says that RFID technology is accurate, cost saving and it minimizes the manpower. [(13)]

M. Vijayakumar and others have presented a paper on Wi-Fi technology in libraries: some perspectives. This article explores some of the major issues of wireless networks in libraries and components of the Wi-Fi technology are discussed. Fortunately, the technology has advanced considerably and can be deployed without sacrificing the security of library's network. The weakness of security for all Ethernet networks is eavesdropping. The low-level media access rules that govern how Ethernet networks communicate follow the party-line telephone model. Infrastructure facilities require for the

libraries to go Wi-Fi network. Availability of commercial and free Wi-Fi services, advantages and disadvantages of Wi-Fi services are also discussed. [58]

Jagdish Arora's case study of IIT, Delhi on transforming a traditional library into a hybrid library highlights leadership skills and personal traits that are used successfully for transforming a traditional library into a hybrid library in precarious circumstances and conditions that exist in some of the organizations in India. It describes the management techniques, skills and personal traits of a leader that were used to motivate staff members to computerize the library, to improve library services and to transform a traditional library into a hybrid library. [4]

V.K.J. Jeevan and Saji S. Nair have presented a paper on information technology adoption in libraries of Kerala. It is a survey of selected libraries in Thiruvananthapuram. Questionnaire was distributed to twenty five premier scientific, technical and research libraries both under Central and State Governments. The eighteen libraries responded to the questionnaire. These libraries are of the opinion that IT had a positive impact on day to day work of the library and that IT plays a positive role in enhancing services, user satisfaction, meeting users' demands, and overall library image. This study reflects the views of librarians who adopt an ideal stand on those issues where the users have a poor opinion. [20]

S. D. Vyas conducted a survey on application of informational technology in twelve state universities as well as deemed university institutions of Rajasthan to study the status of library automation. IIT Delhi Library is also sent a questionnaire to act as a role model to Rajasthan university libraries. The survey attempts to find out the following aspect of library automation: availability of reading material, financial support to library automation, hardware and software, initiation of library automation, status of house database

preparation, user services, housekeeping operations, networking, and measurement of satisfaction regarding automation of information system. It concluded that the university libraries are interested in library automation, but INFLIBNET should speed up to attend to the grievances of SOUL users. [59]

T. B. Ghosh has conducted a useful study on electronic library: an initiative taken by Sardar Vallabhbhai Regional College of Engineering and Technology (SVRCET), Surat. This study describes the electronic library services of the college. It includes automated library systems with web OPAC, CD-ROM databases, electronic contents, online journals including virtual library created at URL http://www.geocities. com/ghoshtbd and other available collection of electronic library and future plan for development of electronic library in SVRCET. Most of the collection of this electronic library is an indigenous output of the college. From the time it was planned there is no expenditure involved in this matter. The faculties and students are coming forward to extend their help and expertise. [14]

2.2.3 Studies on Use of E-Resources

In recent years, there has been a phenomenal growth of electronic resources. Electronic resources comprise library online catalog, CD-ROMs, online journals (e- journals), e-databases, online newspapers, online reference materials, open access journals, e-books and thesis, major publishers and online bookshops, library consortium, etc. A large number of earlier studies of users of e-resources have appeared in the last few years.

Sunil Bhatt has presented an evaluative study on use of e-resources by the academic staff of the engineering colleges of Rajasthan. It revealed that academic staff is

using many types of e-resources like CDs, e-journals, e-books, e-theses, online databases, consortia services, OPAC, video conferencing and digital archives. They are also using the latest sources of information like e-groups and virtual conferences. Using the e-resources, academic staff as well as student's academic/professional competency improved. Some problems were also explored in use e-resources like low speed connectivity, lack of awareness about statutory provision for accessing e-resources by the institutions, technical problems (software/hardware), unavailability of sufficient e-resources, doubts in permanency, high purchase price and lack of legal provision. The majority of users were found quite satisfied in using e-resources. [8]

B. T. Sampath Kumar's and G. T. Kumar's study on perception and usage of e-resources and the Internet by Indian academics of engineering, medical and management institutions library users in Bangalore. The questions are designed for the library members to elicit their experience with the e-sources and Internet use for their study and research work. Study shows that the students and faculty who participated in this survey are aware of e-resources and also the Internet. Even though a majority of the academic community use electronic information sources for their academic-related work, most of them prefer print to electronic information sources. Students and faculty have learned about electronic information sources either by trial and error or through the advice of friends. [46]

Jagdish Arora's and Kruti Trivedi's investigation focus on INDEST-AICTE Consortium. The study describes major functions, activities and services of the INDEST-AICTE Consortium. It touches upon resources subscribed, terms of licenses, policies and practices for archival back-ups, membership programmes including core members, AICTE-supported institutions, and self-supported category of membership. The article

outlines governing structures of the Consortium and their roles. It elaborates on strategies used for effective implementation of Consortia amongst member institutions. It touches upon the economics of the Consortium and spells out it future endeavours.[5]

Sunil Kumar Satpathy and Biswanath Rout examine use of e-resources by the facult y members with special reference to C.V. Raman College of Engineering (CVRCE), Bhubaneswar. This study assesses and evaluates the use of e-resources and highlights the problems encountered by the users. Various statistical methods have been used in the study for data analysis. The study confirms that faculty members are aware of the various e-resources, e-databases, and e-journals. It suggests the improvement in accessing facilities with high Internet speed and need of subscription to more e-resources by the Central Library of CVRCE. [48]

M. P. Satija and Sarbrinder Kaur have conducted a study on consortia and cooperative collection development in the libraries of technological Institutes of North India and conclude that consortia subscriptions are the most common channel of resource sharing. In view of the globalization in all spheres of life, this trend will continue. INDEST- AICTE and UGC-INFONET, both open-ended consortia, have brought about a revolution in resource sharing. Libraries still have the responsibility for collection development, preservation, retrieval, and dissemination of information. Librarians are often short of time to do justice to all these activities. Vital and well- run consortia are an important source of help. [47]

Shilpi Verma and others study on use of electronic resources in the library of Sikkim Manipal Institute of Technology (SMIT), Sikkim investigates the purpose of seeking information, formal and informal sources used by faculty in searching the relevant

information. It also discusses frequency of their visit to the library and tools used for searching the information. The role of library professionals in helping faculty for finding information is also touched upon. The suggestions given by faculties are also discussed. In it she concludes that electronic journals which are subscribed by the SMIT are being used effectively by the faculty members. Internet access speed can be increased for speedy retrieval of information. [57]

Faizul Nisha, Naushad Ali P. M. and Tabassum Ara make a comparative analysis on use of INDEST and UGC-INFONET E-Journal Consortia. The study is conducted on a sample of users of IIT, Delhi and Delhi University. It is observed that IIT users (84.44 per cent) are more aware about consortia than Delhi University users (77.7 per cent). At IIT Delhi, 44.44 per cent users and at Delhi University (DU), 71.11 per cent users have shown their resource awareness of INDEST and UGC-Infonet Consortia respectively through colleagues whereas only 15.55 per cent of IIT users and 22.22 per cent of DU users have shown awareness of INDEST and UGC-Infonet through advertisements. Only 55.55 per cent and 44.44 per cent users in IIT(D) and DU access the consortia for all purposes whereas 71.11 per cent and 62.22 per cent users find it useful for abstracts. [41]

Kamal Kant Gupta, P. K.Gupta and M. R. Rawtani have presented a paper on effectiveness of UGC-Infonet : a case study of Jaipur Centre (Rajasthan University). The findings of the present study that most of the users are not aware about the UGC- Infonet e-consortium and the number of users who access the e-consortium is very low. Major problems encountered by the users toward access to e-consortium and lack of awareness of e-recourses at UGC-Infonet available. Teachers and staff prefer printed journals except the research scholars. [17]

N. Leelavathi and M. Doraswamy have presented the study on knowledge and use of digital library resources by engineering faculty members affiliated to Acharya Nagarjuna University. Findings of a survey is about the knowledge and use of digital resources by faculty members through CD-ROM databases, online databases, online journals and OPAC available in the engineering college libraries. Most of the faculty members (55.63 per cent) are familiar with the usage of digital resources. About 24.37 per cent of the faculty members are using the e-resources three times a week. 23.75 per cent daily. 5.63 per cent indicate that they are never used. Faculty members are using CD-ROM (25 per cent), Internet (33.13 per cent), E-mail (38.13 per cent), Search engines (36.87 per cent,), and College website (21.25 per cent) 'daily' respectively. [30]

K. R. Mulla's and M. Chandrashekara's case study of e-resources and services in engineering college libraries of Karnataka examines the level of efforts in the engineering college libraries in Karnataka to build electronic resources. Engineering college libraries are struggling in building digital collection and disseminating digital information, due factors like lack of ICT infrastructure, IT trained manpower, awareness of the digital resources, user demand, financial support, access like computer facilities, knowledge about the digital preservation methods and lack of training for the digital access, etc. [36]

K.T. Anuradha and H.S. Usha make a case study on use of e-books in an academic and research environment from the Indian Institute of Science. A comparison of e-book usage with numbers of students and degrees offered by different departments (Indian Institute of Science, 2004) indicates that there is no correlation. The Aerospace Engineering Department tops the list with 135 students, four degrees offered and with 4.46 percent of its users responding to this questionnaire. This is followed by Computer Science and Automation with 119 students, three degrees and 0.68

percent e-book usage, and then Electrical Engineering with 107 students, three degrees and 0.76 percent e-book usage. [3]

Naushad Ali's study search behaviour on the use of electronic resources at IIT Delhi Library finds that Boolean logic and truncation are the most often used in search facilities by IIT users. Lack of printing facilities, terminals and trained staff are the major reasons that would discourage users from accessing the electronic resources. The survey reveals that some 60 per cent of users face difficulties while browsing e-information. On the basis of the above analysis and observations, it is found that Boolean operators, truncation and wild cards are the most popular search facilities among the users. [40]

Anjali Gulati has presented a study on use of information and communication technology in libraries and information centers: an Indian scenario. This paper discusses the status of ICT usage in Indian libraries with special reference to special libraries and the efforts made by various institutions to propagate e-information products and services. This paper highlights the consortia efforts in India like JCCC Consortium, INDEST Consortium, CSIR E-journal Consortia, and UGC Infonet. It further discusses digitisation efforts in India at NISCAIR, New Delhi, IIITM, Kerala, C-DAC Pune, and the Digital Library of India. In addition it incorporates details on major information systems in India (such as NISSAT) and major library networks in India (such as INFLIBNET, DELNET, CALIBNET etc.).[16]

B. Saibaba's and Tamal Kumar Guha's case study on resource sharing through INDEST Consortium: a case study of IIT Guwahati provides an overview of the approach that the INDEST consortium has taken to promote consortia based resource sharing among the member libraries. The study also presents the infrastructure available with IIT Guwahati for delivering these benefits to its users. INDEST Consortium, set up by

the MHRD (Ministry of Human Resources Development), is instrumental in taking initiatives to deal with this fast emerging scenario in the country. [45]

T. B Ghosh's study is on free online electronic information resources on applied science and technology. The study discusses free online electronic information resources and different means of collection of the resources. The online electronic information resources on applied science and technology are compiled and described the different free Internet resource like online electronic journals, online electronic books, online databases, organizations, virtual libraries on Applied Science and Technology and special page on earthquake information. [15]

2.2.4 Studies on Internet Use and Resources Sharing through Networking

The Internet boom in world as well as in India has become one of the major contributors to the economic and educational growth. Use of Internet has increased more than eleven times in the last seven years. Regarding the use of the Internet and its purpose in libraries many studies have been conducted during the last few years.

