

LIBRARY AND INFORMATION SCIENCE

SEMESTER – III

Paper Code	Title of the Paper	Max. Marks	Internal Assessment	Total Marks	Credits	Teaching Hrs.
	Hard core					
HC 3.1	Research Methods and Statistical Techniques	75	25	100	4	4 Hrs/week
HC 3.2	Information Sources	75	25	100	4	4 Hrs/week
HC 3.3	Digital Libraries	75	25	100	4	4 Hrs/week
HC3.4	Digital Libraries (Practical)	75	25	100	4	6Hrs/week
	Soft core (Any One)					
SC 3.1	Informatics, Scientometrics and Web metrics	75	25	100	4	8Hrs/week
SC 3.2	Networks, Networking and Library Consortia	75	25	100	4	4 Hrs/week
	Open Elective Paper					
OE 3.1	Information Literacy: Essential Skills for the Information age					
	Total Credits for Third semester				24	

THIRD SEMESTER:

HARD CORE:

HC 3.1 RESEARCH METHODS AND STATISTICAL TECHNIQUES

(Hours of Teaching: L:T:P = 3:1:0)

(Lectures = 3 X 16 = 48 hrs)

(Tutorials = 1 X 16 = 16 x 2 = 32 hrs)

Objectives:

- 1.To familiarize students with concepts and types of research;
- 2.To study research design;
- 3.To know the research techniques and tools;

Course Outcome (CO):
CO1 Familiar with theory and practice of research and its methodology;
CO2 Familiar with identifying research problems and doing subject literature research;
CO3 Aware of developing research design, sample size and research instrument for data collection;
CO4 Understanding the mode of data collection and data analysis;
CO5 Knowledge use of statistical tools and techniques for data analysis and interpretation of research findings;
CO6 Aware of methods of presenting and reporting research findings.

Unit 1 :Foundations of Research:

Concept, meaning, need and steps in research;

Types of research – fundamental or pure and applied research - inter disciplinary and multidisciplinary approach; Areas of research in LIS.

Unit 2 : Research Design:

Conceptualization and operationalisation;

Types of research design;

Identification and formulation of the problem;

Hypotheses; nominal and operational definition;

Designing a research proposal;

Literature search

Ethical aspects of research.

Unit 3 : Research Methods:

Scientific method; historical method; descriptive method; survey method and case study method; experimental method, delphi method, user studies.

Research Techniques and Tools:

Questionnaire; schedule; interview; observation;

Scales and checklists;

Library record and reports; Sampling techniques.

Unit 4 : Data Analysis and