Y. Srinivasa Rao and B. K. Choudhury have presented a useful study on network infrastructure facilities in NIT libraries in India. It mainly focuses on the network infrastructure facilities consist of connectivity, cables, bandwidth and spread available at these libraries. The survey finds that, majority of library's local network is a part of campus network. In use of network cables, both optical fiber and CAT5/enhanced cables hold an equal share of percentage. All libraries have Internet connections, in which majority of them (60 per cent) use leased connections. 50 per cent of institutions have the network bandwidth of 6.0 Mbps and above. Invariably, all institutions have campus-wide network connections to various units including departments, in which 75 per cent of

them have connections to student's halls/hostels and very few of them (25 per cent) have connections to faculty's and officer's residences. [53]

Y. Srinivasa Rao's and B. K. Choudhury's study on networked services of NIT libraries in India indicate that the majority of libraries prefer to provide communication network services (telephone, Internet, e-mail, facsimile etc), online journals (90 per cent), automated catalog system (85 per cent), multimedia databases (85 per cent) and support (70 per cent) services rather than the other services. Concerning the zone wise performance, south zone (80 per cent) libraries are more potential than the other zone libraries in providing NSs. [54]

Sanjay Kataria and John Paul Anbu K. have presented a paper on applications of Web 2.0 in the enhancement of services and resource in academic libraries: an experiment @ Jaypee Institute of Information Technology University, Noida. As mentioned in the beginning of this paper the concept is based on a proposed model for the Learning Resource Center (LRC), JIIT University to find out the impact of Web 2.0 technologies in enhancement of usage of LRC resources and services. The investigators find that this working model was designed, developed and tested exhaustively by feedbacks and it has been observed that the users are very much satisfied that the exciting feature of Web2.0 like Blogs and RSS really help them and bring them closer to the LRC. [23]

Purnima Kaushik's paper on networking and resource sharing in engineering college libraries of Jaipur shows that 88.89 per cent respondents use network services in their libraries. Out of total libraries surveyed 73.3 per cent libraries have subscribed to DELNET network services and 6.67 per cent are using other library networks. 66.67 per

cent libraries confirm the realization of the purpose for which the network service is subscribed whereas 17.77 per cent believe that the purpose of subscribing network service is not realized. 8.88 per cent libraries are not sure about it. Only 20 per cent of the respondents believe that the Indian networks are as good as international networks while other believes that the Indian library network needs to be improved to meet international standards. The author concludes that co-operation, not only among libraries but also among library networks is also essential for the success of these networks in the country. [26]

S. Sivaraj's study on bridging the information divides among engineering college libraries in Tamil Nadu: a network design. Resource sharing networks is an important part of the library development plans. While United States and Canada are in a leading position, developing countries are eager to follow them in due course. Library networks will bring rapid changes and a better future for library and information services. It is absolutely necessary to share resources and pursue a variety of information exchange opportunities with other institutions. It is necessary to establish a library network among all engineering college libraries in Tamil Nadu for maximum use of resources for the benefit of the students, faculty, and research scholars, and to improve the quality of education. [50]

S. K. Pathak, Mita Pal and Vijay Rai have presented a paper on proper content management to the library web site: evaluation of all IIT's library websites. Today's savvy library users are starting to equate the library website with the physical library. The purpose of this study is to assess the content management and usability of an academic library website. This paper presents the major findings from evaluation of library websites of all IITs in India on the World Wide Web. This paper includes a brief examination of services provided on the websites in general and concerning library

websites in particular. A new list of criteria for evaluation of academic libraries is compiled. [42]

Kanta Kapoor's and O.P. Goyal's useful comparative study on Web-based OPACs in Indian academic libraries: a functional comparison seeks to provide a comparative analysis of the functionality of five web-based OPACs available in Indian academic libraries like IIT, Delhi, University of Hyderabad, University of Goa and Nirma Institute of Management Ahemdabad and findings that web-based OPACs investigated offered a range of facilities for searching by author, title, control number and by keywords. Federated searching across several e-collections is limited. [22]

Rajesh Kumar Bhardwaj and R. K. Shukla have presented a paper on studies on re-engineering of library and information services through web modeling at Delhi College of Engineering. This is particularly true in science and engineering libraries, where much of content have been made available online and users tend to be technology savvy. The Library website is designed in such a way that helps to re- engineering of library and information services to maximize usage and draw users back into the library, both physically and virtually. By developing the hybrid library, we may reduce the library "paper work" and adjust staff numbers involved in those processes which are in top priority. Delhi College of Engineering continue to explore new ways to connect with both traditional library users and new users who have never visited the library. [7]

Suresh Jange and Lalitha K. Sami have presented a case study on influence of Internet on library and information centres of National Institutes of Technology in India. The paper attempts to understand and evaluate the use of the Internet as an information source and aims to determine the utilization of Internet in library activities and services, search methods employed, problems encountered and

associated factors. It has been observed from all the libraries perceive Internet as a communication tool (100 per cent) and see it as a supplement to the online library (100 per cent). [21]

Bulu Maharana and K. C. Panda have conducted a systematic and careful case study of the Libraries of IIMs and IITs in India on virtual reference service in these academic libraries. The survey investigates into the state of virtual reference service in the libraries of these premier educational institutions. The investigators have found it worth mentioning the important findings obtained from analysis and interpretation of data. Reference Service through e-mails is being provided by only 7 (53.9 per cent) libraries in different forms. `Video Conferencing' as a real-time reference service being facilitate in 6 (46.1 per cent) libraries. The study reveals that all the libraries provide links to their collection of e-journals, e-data bases and OPAC. [31]

Rajeev Kumar and Amritpal Kaur have conducted a case study on Internet and its use in the engineering colleges of Punjab. The study demonstrates and elaborates the various aspects of Internet use such as, frequency, purposes, Internet services, ways to browse the information from the Internet, problems faced by the users and satisfaction level of users with the Internet facilities provided in the colleges. Major findings of the survey are: A majority of the respondents i.e. 69.4 per cent use the Internet mainly for educational purposes and comparatively less number of respondents i.e. 34.7 per cent use the Internet for entertainment purposes. Use the Internet for consulting technical reports (54.3 per cent), for reading e-books on the Internet (42.3 per cent) and for consulting e-journals (38.5 per cent).[43]

P. G. Tadasad, B. S. Maheswarappa and Seema A. Allur have conducted a study on use of Internet by undergraduate students of P. D. A. College of Engineering, Gulbarga.

The present study surveys and reports the use of Internet by 193 undergraduate students of engineering. Observes that, the Internet use is confined to general or recreational purposes and its potential in supporting curricular requirements has not been realized by the students. The use of Internet at college is being made by very few students and this needs to be increased. [55]

Harish Chandra has presented a paper on resource sharing and networking of engineering college libraries. The paper discusses various factors motivating engineering colleges for implementing resource sharing, important objectives and areas of resource sharing. It further highlights important success stories, impact and the role of engineering college libraries. Various considerations for networking for engineering college libraries and major potential problems for resource sharing are also discuses. The investigator has found that resource sharing is a great boon which needs to be implemented progressively and professionally in engineering colleges in India. [11]

V.K.J. Jeevan makes a useful study on Kharagpur Electronic Library on the Internet (KELNET). The IIT at Kharagpur has begun developing an information facility called KELNET (Kharagpur Electronic Library on the Internet) as a means of coping with the spiraling cost of information resources and the increased demands being placed on library services. It describes the development of KELNET to date and looks at prospects for its continuation. The science and technology information products and services are getting expensive, and the budget available for libraries to procure the ever-growing heap of information is decreasing every year. On the other hand, a lot of information is available on the Internet for free. [19]

2.2.5 Studies on Impact of Information Technology on Libraries and Users

IT has brought in sweeping changes in the traditional way libraries are functioning. Impact of IT is visible in every aspect of library like information sources, users, and library housekeeping services. Human resources is another aspect which is influenced by the developments in IT and its application in libraries.

Susan Mathew K. conducted a study on impact of information communication technology (ICT) on professional development and educational needs of library professionals in the universities of Kerala and concluded that most of the library professionals have an optimistic approach towards the application of ICT based services in libraries. Majority of the professionals irrespective of their age, experience or qualifications have suggested the need for more IT oriented topics in the curriculum. To develop competitive personnel in a technologically advanced world, the university administrators and library associations must provide opportunities to develop skills in ICT applications, library management and soft skills. Library science schools and teaching departments across the country have to take significant steps to revise library science curriculum, and incorporate significant changes to achieve the demands and challenges of library science profession. [(32)]

Baljinder Kaur's research is on use and impact of electronic resources in engineering and technological institutions in India. The study was carried out in four prestigious institutions of India: IIT, Delhi, IIT, Roorkee, TU, Patiala, and PEC, Chandigarh to study electronic resources and services provided to users of these libraries. It has been found that 66.30 per cent users from IIT, Delhi and 73.52 per cent are from IIT, Roorkee are aware of free e-journals on the internet as compared to TU, Patiala (8.66 per cent) and PEC, Chandigarh (24.68 per cent). Among the users, majority of faculty (77.87 per cent) and 91.11 per cent postgraduates are aware about INDEST & UGC- INFONET. A

majority of research scholars (98.95 per cent), faculty (95.38 per cent), postgraduates (73.24 per cent) use the INDEST consortium more as compared to undergraduates (20 per cent). CD-ROM services are occasionally used by 42.38 per cent users of all institutes. It has been found that Internet/website are used maximum for e-mail for finding relevant information as compared to career development and research work. Internet and online catalogues are used more as compared to current and back volumes of e-journals. [(24)]

Baljinder Kaur and Rama Verma make a useful study on use and impact of electronic journals in the Indian Institute of Technology, Delhi. The paper is focused to know who these electronic information services users are, how often they use the services and the place where the information is accessed. Also, the users are asked to give their preferences between an electronic and print journal format. It has been found that usage of e-journals is increasing; this is due to awareness among the users about the library e-resources and services. Owing to an easy access available at various places in the institute, users are accessing these resources at hostels and departments more as compared to the library. The users coming to library have decreased. [(25)]

A. Lakshmana Moorthy surveys in his research work discuss the impact of electronic media on library and information centers with special reference to India. The study reveals that the extent of use of electronic media is improving with the impact of digital libraries, online journals etc. in the library system. One of the major concerns is the training and computer literacy of library staff and users. He points out the need to restructure the curriculum of library and information science courses in India by including various aspects of ICT applications. [(29)]

2.3 Conclusion

The chapter discusses the reviews of literature appeared in Ph. D. theses, books, journal articles and other research studies on the various aspects of library automation, application of ICT (open source software, bar code technology, RFID, smart cards, library 2.0, and Management Information System in libraries), E- resources (online catalog, CD-ROMs, online journals, library consortium, databases), Internet use and resource sharing through networking, impact of IT on libraries and users and, status and new aspects of technical libraries in India with special reference to engineering libraries.

The review of literature gives an insight into the research carried out in the related fields of study. It has helped us to know the tools and methods relevant to the study. Most of the studies are focused on using IT for the different purposes and specific work situations. The academic library users are becoming more and more familiar with these tools. Now they are using them regularly. How much these resources are used, and what is the impact of this electronic era on the users and libraries is examined. The main aim is to investigate the status of information technology, which is available in Burdwan University Central Library, and to know the impact on users and on library environment.

Chapter – 3

Objectives, Scope and Sample Size

3.1 Objectives of the Study

This study investigates the **"Status and Impact of Information Technology on Burdwan University Central Library (West Bengal)"** for partial fulfilment of my project for MLIS course from IGNOU. It also assesses the quality of IT services, IT resources and facilities as perceived by users. The investigator finds out what actually is the present situation of Burdwan University Central Library (West Bengal). In addition, it would be necessary to study whether Burdwan University Central Library (West Bengal) have gone for library automation. Another goal of this study would be to increase understanding of the networked and Internet based environment in which students and teachers study and teach. The findings of the present study may attract the attention of the management of the Burdwan University Central Library (West Bengal). The purpose of the study is to have practical value. This simplified object can be explained as follows:

i. To understand the status of information technology (IT) based resources, facilities and services provided by Burdwan University Central Library (West Bengal).

ii. To analyze the various problems being faced by the authorities and the staff during the process of automation of library and suggest ways these problems.

iii. To know the impact of IT on library functions as perceived by library professionals and users.

iv. To ascertain the adequacy/ inadequacy of human resources qualitatively and quantitatively as per guidelines of AICTE or UGC.

v. To find out the hindrances being faced by the users and study the level of satisfaction of users pertaining to the use of IT based services.

3.2 Scope of the Study

The following explains the scope of this study:

This study has been carried out to evaluate the existing IT in Burdwan University Central Library (West Bengal) and also to, assess the use of latest IT, to improve the effectiveness and efficiencies of these libraries with limited resources but facing unlimited challenges. It assists in analyzing current status of the libraries and impact of IT on their services. The results of the above research study should guide other university to assess the staffing & training needs, budget implications, policies and procedures, and building/equipment up-gradations and implement IT in the libraries.

It facilitates the government authorities for formulating appropriate policies. Though the intended beneficiaries of this study are LIS professionals in university libraries yet the ultimate beneficiaries are University libraries of West Bengal state as well as India.

3.3 Hypothesis

The study proposes to test the following research hypotheses:

1. There will be availability of different types of IT applications in Burdwan University Central Library (West Bengal).
2. There is significant relationship between use of information resources and the status of users (i.e. Faculty, Masters Students, M. Phil., Ph. D. Scholars and Research Associates)
3. There will be different impacts of e-resources on the users and staff as compared to the traditional resources in Burdwan University Central Library (West Bengal).

4. Non-familiarity with IT is not the biggest problem of users.

5. The librarians of the Burdwan University Central Library (West Bengal) have been appointed as per the norms laid down by the national body i.e. UGC.

3.4 Sample Size

Total sample size is 100 consisting students', scholars and teachers.

Chapter – 4

Research Methodology

To achieve the objectives of the present study, data collection methods included survey method using questionnaire cum interview, observation and discussion with subject experts. Questionnaire represents the most common methods of data collection in social sciences research. A comprehensive literature survey about the research topic is carried out on the topic of research and other related fields.

Research Sample: The universe of the present study is the Burdwan University Central Library (West Bengal). Information about Burdwan University Central Library (West Bengal) was collected by questionnaire cum face to face interview method. The sample size will be 100.

Research Population: The research population of the present study includes the University Librarian, Asstt. Librarian, Information Scientist, staff and users (the faculties, scholars and students) of Burdwan University Central Library (West Bengal).

Data Collection Tools: The questionnaire method is adopted for collection of data for this study, supplemented by interviews of University Librarian, Asstt. Librarian, Information Scientist, staff and users (the faculties, scholars and students) and observation to gather additional information.

Preparation of Questionnaire: A draft questionnaire is designed. The items in the questionnaires were arranged according to the objectives and hypothesis of the study. Two sets of structured questionnaires are prepared. One set of questionnaire is for the

Burdwan University Central Library (West Bengal) University Librarian, Asstt. Librarian, Information Scientist, staff and one set of questionnaire is for the library users (the faculties, scholars and students) of the Burdwan University Central Library (West Bengal).

Pre-testing of Questionnaire and Observation of Libraries: The questionnaire are pretested using a small population of library professionals from Burdwan University Central Library (West Bengal) to find out the limitations in the design of questionnaire and to improve it in order to achieve the objectives formulated.

Data Analysis Techniques: Data collected from the respondents through questionnaire, interviews and survey are evaluated and analyzed to find the results. The data are processed using MS-Word of MS Office software package. The data is interpreted and presented using tables. The objectives and hypotheses of the present study demand the use of the following Percentage analysis:

Percentage Analysis: The details of Burdwan University Central Library (West Bengal) to study the collection, membership, budget, infrastructure, IT skilled staff, e-resources and services are analyzed using simple percentage analysis.

Due to word restriction/limitation bar chart, pie chart, chi-square analysis etc. could not include in the project.

Chapter – 5

Limitations

Burdwan University Central Library (West Bengal) is currently facing challenging situations which have been developed gradually when information technology was applied in libraries. University library management in West Bengal need to review their policies. Instead of heavily depending on traditional information resources, they should set apart adequate IT based resources for collecting digital information. Universities libraries should give top priority to quality education, staff training, and user education with regard to IT based resources and services. The study will be fruitful and successful if the recommendations and suggestions should be considered favourably by concerned authorities and implemented for the benefit of University libraries.

Chapter – 6

Data Analysis and Findings

Based on the data available from 100 respondents (users) of Central Library through Questionnaire cum Interview method data analysis and findings are given below:

Table 1: Type of Members

Sl. No.	Type	No. of Users
1	Faculty members	20 (20%)
2	Scholars	40 (40%)
3	Students	40 (40%)

Table 1 shows that out of 100 respondents Faculty members are 20 (20%), Scholars are 40 (40%) and students are 40 (40%).

Table 2: Gender

Sl. No.	Type	M	F
1	Faculty members	15 (15%)	05 (5%)
2	Scholars	20 (20%)	20 (20%)
3	Students	15 (15%)	25 (25%)

Table 2 depicts that out of 20 Faculty members Male respondents are 15 (15%) and Female are 5 (5%); Male Scholars are 20 (20%) and female scholars are 20 (20%); and Male students are 15 (15%) and Female students are 25 (25%).

Table 3: Obtainment of Books

Sl. No.	Source	Rank	Respondents
1	From University Library	1	95 (95%)
2	Through Friends/ Colleagues	2	2 (2%)
3	Through Self purchase	3	1 (1%)
4	Visiting Other Libraries	3	1 (1%)
5	Through Internet	3	1 (1%)

Table 3 shows that 95 (95%) respondents answered that they obtain their books from University Library (i.e., Central Library and Departmental Libraries)

followed by 2 (2%) respondents Through Friends/Colleagues and 1 (1%) respondent each from Through Self purchase; Visiting Other Libraries and Through Internet.

Table 4: Year of Central Library Use

Sl. No.	Type	No. of Year	No. of Respondents
1	Students	1	20 (20%)
2	Students	2	20 (20%)
3	Scholars	1	20 (20%)
4	Scholars	2	10 (10%)
5	Scholars	3	05 (5%)
6	Scholars	4	05 (5%)
7	Faculty Members	1	05 (5%)
8	Faculty Members	5	05 (5%)
9	Faculty Members	10	05 (5%)
10	Faculty Members	15	05 (5%)

Table 4 depicts that 20 (20%) Students' respondents using Central Library since 1 year and 20 (20%) students since 2 years; 20 (20%) Scholars using since 1 year followed by 10 (10%) scholars for 2 years, 5 (5%) scholars for 3 years and 5 (5%) scholars for 4 years; 5 (5%) Faculty Members each using since 1 year, 5 years, 10 years and 15 years. As the duration of PG students is 2 years, Scholars 5 years and Faculty members generally upto retirement.

Table 5: Frequency of Central Library Use

Sl. No.	Frequency	Respondents
1	Daily	50 (50%)
2	2-3 days	15 (15%)
3	Once in a week	10 (10%)
4	Once in 15 days	15 (15%)
5	Occasionally	10 (10%)

Table 5 shows that 50 (50%) respondents used Central Library daily followed by 15 (15%) respondents each for 2-3 days and once in 15 days and 10 (10%) respondents for once in a week and occasionally.

Table 6: Time of Central Library Use

Sl. No.	Time of Library Use	Respondents
1	Less than 1 hour	40 (40%)
2	1-2 hour	25 (25%)
3	2-3 hours	10 (10%)
4	3-4 hours	10 (10%)
5	4-5 hours	15 (15%)

Table 6 shows that 40 (40%) respondents used Central Library less than 1 hour followed by 25 (25%) respondents for 1-2 hours, 15 (15%) respondents for 4-5 years and 10 (10%) respondents each for 2-3 hours and 3-4 hours.

Table 7: Sources of information regarding Central Library status update

Sl. No.	Source	Respondents
1	Institution Notice Board/University Calender	85 (85%)
2	Circulars	5 (5%)
3	University Website	5 (5%)
4	Phone	3 (3%)
5	When visiting library	2 (2%)

Table 7 shows that 85 (85%) respondents used Institution Notice Board/University Calender followed by 5 (5%) respondents used Circulars & University Website, 3 (3%) respondents used Phone and 2 (2%) respondents when visiting the library for Central Library status update.

Table 8: Usefulness of E-Resource Training

Yes	No
99 (99%)	1 (1%)

Table 8 depicts that 99% respondents/users opine that e-resource training in Central Library is useful and 1% told that it is useless.

Table 9: Rating of Library Facilities

Sl. No.	Library Facilities	Excellent	Good	Poor
1	Automated CAS/SDI services	95 (95%)	3 (3%)	2 (2%)
2	CDs/DVDs Collection	50 (50%)	25 (25%)	25 (25%)
3	E-books	Nil	Nil	Nil
4	E-Journals/E-Theses	94 (94%)	3 (3%)	3 (3%)

5	E-databases	96 (96%)	2 (2%)	2 (2%)
6	OPAC	98 (98%)	1 (1%)	1 (1%)
7	Printing Services	90 (90%)	5 (5%)	5 (5%)
8	Scanners	93 (93%)	5 (5%)	2 (2%)
9	Speed of Internet	98 (98%)	1 (1%)	1 (1%)
10	Video Conferencing/Video Text	91 (91%)	4 (4%)	5 (5%)
11	Photocopying/Xerox Machine	92 (92%)	5 (5%)	3 (3%)

Table 9 shows that 95% users rated automated CAS/SDI services as excellent whereas 3% rated good and 2% rated poor. 50% rated CDs/DVDs Collection as excellent, 25% rated good and 25% rated poor. As there is no e-books collection so there is rating done. 94% rated that E-Journals/E-Theses facilities are excellent, 3% rated good and 3% rated poor. 96% users rated e-databases facilities as excellent whereas 2% rated good and 2% rated poor. 98% respondents rated OPAC and campus wide OPAC is excellent, 1% rated good and 1% rated poor. 90% users rated that printing services is excellent, 5% rated good and 5% rated poor. 93% respondents rated that scanning facility is excellent, 5% rated good and 2% rated poor. 98% users rated that speed of Internet is excellent, 1% rated good and 1% rated poor. 91% rated that Video Conferencing/Video Text service is excellent, 4% rated good and 5% rated poor. Lastly, 92% respondents rated that photocopying/Xerox machine facility is excellent, 5% rated good and 3% rated poor.

Table 10: Frequency of Use of Information Tools and Resources

Sl. No.	Information Tools and Resources	Frequency			
		Daily	Once in 2-3 days	Once in week	Occasionally
1	CDs/DVDs Collection	5 (5%)	5 (5%)	5 (5%)	85 (85%)
2	E-books (from open source)	50 (50%)	25 (25%)	15 (15%)	10 (10%)
3	E-Journals/E-Theses	55 (55%)	20 (20%)	10 (10%)	15 (15%)
4	E-databases	45 (45%)	15 (15%)	15 (15%)	25 (25%)
5	Internet	80 (80%)	10 (10%)	5 (5%)	5 (5%)
6	Library Catalogue (OPAC)	78 (78%)	12 (12%)	5 (5%)	5 (5%)
7	Printing Services	10 (10%)	12 (12%)	8 (8%)	70 (70%)
8	Scanning	9 (9%)	11 (11%)	3 (3%)	77 (77%)
9	Video Conferencing/Video Text	5 (5%)	20 (20%)	25 (25%)	50 (50%)
10	Photocopying /Xerox facility	85 (85%)	10 (10%)	2 (2%)	3 (3%)

Table 10 depicts that 5% users told that they use CDs/DVDs on daily basis whereas 5% told that once in 2-3 days, 5% once in week and 85% use it occasionally. 50% users opined that they use e-books daily, 25% once in 2-3 days, 15% once in week, 10% occasionally. 55% respondents argued that they use E-Journals daily, 20% use once in 2-3 days, 10% use once in a week and 15% use occasionally. 45% users responded that they use

e-databases daily, 15% once in 2-3 days, 15% once in a week and 25% occasionally. 80% respondents opined that they use Internet daily, 10% once in 2-3 days, 5% once in a week and 5% occasionally. 78% users told that they use OPAC daily, 12% use once in 2-3 days, 5% once in a week and 5% occasionally. 10% respondents opined that they use printing services on daily basis, 12% use once in 2-3 days, 8% use once in a week and 70% occasionally. 9% users told that they use scanning services daily basis, 11% use once in 2-3 days, 3% once in a week and 77% occasionally. 5% respondents responded that they use Video Conferencing/Video Text daily, 20% use once in 2-3 days, 25% use once in a week and 50% use occasionally. 85% users opined that they use photocopying/Xerox services daily, 10% use once in 2-3 days, 2% use once in a week and 3% use occasionally.

Table 11: Purpose of Using IT Infrastructure

Sl. No.	Purpose of Use	Respondents
1	Preparing class lectures	20 (20%)
2	Updating knowledge	33 (33%)
3	Writing Research Papers	10 (10%)
4	Research Work	27 (27%)
5	For Entertainment	5 (5%)
6	For R&D	5 (5%)

Table 11 shows that 20% (i.e., all faculty members) use IT infrastructure for preparing class lectures, 33% for updating of knowledge, 10% writing research papers, 27% for research work, 5% for entertainment and Research and Development both.

Table 12: Satisfaction Level about IT Infrastructure provided by the Library

Sl. No.	Satisfaction Level	Respondents
1	Highly Significant	50 (50%)
2	Significant	25 (25%)
3	Average	23 (23%)
4	Not Satisfied	2 (2%)

Table 12 depicts that 50% respondents highly satisfied with IT infrastructure, 25% significantly satisfied, 23% averagely satisfied and 2% not satisfied with this.

Table 13: Preference of Information Format

Sl. No.	Information Format	Least Preferred	Preferred	Most Preferred
1	Print (Books, Journals)	5 (5%)	5 (5%)	90 (90%)

2	Electronic (Books, Journals)	25 (25%)	25 (25%)	50 (50%)
3	Audio-visual (CD-ROM, DVD etc.)	5 (5%)	20 (20%)	75 (75%)

Table 13 shows that 5% users least preferred Printed Books, journals whereas 5% preferred and 90% most preferred. 25% least preferred electronic books, Journals; 25% preferred those items and 50% most preferred. In case of Audio-Visual (CD-ROM, DVD) items 5% least preferred them, 20% preferred those items and 75% mostly preferred Audio Visual items.

Table 14: Use of E-Journal Packages

Sl. No.	Use Pattern	Respondents
1	Excellent	90 (90%)
2	Very Good	5 (5%)
3	Good	3 (3%)
4	Poor	2 (2%)

Table 14 depicts that 90% respondents use e-journal packages excellently, 5% use pattern is very good, 3% use pattern is good and 2% respondents use it poorly.

Table 15: Limitation in Using E-Journal Packages

Sl. No.	Limitation	Respondents
1	Low speed of Internet	8 (8%)
2	Lack of Knowledge	5 (5%)
3	Lack of Computers/IT Infrastructure	80 (80%)
4	Lack of Assistance from Library	2 (2%)
5	Uncomfortable	5 (5%)

Table 15 shows that 8% responded that slow speed of internet is the limitation to e-journal packages, oth.er limitations as per respondents are lack of knowledge (5%), Lack of Computers/IT Infrastructure (80%), Lack of assistance from Library (2%), Uncomfortable (5%).

Table 16: Time of Internet Access

Sl. No.	Time	Respondents
1	One Hour	50 (50%)

2	Two Hours	10 (10%)
3	Three Hours	7 (7%)
4	Four Hours	3 (3%)
5	More than Four Hours	30 (30%)

Table 16 depicts that 50% users argues that they use Internet for one hour, 10% for two hours, 7% for three hours, 3% for four hours, and 30% for more than four hours.

Table 17: Location of Internet Access

Sl. No.	Location	Respondents
1	E-Resource Centre	90 (90%)
2	Home	2 (2%)
3	Cyber Café	2 (2%)
4	Department	6 (6%)

Table 17 shows that 90% accessed Internet in Central Library E-Resource Centre, 2% in Home, 2% in Cyber Café, and 6% in Department.

Table 18: Use of Search Engine

Sl. No.	Search Engine	Respondents
1	Google	85 (85%)
2	Yahoo	5 (5%)
3	MSN	2 (2%)
4	Alta Vista	2 (2%)
5	Rediff	6 (6%)

Table 18 depicts that 85% use Google search engine for web browsing, 5% use Yahoo, 2% MSN, 2% Alta Vista and 6% Rediff.

Table 19: Impact of IT on Academic Activities

Sl. No.	Impact on IT	Very Good	Good	Poor
1	On Updating Knowledge	90 (90%)	5 (5%)	5 (5%)
2	On Research Work/Lab Work	85 (85%)	10 (10%)	5 (5%)
3	On Writing and Presenting Paper	91 (91%)	4 (4%)	5 (5%)
4	On Teaching Activities	87 (87%)	10 (10%)	3 (3%)

Table 19 shows that that respondents impact of IT is very good (90%), good (5%) and poor (5%) on updating knowledge; on research work/Lab Work impact is very good (85%), good (10%) and poor (5%); on writing and presenting paper impact is very good

(91%), good (4%) and poor (5%); on teaching activities impact is very good (87%), good (10%) and poor (3%).

Table 20: E-Resource Taking Over Print Resources

Yes	No
50 (50%)	50 (50%)

Table 20 depicts that 50% respondents responded that print resources will be taken over/replaced by e-resources and 50% opined that it is not possible to replace print resources because books/journals reading is soothing for eyes.

Table 21: Effect of Information Technology on Library Visit

Sl. No.	Effect	Respondents
1	Below 25%	70 (70%)
2	25%	10 (10%)
3	50%	5 (5%)
4	75%	7 (7%)
5	100%	8 (8%)

Table 21 shows that 70% respondents told that they are effected below 25% by IT towards library visit, 10% respondents effected 25%, 5% effected 50%, 7% effected 75% and 8% effected 100%.

Table 22: Opinion about Library Staff

Sl. No.	Opinions about Library Staff	Excellent	Good	Poor
1	Very Helpful	95 (95%)	4 (4%)	1 (1%)
2	Available at Service Point	92 (92%)	4 (4%)	4 (4%)
3	Have Team Spirit	90 (90%)	5 (5%)	5 (5%)
4	Understanding User Specific Needs and Knowledge	93 (93%)	3 (3%)	4 (4%)

Table 22 depicts that 95% respondents told that helpfulness of library staff are excellent, 4% good, 1% poor. 92% users argued that library staff are available at service point is excellent, 4% responded good and 4% poor. 90% respondents told that library staff team spirit is excellent, 5% told team spirit is good and 5% opined poor. 93% users argues that library staff's understanding user specific needs and knowledge is excellent, 3% good and 4% responded that understanding user specific needs and knowledge is poor.

Table 23: Feeling about Use of e-Resources in Comparison with Print Resources

Sl. No.	Feelings	Excellent	Average	Poor

1	Quick Access to Data/Information	88 (88%)	6 (6%)	6 (6%)
2	Access to More Comprehensive Information	70 (70%)	10 (10%)	20 (20%)
3	Access to More Recent & Accurate Information	90 (90%)	6 (6%)	4 (4%)
4	E-Resources can Supplement the Existing Printing Materials	50 (50%)	30 (30%)	20 (20%)

Table 23 shows that 88% rated excellent regarding quick access to data/information over print resource, 6% rated average and 6% rated poor. 70% rated excellent regarding access to more comprehensive information over print resource, 10% rated average and 20% rated poor. 90% rated excellent regarding access to more recent and accurate information over print resource, 6% rated average and 4% rated poor. 50% rated excellent regarding e-resources can supplement the existing print materials, 30% rated average and 20% rated poor.

Table 24: Frequency of Use of E-Resources

Sl. No.	Frequency	Respondents
1	Daily	15 (15%)
2	One Day Interval	20 (20%)
3	Two Day Interval	25 (25%)
4	Weekly	15 (15%)
5	Fortnightly	10 (10%)
6	Monthly	5 (5%)
7	Bi-Monthly	5 (5%)
8	Quarterly	5 (5%)

Table 24 depicts that 15% respondents use e-resources daily, 20% use one day interval, 25% use two day interval, 15% use weekly, 10% use fortnightly, 5% use monthly, 5% use bi-monthly, and 5% quarterly.

Table 25: Few Areas of Visible Impact of IT in Library

Sl. No.	Areas of Visible Impact
1	OPAC
2	Campus wide OPAC
3	E-Journals Link
4	Thesis Database Link
5	University Notification

	Link for Employment Advt., Seminar, Workshop, Refresher Course/Orientation Program, Tender Notice, Fellowship, Scholarship, PG Depts., Officer, UG & PG Admission details, Online Admission Link etc.
6	Scanning
7	Printing
8	Internet Searching, e-mail, face book etc.

Suggestions:

(i) More availability of Desktop & Laptop Computers;

(ii) More availability of Printers, Scanners;

(iii) More Internet speed for quick downloading and Uploading;

(iv) More full text e-journals required as per demand;

(v) E-books to be subscribed;

(vi) More items to be uploaded in Digital Library repositories;

(vii) More training is needed to equip the users.

Information about Burdwan University Central Library

1. **University Status**: State University
2. **Year of Establishment**: 1960.
3. **Librarian's Name**: Dr. Kanchan Kamila
4. **Educational Qualification**: M.Com, MLIS, Ph.D (LIS), NET (LS & JRF)
5. **Library Budget**:

Sl. No.	Financial Year	Budget
1	2009-2010	65 Lacs
2	2010-2011	65 Lacs

3	2011-2012	65 Lacs
4	2012-2013	1.55 Crore
5	2013-2014	87.70 Lacs

6. **Library Holding (Latest):**

Sl. No.	Items/Documents	Total Holding
1	Books	251809 (Purchased-191754, DSA/DRS – 20093, Gift – 30778, Raj Collection – 10383)
2	Current Print Journals & Magazines	Indian Journals – 212 titles, Foreign – 54 titles, Magazines - 14
3	E-Journals	6502 (INFLIBNET)+3000 (IEEE, J-Gate (JET & JSMS), EBSCO, ASTM, ASCE, McGraw-Hill)
4	E-Books	Nil
5	Electronic Project Reports	50
6	Bound Journals	29753
7	Ph.D. Theses	2283 (3782 including duplicate)
8	E-Theses	111
9	Print Project Reports	500
10	E-databases	09
11	CDs/DVDs for abstract, lectures, databases	1215
12	Audio Cassettes	34
13	Manuscripts	2757

7. **Status of Specific Services:**

Sl. No.	Services	Status of Availability
1	Lending Periodicals	No
2	Ready Reference Services	Yes
3	Inter Library Loan	Yes
4	Current Awareness Service (CAS)	Yes
5	Selective Dissemination of Information (SDI)	Yes
6	Book Exhibitions/Fairs etc.	Yes

INTERNET AND INTRANET INFRASTRUCTURE:

8. LAN connected within the campus with 4 GB speed through NMEICT (NKN) project
9. Internet Service Provider: BSNL.
10. BSNL Leased Line connection (VSAT disconnected due to slow speed 256 KBPS).

11. Internet enabled System: 2 servers, 40 desktop computers, 1 laptop computer, 3 HP Laserjet printers, 2 scanners (HP 8300 & Konica Minolta C-203 Bizhub Scanner). Internet Browser IE 9, Mozilla Firefox 33.0 & Opera Latest.
12. University has website and Central Library linked with the website.
13. Membership of Library Networks: INFLIBNET.
14. Consortia based Services: UGC-Infonet.
15. Wi-Fi enabled connection in the Campus.
16. Availability of Computer System:
    (i) 2 nos. server (1 server for Library database & 1 for Campus wide OPAC)
    (ii) 7 nos. for OPAC
    (iii) 6 nos. for Technical Processing
    (iv) 3 nos. for Administrative Staff
    (v) 2 nos. for scanning, printing (internet searching, e-journal searching, project works also done)
    (vi) 10 nos. dedicated for e-resource access
    (vii) 12 nos. for Thesis, Periodical, Merged Library (6 seminar library), Reference Section, Report cum Study Centre, Membership Counter, Raj Collection, Manuscript, Digital Library & Office.
    (viii) Koha online version used for Library Database Management.
    (ix) Level of Computerization: Presently partial.
    (x) Library Functions Computerized: Acquisition, Cataloguing, OPAC, Stock Verification, CAS, SDI, Campuswide OPAC. Full computerization, web OPAC, MOPAC facility will be available within one month.
    (xi) Barcode Technology introduced.
    (xii) CCTV introduced for theft detection.
    (xiii) UGC, State & University are the funding agencies for library computerization.

17. **BUDGET SPENT ON IT APPLICATION**

Sl. No.	Year	Amount (₹)
1	2009-2010	4,54000.00
2	2010-2011	50000.00
3	2011-2012	50000.00

4	2012-2013	100000.00
5	2013-2014	1066475.00
6	2014-2015	12,03,525.00

18. Budget is not sufficient.

19. Opinion regarding Library Automation:

(i) Automation helped to manage the library with limited manpower;

(ii) Able to provide better services

(iii) Saves time, both for users and staff

(iv) Reduces stationery expenditure and manages the space.

20. Problems faced while using IT:

(i) Inadequate ICT infrastructure

(ii) Insufficient funds

(iii) Lack of speed of Internet

21. Information Technology based Facilities and Services:

Service Provided:

(i) Access to electronic journals

(ii) Access to Internet in the Library

(iii) Access to Library OPAC

(iv) CD/DVD Write service (each computer has CD/DVD writer i.e., total 40; pen drive used in most cases for copying of files)

(v) CD-ROM service

(vi) Content page service

(vii) Electronic Reference Service

(viii) Fax service from 1 no. Fax machine

(ix) Individual alert service (through mail)

(x) Access to e-databases (from UGC-Infonet)

(xi) Photocopying services (2 nos. of Private agencies, Central Library has 1 no. photocopying machine used to serve official need and to serve the users on emergency)

(xii) Printing services (3 nos. HP Laserjet Printer and 1 no. Konica Minolta C-203 Bizhub scanner-copier-printer)

***Overdue information generation, new arrivals (through display rack) and book issue/return presently done manually. Within one month it will be automatically.

22. Online Abstract Service:

    Library subscribes Physical abstract, Chemical abstract, Dissertation abstract and Biological online abstract.

23. **DIGITIZED COLLECTION**:

    Ph.D. Theses – 111

    M.A./M.Com./M.Sc. Dissertation – 50

    All Question Papers & Syllabus

24. Twelve (12) nos. of staff familiar with the steps involved in the process of digitization from data capture to making them available on the web.

25. Submission of electronic thesis is mandatory.

26. Full digitization is the future plan of the Library.

27. Total supporting staff strength – 31

28. Twelve (12) nos. of staff trained to use IT in the Library.

Sl. No.	IT Training	No. of Supporting Staff
1	Handling Hardware	06
2	Handling Library Application Software	06
3	Internet based Services	12

29. **LIBRARY STATISTICS**

    Readers/Visitors per day – 500

    Books issued per day – 300

30. **ORGANIZATIONAL ASSISTANCE/IMPLEMENTATION OF COMPUTERIZATION**

(i) With the introduction of IT in the Library, the image of the Library has improved;

(ii) Very good organizational support towards library (From 2014-15);

(iii) Increased application of IT among Faculty Members, Scholars and Students;

(iv) With the introduction of IT in the Library, the overall library services have improved.

31. **PREPAREDNESS AND FUTURE PLANS**:

(i) Library staff is willing to accept the changes being sought by IT in the Library;

(ii) Library have adequate trained staff (12 nos.) to handle IT based services;

(iii) No need to appoint Computer knowledgeable candidate because Central Library has one administrative staff (i.e., Information scientist) with MCA, Ph.D and one supporting staff with BCA degree. Besides these, our technical staff have working knowledge in computer;

(iv) Information Scientist and supporting staff with BCA degree holder help to upgrade professional/technology skills of library staff;

(v) Burdwan University Central Library automation process will be completed within one month using Koha Library Management Software, Web OPAC and MOPAC also be available. Besides this, Central Library submitted a project worth ₹6.00 Crores to Govt. of W.B. to extend the services to common people. Necessary extension, purchasing of Books, subscription of Journals, E-Journals, E-Books; networking, RFID theft detection will be made from this fund, if available.

32. **SUGGESTIONS :**

More fund is needed for building extension (space is almost saturated), renovation, purchasing of modern furniture, IT infrastructure development, subscription of more e-journals, e-books, online abstracts etc. and digitization project.

Chapter – 7

Conclusion

The status of information technology in Burdwan University Central Library is not very encouraging. This library is under a great pressure to provide improved IT based environment to all. Users are not satisfied with the size and quality of information sources as they have not given satisfactory rating to IT based library resources and services in the library. Users want more IT resources and services. Users need workshop/ orientation program in IT based library resources and services. Training in the use of ICT ultimately lead to a positive attitude toward the tools. The data proves that students are not aware of how to use library consortium and networks. There is no provision of printing facility in the library for the students. Faculty rate fine to library professionals but students say that library professionals help is inadequate. Users are not satisfied with nature of bandwidth and number of computers available in the libraries having Internet connection. All users are not aware of the value of IT use which is highly significant to their academic/research work because maximum users are coming from poor family so they do not acquainted with these equipments and their use.

There is dire need to modernize library operations and services through the use of IT. Further, this library requires trained staff, sufficient fund, proper initiation, planning, management, and expertise to build the system and provide value-added services to users for their information needs. This library applied IT for providing efficient services and resources, but efforts are yet not enough because in the present situation e-resource services (excluding OPAC) has been offered mainly to

teachers, scholars. IT services also offered to Masters' and M.Phil students for their project works but **due to limited infrastructure (small Computer Lab with only 10 nos. of Computers) this library couldn't offer IT services specially Internet service to all users'. As Internet facilities available in every departments so scholars and teachers can access Internet for e-resource searching, e-mail and other works. But with the help of Wi-Fi connection, Central Library has been facilitated more users with Internet services. In 2013-14 & 2014-15, University allocated a tune of ₹21.20 Lakhs for full phased library automation with Koha (including Web OPAC and MOPAC) and to purchase more desktop computers to provide IT services to more students.**

Testing of Hypothesis

In the present study under investigation the following hypotheses were tested:

Hypothesis-1: There will be availability of different types of IT applications in the Central library. Information technology supported equipment such as photocopying machine, printer, scanner, bar-coding machines, fax machine and CDs/DVDs writer are available in the libraries. On-demand services has been offered to users.

This library has broadband and wi-fi Internet connection.

Central Library offering various IT based information services to scholars and teachers viz. access to electronic journals, CD – ROM services, contents page service, electronic reference service, fax service, generating reminders for overdue books, individual alert services, access to e-databases, online abstract services, recent additions list (New Arrivals), users information on the status of issue/ return date etc. and

library homepage represents in the Burdwan University website (About Central Library, List of awarded theses and Web OPAC within the campus).

Thus the findings of the present study establish the first hypothesis.

Hypothesis-2: There will be different hindrances faced by users and library professionals. librarian and users feel that the main barriers to IT applications in the libraries are inadequate IT infrastructure. Librarian opines that the lack of technical skills/ training becomes main hindrance in using technology in day-to-day operations, and Some users face lack knowledge of using e-resources. Library also faces insufficient funds.

Some users feel that low bandwidth of internet causing problem in speedy retrieval of information in libraries.

Library Also lack management support due to shortage of 4 nos. of administrative staff and 26 supporting staff.

Some users do not receive assistance from library staff, and some users are uncomfortable with use of IT resources.

Thus the findings of the present study establish the second hypothesis. Both library users and library professionals have many IT related problems.

Hypothesis-3: There is significant relationship between use of information resources and the status of users (i.e. Faculty members, Scholars and Students).

Different purposes of IT resources used by the faculty, scholars and students. Maximum users use IT based resources for preparing class lectures and use IT resources for R&D work. use e-resources for writing research papers.

The findings of the study exhibit that there are different purposes of IT use among the faculty member, Scholars and students. Thus the fourth hypothesis also supports the findings of the present study under investigation.

Hypothesis-4: There will be different impacts on the users as compared with traditional resources in Burdwan University Central Library.

E-resources have several benefits and different impacts on the users over print/traditional documents. (a) Quick access feel positive and rate excellent for e-resources' quality of quick access) (b) More comprehensive for e-resources' access to more comprehensive) (c) Recent and accurate information and (d) e-resources as supplement to the existing printing materials.

The findings of the study indicate different impacts on the users with use of IT as compared to print resources, therefore the present study supports the fifth hypothesis

Hypothesis-5: Non-familiarity with IT is the not the biggest problem of users.

Users suggest that training (information literacy and orientation) would be useful if provided. They need training for handling these resources.

The finding of the study indicates that users are in need of skills in handling the e-resources. Present study does not support the fourth hypothesis because users with IT competency can access and retrieve useful information in minimum time.

Hypothesis-6: The librarian of the Burdwan University Central Library has been appointed as per the norms laid down by the national body i. e. UGC.

Librarian and Asstt. Librarian are NET qualified and Ph.D. degree holder.

6.7 Future Research

In this information age information technology has become an integral part of all library operations and services. It has profound implications in library management, information resources, functions, services, staff and users. IT offers numerous

opportunities and challenges in a wide range of areas for further research, and investigation to discover new processes, methods, products, and better solutions. The present study has covered Burdwan University Central Library. Based on the results of this study under investigation, the following areas are suggested for future research:

1. Use and Impact of IT in the libraries of the IITs, and NITs in India.
2. Need of revised curriculum regarding IT based services in library and information science education in India.
3. Users' attitude towards accessing web based information resources and services in academic libraries of Rajasthan.
4. A networking model for engineering colleges libraries of Rajasthan to share the resources including IT based resources.

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Apendices

Appendix - I

BURDWAN UNIVERSITY CENTRAL LIBRARY

1 Burdwan University Central Library: At A Glance

1.1 Introduction

The University of Burdwan was established in 1960 and in the same year University Library was established at 'Naachghar' in Mahatab Manjil (Rajbati), Burdwan with the collection of books for Humanities and Mathematics departments. In 1961, books for Physics and Chemistry departments were added in the library. In March 1962, the Library was shifted from 'Mahatab Manjil' to 'Darul Bahar' (presently Institute of Science Education Department) at Golapbag campus. The university was started its Post Graduate departments of History, Bengali, Sanskrit, Economics, English and Philosophy on 1st November 1960 and library started its service at the same time. The library was started its journey with two library staffs. After two months, one Assistant Librarian joined in the library acting as the In-charge of the library. In 1962 and 1964, four professional staffs joined in the library. Presently one University Librarian, one Assistant Librarian, one Information Scientist and thirty three staffs are working in the library. In 1964, the library was shifted from 'Darul Bahar' (presently Institute of Science Education Department) to present Central Library (it was one storied in the beginning) building in the same campus and Seminar Libraries of the Science Departments were shifted to the respective departments. At present, there are eighteen Seminar Libraries in the respective departments and six Seminar Libraries have been serving from the Central Library.

1.2 Present Situation

A three storied building is now used for the Central Library having a total carpet area of 37,351.04 Sqft. **Total number of books in the library up to 25.08.2014 is 251809 (purchased - 191754 nos., DSA/DRS project – 20093 nos., Gift – 30778 nos., Raj Collection – 10383) and those books are already entered into SOUL database. Barcoding of books has been completed. Computerized issue & return and global hosting/Web OPAC, MOPAC of library database (books & journals) will be started within one month using Koha Library Management Software. Necessary installation of Koha and data conversion from SOUL 1.0 to Koha has been completed successfully.** In Ground Floor, Raj Collection Section (Archival Cell), Manuscript Section, INFLIBNET Centre, Reading Room, Office, Book Lending Counter, Membership Counter, Librarian's Chamber and one Assistant Librarian's Room exists. Acquisition Section, Technical Section, Reference Section, Merge Section, Periodical Section and Thesis Section and one Assistant Librarian's Room are situated in the First Floor of the building. In second Floor, Study Centre cum Report Section exists.

Information Technology infrastructure of Central Library is given below:

(i) HP & Dell Desktop Computers - 40 pcs.

(ii) HP Laser Printer - 05 pcs.

(iii) HP Inkjet Printer - 01 pc.

(iv) HP 8300 Scanner - 01 pc.

(v) HP 2400 series scanner - 02 pcs.

(vi) Konica Minolta Bizhub C-203 flatbed heavy duty scanner - 01 pc.

(vii) Koha Library Management Software

(vii) Windows OS (Client machine)

(ix) Ubuntu Linux (Server machine)

(x) HP Server (For Koha LMS & DSpace oriented Digital Library Project)- 02 pcs.

(xi) Broadband (BSNL Leased Line)

(xii) BSNL Wi-Fi

(xiii) BSNL Landline (STD & Intercom)

(xiv) Fax

(xv) Barcode Scanner - 14 pcs.

Information Technology based work and services of Central Library is given below:

(i) Acquisition and Processing work
(ii) OPAC search
(iii) Internet searching
(iv) e-mail
(v) E-Journal search
(vi) E-book search
(vii) E-database search
(viii) CD-ROM/DVD-ROM database search
(ix) CD-ROM/Audio Cassettes for learning course

Sections:

Ground Floor:

(i) Raj Collection Section
(ii) Manuscript Section
(iii) E-Resource Section
(iv) Book Loan Section with OPAC search corner
(v) Reading Section
(vi) Membership Section

First Floor:

(vii) Acquisition Section
(viii) Technical Processing Section
(ix) Reference Section
(x) Periodical Section
(xi) Thesis Section
(xii) Merged Section (merging of six departmental libraries)

all with reading facilities

Second Floor:

(xiii) Report cum study centre (NET/SET, Competitive exam preparation centre)

1.2.1 Raj Collection Section

There are 10383 nos. of books donated by the Burdwan Raj family at the time of its inception. All books are entered into SOUL database and arranged according to Call no.

1.2.2 Manuscript Section

There are total 2757nos. of rare manuscripts of Ramayana, Mahabharata, Bhagbata, Purana, Smriti, Kabya, Byakaran, Tantra, Nabya Nyaya, Nyaya, Jyotish etc. available here. Manuscripts were systematically arranged according to accession number as per the guidelines of National Mission for Manuscripts. Two national level seminars were organized in 2006 and 2008 and also the "Centre for Manuscriptology and Palaeography" was established on 18th March 2008 for preservation, conservation and documentation of those manuscripts and will act as a nodal agency for preservation, conservation and documentation of district's private collections and two courses of study, namely Certificate Course of 6 months and Diploma Course of 6 months are proposed to be run under the centre.

1.2.3 E-Resource Section

This section provides online access over the Internet to scholarly literature in all areas of knowledge through UGC-Infonet Consortium E-journals services, CD-ROM database searching, e-mail and other open source E-Journals. This section has been established after obtaining the financial assistance from the UGC. The following CD-ROMs available in this section.

Compact Disc Purchased

- Microbiology – 15
- Chemistry - 29
- Mathematics - 24
- Agr. Biology & Env. Sc. - 243
- Physical, Chemical & Earth Sc. - 292
- Social & Behavioural Sc. - 248

- Life Science - 247
- LISA - 21
- Econ Lit - 21
- Business Mgmt. Practice - 24
- IBID - 13
- EXIM - 10

Total - 1187

Compact Disk Gift:

Others - 02

(ERI Resource CD, CD with outlook putting News first of BBC)

Biological Abstract - 26

[**Audio Cassettes** in French – 08 + Gift – 09 = 17, German – 17 (all in Foreign Language Dept.)]

1.2.4 Reading Room Section

Users can use the library during 8.00 a.m. to 7.00 p.m. on all working days from Monday to Friday and 10.00 a.m. to 5.30 p.m. on Saturdays for print and non-print reading, internet searching, e-resource downloading purpose. Sunday is closed.

1.2.5 Book Loan Section

The University Library offers book loan to the member from this section from 10.00 a.m. to 5 p.m. from Monday to Saturday against library card.

1.2.6 Membership Section

Through this counter membership is offered to the teachers, scholars, students, officers, non-teaching staff and retired persons of our University, academic staff of affiliated colleges, ex-students of ours and other universities, and other recognized academicians.

1.2.7 Reference Section

Users can read the reference documents available in this section during the library hours. Central library has a rich collection (7063 nos.) of reference books.

1.2.8 Periodical Section

There are 266 titles (Issue 7434 nos.) of purchased journals, 2996 nos. of gifted journals obtained up to 29.08.2012 and 28753 nos. of bound volume of journals available in this section.

1.2.9 Thesis Section

Total 2283 scholars (Arts, Commerce, Law – 1125 & Science, Engineering – 1158) have been awarded Ph.D. degree in B.U. from its inception. Data on theses have been sent to INFLIBNET, Ahmadabad and Association of Indian Universities at a regular interval for Union Thesis database. Including duplicate or triplicate copies there are total 3738 nos. of

Arts, Commerce, Law etc. Subject	No. of Awarded Theses
Bengali	205
Business Administration	54
Commerce	140
Economics	168
English	83
Hindi	50
History	52
Law	52
Lib. & Inf. Sc.	28
Philosophy	65
Physical Education	07
Pol. SC.	74
Sanskrit	139
Sociology	08
Total	**1125**

thesis entered in the SOUL database. Details are given here:

Science & Engineering Subject	No. of Awarded Theses
Biotechnology	02
Botany	218
Chemistry	231
Computer Sc.	08
Engg. & Tech. (Chem.)	02
Engg. & Tech. (Civil)	04
Engg. & Tech. (Elec.)	02
Engg. & Tech. (Mech.)	24
Engg. & Tech. (App. Mech. & Drawing)	01
Engg. & Tech. (Mettalurgical)	05
Env. Sc.	18
Geography	101
Geology	07
Mathematics	104
Medicine (Anatomy)	01
Medicine (Biotech)	14
Medicine (Gynae. & Obs.)	03
Medicine (Ophthalmology)	01
Medicine (Paediatrics)	03
Physics	106
Physiology	01
Sc. Education	02
Statistics	09
Zoology	291
Total	**1158**

1.2.10 Merge Section

There are six numbers of Seminar Libraries exist in Central Library due to space and staff problem in those departments. A good number of **Mass Communication (1207 nos.), Sociology & Pol. Sc. (2884 nos.), MBA (3961 nos.), History (1606 nos.) and Sanskrit (1144 nos.)** departmental books are available here and these books are respectively used by the departmental students.

Central Library Collection:

Sl. No.	Name of the Subject	Total No. of Books in Central Library
1	Bengali	**15070**
2	Business Admn. (HR)	**952**
3	Commerce	**6494**
4	Comp. Sc.	**1600**
5	Economics	**9742**

6	English	**8507**
7	Foreign Language	**1527**
8	Hindi	**4108**
9	History	**9343**
10	Philosophy	**7217**
11	Pol. Sc.	**3799**
12	Reference Section	**7063**
13	Report Section (purchased report-700, Gift report-200, PG Books-1500, NET Books-600)	**3000**
14	Sanskrit	**7056**
15	Sociology	**3333**
16	Tourism Management	**669**

Science Departmental Libraries collection:

Sl. No.	Name of the Science Seminar Library	Total Books Transferred to Seminar Library from Central Library after processing
1	Biotechnology(DST sponsored dept.)	1444
2	Botany	5587
3	Botany DSA Project Books	460
4	Chemistry	5237
5	Chemistry DRS Project Books	704
6	Computer Sc.	2228
7	Education	2087
8	Environmental Science	1001
9	Geography	5436
10	Mathematics	6084
11	Mathematics NBHM Project Books	3674
12	Microbiology	561
13	Physics	7521
14	Physics DSA Project Books	206
15	Statistics	915
16	Statistics DSA Project Books	1013
17	Zoology	3647
18	Zoology DRS Project Books	22

Arts, Commerce & Law Departmental Libraries collection:

Sl. No.	Name of the Arts, Commerce & Law Seminar Library	Total Books Transferred to Seminar Library from Central Library after processing
1	Bengali	2469
2	Commerce	2107
3	Economics	639

4	Philosophy	858
5	English	3143
6	Law	6168

1.2.11 Report cum Study Centre

PG level questions, NET questions up to 2013 and different important reports of Govt., NGO, World Bank and other institutions are kept here for consultation of students, scholars and teachers. There are 700 numbers of purchased reports, Census report upto 2011, 2500 numbers of NET/SET study materials and 200 numbers of gift reports available here, which can be brought to the Study Centre cum Report Section for reading purpose.

1.3 Workshops/Seminars

Burdwan University Central Library (BUCL) was organized a number of National, Regional and Local level workshop and seminars on Manuscript Preservation, Librarians' Day Celebration, Open Source Software, Decision Table, SOUL 1.0 & 2.0.

1.3.1 Manuscript Seminars

Two National Level workshops held in the Central Library were the launching pad for the establishment of a Centre for Manuscriptology and Palaeography (CMP). The BUCL in association with the Calcutta Branch of the National Manuscripts Mission (NMM), Kolkata held the first workshop on "Orientation, Awareness, Preventive Conservation of Manuscripts" on 19-21 August, 2006 at the Central Library premises. The number of participants was 85 including 26 manuscripts holders. National manuscripts Mission, Kolkata provided financial as well as technical support to organize the workshop. The workshop was a great success, and it received wide publicity in the national and local press, and well appreciated by the people having manuscripts.

After the completion of the workshop in 2006, scientific preservation as well as accessioning of manuscripts was undertaken using our available limited facilities. Accession-wise arrangement of manuscripts was started as per the direction of Prof. Ratna Basu, Co-coordinator, CUMCC (Calcutta University Manuscripts Conservation Centre) as it is more scientific than the subject-wise arrangement of manuscripts. Presently BUCL (Burdwan University Central Library) has 2685 nos. of manuscripts (which were mostly donated by the Royal Families, scholars and learned members of Burdwan).

The second workshop held in the same premises was again a collaborative effort of the BUCL and the CUMCC (Kolkata) on 18th March 2008 in which some 90 persons including 45 manuscript holders participated. Like its predecessor it was also a great success.

These two workshops prepared the appropriate intellectual climate for launching the CMP, and the Centre was rightly inaugurated at the conclusion of the second workshop on 18th march 2008 to initiate a project to UGC to start Certificate and Diploma courses in manuscript which creates the avenues for recruitment of the students.

1.3.2 Workshop on Decision Table

A five-day in-house workshop on Decision table was held on 18-22 February 2008 in the Central Library premises to discuss the various problems related to Classification and Cataloguing of documents. Renowned Prof. Bijoy Pada Mukhopadhyay of Jadavpur University Department of Library and Information Science was delivered his lecture as Resource Person.

1.3.3 Librarians' Day Celebration Seminar

Central Library was organized National level seminar to celebrate Librarians' Day on 10th August 2008 with a grand success. The record numbers of library professionals were attended in this seminar.

1.3.4 FOSS Workshop

Three-day National Workshop on Free and Open Source Software was held on 20-22 February 2009 to discuss the origin of Open Source movement, importance of Open Source Software, Koha (Open Source Library Management Software) etc. Thirty library professional from School, College and University libraries were participated in this workshop.

1.3.5 SOUL 2.0 Workshop

Five days Regional Workshop on "Library Automation with SOUL 2.0" was held on 26-31 July 2010 and organized by Central Library with financial assistance from INFLIBNET. There are 45 numbers of College Librarians and 7 numbers of College Principals were attended this workshop.

First **Burdwan University Alumni Meet** organized on 6th December 2009 where Central Library has taken active part.

1.4 User Education Programme

Central Library has been organized user education programme in different academic department every year for the new comers (Teachers, Students', Scholars etc.)

1.5 Digital Library

Central Library is a centre directed towards rendering the knowledge based information service to every reader of any discipline of the academic community.

Burdwan University Central Library has started its Digital Library repositories using DSpace software since 2007.

1.6 Library Users Growth

Central Library users' growth from 2002-03 are as follows:

Total No. of Registers users					
Year	**Students**	**Teachers**	**Researchers**	**Others***	**Total**
2002-03	1706	225	116	631	2678
2003-04	1761	232	137	564	2694
2004-05	1639	241	157	720	2757
2005-06	1750	256	197	599	2802
2006-07	1759	265	245	664	2933
2007-08	1804	292	297	676	3069
2008-09	1834	302	358	695	3189
2009-10	1968	306	375	719	3368
2010-11	1982	310	385	739	3416
2011-12	1989	313	388	746	3436
2012-13	2416	185 (reduced due to retirement)	429	787	3401
2013-14	2500	191	452	798	3446

* Officers, Staff, College teachers of BU affiliated colleges & other universities, pass out students, external students of other universities and external academicians.

1.7 Purchased Books Growth

Purchased books from inception to 2009 with a decade interval and their growths are as follows:

Year	**Books**	**Increase**
1960	962	--
01.01.1970	41482	40520
01.01.1980	90104	48622
01.01.1990	119847	29743
01.01.2000	139004	19157
27.05.2009	171870	32866
10.12.2009	175134	3264
29.08.2012	183464	8330
03.06.2013	187663	4200
18.06.2014	191701	4038
25.08.2014	191754	53

1.8 Project Books Growth

DSA, DST, FIST etc. Projects Purchased books from 1998 to 2009 and their growths are as follows:

Year	Books	Increase
02.11.1998	START	
01.01.2000	2541	2541
27.05.2009	11796	9255
10.12.2009	13226	1430
29.08.2012	17573	4347
03.06.2013	18768	1196
18.06.2014	19590	822
25.08.2014	20093	503

1.9 Gift Books Growth

Gift books from 1964 to 2009 with a decade interval and their growths are as follows:

Year	Books	Increase
07.02.1964	START	
01.01.1970	3570	3570
01.01.1980	8192	4622
01.01.1990	11245	3053
01.01.2000	17315	6070
27.05.2009	25802	8487
10.12.2009	27594	1792
29.08.2012	28747	1153
03.06.2013	28968	222
18.06.2014	30135	1167
25.08.2014	30778	643

1.10 UGC-Infonet E-Journals (will be available in buweb.buruniv.ac.in --- Left menu E-Journals under UGC-Infonet)

Sl. No.	Name of the E-Resource	No. of Journals	URL
1.	American Chemical Society	37	http://www.pub.acs.org
2.	American Institute of Physics	18	http://www.aip.org/
3.	American Physical Society	10	http://publish.aps.org/browse.php

4.	Annual Reviews	33	http://arjournals.annualreviews.org
5.	Cambridge University Press	224	http://journals.cambridge.org/
6.	Economic & Political Weekly	1	http://epw.in/
7.	Emerald (LIS collection)	29	http://www.emeraldinsight.com/
8.	Institute of Physics	46	http://iopscience.iop.org/Journals
9.	ISID (Inst for Stu in Ind. Dev)	Database	http://isid.org.in/
10.	JCCC	Database	http://www.jccc-ugcinfonet.in/
11.	JSTOR	2000+	http://www.jstor.org/
12.	Nature	01	http://www.nature.com/
13.	Oxford University Press	198	http://www.oxfordjournals.org
14.	Project Muse	500+	http://muse.jhu.edu/journals
15.	Royal Society of Chemistry	29+6 Databases	http://www.rsc.org/
16.	Springer Link	1389+	http://www.springerlink.com/
17.	Taylor & Francis	1079	http://tandfonline.tandf.com
18.	Web of Science	1 Database	http://apps.isiknowledge.com/
19.	Wiley Blackwell	908	http://onlinelibrary.wiley.com
Total		6502 E-Journals+9 Databases	

Other subscribed E-Journals packages:

(i) IEEE (ASPP+POP) (ii) J-Gate (JET & JSMS) (iii) ASTM (iv) ASCE (v) McGraw-Hill (Sc. & Engg.) (vi) EBSCO (Business Source Elite) (more than 3000 E-Journals)

1.11 Technical assistance regarding SOUL purchase/installation/problem solving

We extend our technical assistance to different affiliated colleges regarding SOUL purchase/installation/problem solving.

1.12 Co-operation with other College/University Teachers/MLIS/M. Phil/Ph.D/Other Students

Other than our internal users we extend our co-operation to each and every outside users.

1.13 Inter-Library Loan Facility

We extend our Inter Library Loan facility with many universities for Inter-Library Co-operation by which users of both universities have been facilitated.

1.14 Other Facilities Available in the Library

(i) NET/SET previous year question paper, paper – I solution service;
(ii) PG question papers and syllabus service;
(iii) Availability of recent books on NET/SET & other competitive examinations like GRE, IAS, WBCS, School Service Commission and others;
(iv) Availability of current reports i.e, W.B. Govt. reports, National Report, World Bank Report, UNESCO, UNCTAD Report etc. , necessary reference books;
(v) Availability of awarded theses of Burdwan University;
(vi) Availability of Books and Journals as per users' requirement.
(vii) Circulation of books
(viii) Report & Reference Service (including Career Guidance Books consultation)
(ix) Periodicals (Bound & New)/Magazines/Newspapers (including Appointment Gazettes) consultation service
(x) Thesis and Dissertation consultation service
(xi) Digital Library service
(xii) Searching of library books/theses databases service
(xiii) CD-ROM search service
(xiv) Display of New Arrival Books and Periodicals service

Appendix - II

QUESTIONNAIRE
(For Users of the Library)

Status and Impact of Information Technology in

Burdwan University Central Library: A Study

Date :

Dear Sir/Madam,

I am pursuing my MLIS Dissertation work on the above topic from ..... under the guidance of ..... In this connection, please find enclosed a questionnaire. I shall be grateful, if you could spare some time to complete the questionnaire. Your assessment will help me to recommend realistic measures to the authorities for providing facilities which might benefit university libraries in .....

I assure you that data is collected for academic research and strict confidentiality will be maintained. The data will be used for understanding the status and impact of technology in our state and plan future developments.

Thanking you for your kind co-operation.

Sincerely yours

Name of the candidate
University
E-mail Id

1 GENERAL INFORMATION:

1.1 Name of the user

1.2 Name of Institution

1.3 Type of Member (Please tick mark√)

Faculty Member ( ) Research Scholar ( ) PG Student ( )

1.4 Gender (Please tick mark √) Male ( ) Female ( )

2 LIBRARY USE:

2 .1 How do you obtain books and other reading materials for your reading?

(Please **rank (1-5) them** according to your preference **1 - first rank 5- last rank)**

S. No.	Books obtain	Rank	S. No.	Books obtain	Rank
1	From your university Library		4	Through Internet	
2	Through friends/ colleagues		5	Visiting other Libraries	
3	Through self purchase				

2 .2 How long have you been using your University Library? (Year/s) ( )

2.3 How often do you visit your library? (Please tick mark √ the appropriate box)
Daily ( ) Once in 2-3 days ( ) Once in a week ( )
Once in 15 days ( ) Occasionally ( ) Never ( )

2.4 When you go to the library, how much time do you spend there? (Please tick mark√)
Less than 1 hour ( ) 1-2 hour ( ) 2-3 hours ( ) 3-4 hours ( )
4-5 hours ( )

2.5 How do you get the information from the library? (Please tick mark √all that is applicable to you) Institution Notice Board ( ) Circulars ( )
E-mails ( ) Phone ( ) When visiting library ( )

2.6 Have you received any training or library orientation as how to use electronic resources/services ? Please tick mark√ Yes ( ) No ( )

If "**Yes**" do you think that such training is useful (Yes) (No)
If "**No**" do you think that such training would have been useful (Yes) (No)

3 COMPUTER INFRASTRUCTURE AND INFORMATION E-RESOURCES:

3.1 How do you rate the following facilities in your library? Please tick mark √

S. No.	Facilities	Excellent	Good	Poor
1	Automated CAS/SDI services			
2	CDs/ DVDs collection			
3	E-books			
4	E-Journals			
5	E- databases			
6	OPAC (Online public Access Catalogue)			
7	Printing services			
8	Scanners			
9	Speed of Internet			
10	Video conferencing/Video Text			
11	Photocopying/ Xerox Machine			
12	Any others please specify			

3. 2. How frequently do you use the following tools and resources in your library? Please √

S. No.	IT Resources and services	Daily	Once in 2-3 Days	Once a week	Occasionally
1	CDs/DVDs circulation				
2	E-books				
3	E-Journals				
4	E- databases				
5	Internet				
6	Library catalogue (OPAC-Online public Access				
7	Printing services				
8	Scanning service				
9	Video conferencing/Video Text				
10	Photocopying/Xerox Facility				
11	Others (Please specify)				

3.3 What is the purpose of using IT Infrastructure? You can select more than one choice and please tick mark√

S. No.	Purpose	√
1	Preparing class lectures	
2	Updating knowledge	
3	Writing research paper	
4	Research work (Ph. D or Project work)	
5	For entertainment/self improvement	
6	For R&D work	

3.4 How much satisfied you are about the IT infrastructure provide by the library? Please tick mark √

1	Highly Significant	
2	Significant	
3	Average	
4	Not Satisfied	

3.5 Which Information formats are preferred by you? Please tick √

S. No.	Information Format	Least Preferred	Preferred	Most Preferred
1	Print (Books, journals, etc.)			
2	Electronic (e-books, e-journals			
3	Audio-visual (CD-ROM, DVD, etc.)			

3.6 UGC-Infonet, IEEE, ASTM, J-Gate, McGraw Hill, EBSCO subscribe to a number of electronic journals in Arts, Commerce, Law, Science & Engineering. Are you used these resources? Yes ( ) No ( )

If "**yes**", how do you find them: Excellent ( )Very good () Good ( ) Poor ( )

3.7 Limitation/Barriers in using the electronic resources (Please tick mark √)

Low Speed of Internet		Lack of Knowledge		Lack of Computers/ ICT Infrastructure	
Lack of Assistance From Library Staff		Uncomfortable		Any Other Barriers	

4 INTERNET USE:

4.1 How many hours do you access Internet in a day? Please tick mark (√)

One hour	Two hour	Three hour	Four hour	More than four hour

4.2 Please specify the purpose of your accessing Internet. Please tick mark √

Study	Research	Communication

4.3 Where do you avail the facility of Internet? Please tick mark (√)

E-ResourceCentre	Home	Cyber Café	Departme nt	Any other

4.4 Which search engine do you use more frequently? Please tick mark (√)

Google	Yahoo	MSN	Alta Vista	Rediff	Any other

5. IMPACT OF INFORMATION TECHNOLOGY:

5.1 Impact of IT on your academic activities (Please tick mark √)

S. No.	Educational activities	Very Good	Good	Poor
1	On updating knowledge			
2	On research work/Lab work			
3	On writing and presenting paper			
4	On teaching activities			
5	Any other (Please specify)……..			

5.2. Does E-resource take over the print resources in the library? Yes ( ) No ( )

If "**Yes**" please specify_____

If "**No**" please specify_____

5.3. Does Information Technology affect your visit to the library? If "yes" then, up to what percentage? Please tick mark (√) Below 25% ( ) 25% ( ) 50% ( ) 75% ( ) 100% ( )

5.4. Please indicate your opinion about the library staff (Please tick mark (√) each of the following)

S. No.	Opinion about library staff	Excellent	Good	Poor
1	Very Helpful			
2	Available at service points			

3	Have team sprit			
4	Understanding user specific needs and knowledge			
5	Proper awareness in IT			

5.5 How do you feel about the use of e-resources when compared to the print resources? Please tick mark √

S. No.	Impression	Excellent	Average	Poor
1	Quick access to data/information			
2	Access to more comprehensive information			
3	Access to more recent & accurate information			
4	E-resources can supplement the existing printing materials			
5	Any other (please specify)……			

5.6 Mention the frequency of use of e-resources:
(i) Daily (ii) one day interval (iii) two days interval (iv) weekly (v) Fortnightly (vi) Monthly (vii) Bi-monthly (viii) Quarterly (ix) None of the above

5.7 Please mention a few areas (resources/services) where you find visible impact of information technology (IT) in your library

---

5.8 Your suggestions for improving library services (IT services) in university libraries.

I deeply express my sincere thanks to you for sparing your time and providing me valuable inputs for this study. Thanks for your co-operation.

(Note: *If space provided is not enough, kindly take extra sheet*)

Name of the candidate (Investigator)

Appendix - III

QUESTIONNAIRE
(To the Librarians)

Status and Impact of Information Technology in Burdwan University Central Library: A Study

Date :

Dear Sir/Madam,

I am pursuing my MLIS Dissertation work on the above topic from …… under the guidance of …….. In this connection, please find enclosed a questionnaire. I shall be grateful, if you could spare some time to complete the questionnaire. Your assessment will help me to recommend realistic measures to the authorities for providing facilities which might benefit university libraries in Assam.

I assure you that data is collected for academic research and strict confidentiality will be maintained. The data will be used for understanding the status and impact of technology in our state and plan future developments.

Thanking you for your kind co-operation.

Sincerely yours

Name of the Candidate

University

E-mail Id

QUESTIONNAIRE FOR LIBRARIES

Status and Impact of Information Technology on Burdwan University Central Library: A Study

Supervisor: By:

Name & Affiliation, E-mail Id Name & Affiliation, E-mail Id

1 GENERAL INFORMATION:

1.1 Name of the Institution: ----------

1.2 Status : ----------

Central Govt. ( ) State Govt. ( ) Deemed ( ) Private ( )

1.3 Year of Establishment of the Institution ----------

Address: ----------

------- Telephone:---------- Web Site: ----------

1.4 Librarian's Name: ----------

------- Educational & Professional Qualifications: ----------

---------- Mobile No. ---------- E-Mail: ----------

1.6 Library Budget :

Year	Amount (Rs.)	Year	Amount (Rs.)
2009-2010		2012-2013	
2010-2011		2013-2014	
2011-2012			

1.7. Library Holdings as on March 31, 2014:

S. No	Holdings	No	S. No.	Holdings	No
1.	Books :		6.	Bound Journals:	
2.	Current Print Journals and Magazines Subscribed (i)Indian : (ii) Foreign:		7.	Ph. D. Theses :	
			8.	Print Project Reports	
			9.	E-Databases :	
3.	E-Journals :		10	CDs/ DVDs:	
4.	E-Books :		11	Others (Specify)	
5	Students Project Report in Electronic				

1.8. Registered Library Users (Current Session):

1.8.1. PG Students: …… 1.8.2. Research Scholars: .....

1.8.3. Faculty: …… 1.8.4. Admin. Staff: .....

1.8.5. Supporting Staff:.....1.8.6. Others :.....

1.9. Does the Library Provide the Following Services? Please tick mark (√)

S. No	Services	√	S. No.	Services	√
1	Lending Periodicals		4.	Current Awareness Services	
2	Ready References Services		5.	Selective Dissemination of Information (SDI) Service	
3	Inter Library Loan		6.	Book Exhibitions/ Fairs etc.	

2 INTRANET AND INTERNET INFRASTRUCTURE: Please tick mark (√)

2. 1 Does Your Campus LAN / Library Network Compatible/ Connected to the Internet (√)

Yes [ ] **No** [ ]

2.2 If Your Campus Network / Library Network Connected to INTERNET, Please Specify Your Internet Service Provider (ISP) (please √)

2.5.1 ERNET [ ] 2.5.2. VSNL [ ] 2.5.3. NICNET [ ] 2.5.4. BSNL

2.5.5. Any other Private ISP (please specify) [ ] _____

2.3 Type of Internet Connection (please √)

2.6.1. Dial-up [ ] 2.6.2. Leased Line [ ] 2.6.3. V-SAT [ ]

2.6.4. Radio link [ ] 2.6.5. Cable Network [ ] 2.6.6. Any Other [ ]

2.4 Number of Internet-enabled Systems in the Library: ..... Version :.....

2.5 Does your Institute have a Website? Please (√)

If "yes", is your Library homepage represented on the University Website **Yes [ ] No [ ]**

2.6 Is Your Library a Member of the Following Library Networks? Yes [ ] **No** [ ] If "yes" (please √)

1. INFLIBNET ( ) 2. DELNET ( ) 3. Any other (please specify).....

2.7 Whether Your Library Provided Consortia Based Services (Please √) Yes [ ] No [ ]

If "yes" (please √)

1. INDEST-AICTE Consortium ( ) 2. UGC-INFONET ( ) 3. Any other ( )

2.8 Does Your Institution Including Library Use Wi - Fi Technology?Yes [ ]No [ ]

3 LIBRARY AUTOMATION:

3.1. How Many Systems are Available in Your Library? Please Indicate

Total no. of Systems Within Library

Premises:..... (i) Use for

server.....(ii) For OPAC.....(iii) For Library staff.....(iv) For Library users.....

3.2 Is Your Library Using Integrated Library Management Software for Computerization?

Yes [ ] No [ ]

If "Yes", Which of the Following Library Software is Being Used? (Please√)

S. No.	Software	√	S. No.	Software	√
1	CDS/ISIS (WINISIS)		6	NIRMALS	
2	LibSys		7	SANJAY	
3	SOUL		8	ALICE FOR WINDOWS	
4	LIBMAN		9	e-Granthalaya (NIC)	
5	LIBRIS		10	Any other (Please specify).....	

If "No", What Steps are You Taking to Get the Integrated Library Management Software (Please √):

In-house Development [ ]

Purchase from a Commercial Software Vendor [ ]

Any Other (Please specify) ----------

3.3 Whether the Library Software is an Online Version? (Please √)] No [ ]

3.4 Level of Library Computerization (Please tick √)

3.5.1 Fully computerized [ ] 3.5.2 Partially computerized [ ]

3.5.3 Planning of computerization [ ]

3.5 Which of the Following Library Functions are Computerized? (If yes, pleas tick)

3.6.1 Acquisition [ ] 3.6.2 Cataloguing [ ] 3.6.3 Circulation [ ] 3.6.4 Serials [ ]

3.6.5 OPAC [ ] 3.7.6 Stock Verification [ ] 3.6.7 CAS [ ] 3.6.8 SDI [ ] 3.6.9 Others, please specify----------

3.6 Whether Your Library has Introduced Barcode Technology? (Please √) Yes [ ] No [ ]

If "yes" number of bar-code reader in your library .....

3.7 Do You Use any Technology for Theft Detection, etc. Like: (Please √)

(i) CCTV ( ) (ii) RFID Technology ( ) (iii) Any other (Please specify).....

3.8 Did You Receive Financial Support From the Following Funding Agencies for Library Computerizations? Yes [ ] No [ ] If "Yes", mention the amount received:

S. No.	Agency	Amount	S. No.	Agency	Amount
1	AICTE		5	DST	
2	INFLIBNET		6	CSIR	
3	MHRD		7	ICSSR	
4	UGC		8	Any other (Please specify)……	

3.9 Budget Spent on IT Applications (Hardware, Software, E-Resources etc.)

Year	Amount spent on IT	Year	Amount spent on IT
2013-2014		2010-2011	
2012-2013		2009-2010	
2011-2012			

3.10 Do You Feel that the Budget Allotted for IT Applications in the Library was Sufficient? (Please √) Yes [ ] No [ ]

If "**No**", please specify briefly the alternative sources being explored to meet your requirements and

your plans for implementation (Please use separate sheet, if required).

_____

_____

3.11 In Your Opinion has the Library Automation Brings any Savings in the Library?

(Please √) Yes [ ] No [ ] „If" „Yes" can select more than one choice

3.11.1. Automation helped to manage the library with limited manpower [ ]

3.11.2 Able to provide better services [ ]

3.11.3 Saves time, both of users and staff [ ]

3.11.4 Any other savings (please specify briefly) [ ]

3.12 What Problems do You Face While Using Information Technology? (Please √)

(Please tick and you can select more than one choice)

1. Inadequate ICT infrastructure [ ]
2. Inadequately IT skilled library professionals [ ]
3. Insufficient funds [ ]
4. Lack of speed of Internet [ ]
5. Lack of management support [ ]
6. Others please specify----------

4 INFORMATION TECHNOLOGY BASED FACILITIES and SERVICES:

4.1 Do You Provide the Following Services Using the State of-the-art Information Technology Tools? (Please √)

S. No.	Service	Yes	No
1	Access to electronic journals		
2	Access to Internet in the library		
3	Access to library OPAC		
4	CD/DVD write service and number of CD/Writers		
5	CD – ROM service		
6	Contents page service		
7	Electronic Reference Service		
8	Fax machine and number of machine ( )		
9	Generate reminders for overdue books		
10	Individual alert services		
11	Access to E-Databases		
12	Photocopying Service and Number of Machine ( )		
13	Printing services and Number of Printers ( )		
14	Recent additions list (New Arrivals)		
15	Scanning service and number of Scanners		
16	Users information on the status of issue/return		
17	Any other services (Please specify)		

4.2 Does Your Library Subscribe to the Following Online Abstracting Services? (please √)

S. No.	Abstracting Services	√	S. No.	Abstracting Services	√
1	Physical Abstract		4	Biological Abstract	
2	Chemical Abstract		5	Any other please specify	
3	Dissertation Abstract				

5. LIBRARY DIGITIZATION PROGRAMME:

5.1 Size of Collection Available for Digitization (Where the Copyright is Held by You and the Collection is Used Extensively; Please Indicate in Terms of Numbers)

S. No.	Collection	Numbers
1	Ph.D. Theses	
2	M. Tech / M.Sc. Dissertations	
3	Bachelor Degree Project Reports	
4	Technical Reports	
5	Journals	
6	Books	
7	Other Collections proposed for Digitization…….	

5.2 Is Your Staff Familiar with the Steps Involved in the Process of Digitization from Data Capture to Making them Available on the Web? (Please √)

Yes [ ] No [ ]

5.3 Is It Mandatory for Students to Submit Electronic Form of their Thesis/Dissertation to the Library? (Please √) Yes [ ] No [ ]

5.4 What is Your Plan about Digitization of Your Library? (Please √)

5.5.1 Fully [ ] 5.5.2 Partially [ ] 5.5.3 In the process of digitization [ ]

5.5.4. Not known at this point of time [ ]

6 HUMAN RESOURCE DEVELOPMENT:

6.1 Total No. of Library Staff: ----------

6.2 Do You Have Manpower Trained in the Use of IT in the Library

(Please √) Yes [ ] No [ ]

If " Yes" please indicate number of persons trained in your library against each category.

S. No.	Type of category	No. of Person
1	Handling Hardware	
2	Handling Library Application Software	
3	Internet based services	

7 LIBRARY STATISTICS :

7.1. Readers / Visitors Per Day: ……

7.2. Books Issued Per Day ……

8 ORGANIZATIONAL ASSISTANCE / IMPLEMENTATION OF COMPUTERIZATION:

8.1 With the Introduction of IT in the Library, the Image of the Library Has (Please √):
Improved [ ] No change [ ] Worsened [ ]

8.2 How is the Organizational Support towards Library? (Please √)
Very good [ ] Good [ ] Average [ ] Not to the extent [ ]

8.3 Do You Find Your Faculty, Scholars and Students in Favour of Increased Application of IT in Library? (Please √) Yes [ ] **No** [ ]

8.4 With the Introduction of Information Technology in the Library, the Overall Library Services Have (Please √):

Improved [ ] Not Improved [ ]

9 PREPAREDNESS AND FUTURE PLANS:

With the Introduction of Information Technology, Please Indicate the Following in Your Case (Please √)

9.1 Is Library Staff Willing to Accept the Changes Being Brought by IT in the Library?
Yes [ ] No [ ] Not to the extent [ ]

9.2 Does Your Library Have Adequate Trained Staff to Handle IT Based Services? (Please √)
Yes [ ] No [ ] Not to the extent [ ]

9.3 Do You Feel Your Library Needs a Person With Basic Qualification in Computer Science? (Please √) Yes [ ] **No** [ ]

If "No" Do You Feel that a Librarian with Professional Degree in Library and Information Science can Handle IT Based Services in the Library Better? (Please √) Yes [ ] **No** [ ]

9.4 Do You Have the Provision for Up Gradation of Professional/Technology Skills of Library Staff? (Please √) Yes [ ] **No** [ ]

If "**Yes**" (Please specify briefly)……

9.5 Does Your Institute have Action Plan for Overall Modernization of Library Services in Coming Years? (Please √) Yes [ ] **No** [ ]

If "**Yes**" (Please specify briefly)

……

……

……

10. Your Suggestions (if any) ----------

Note: Please use additional sheets wherever required. Thanks for your kind co-operation. The information provided by you will be strictly used for my research only.

Name of the Candidate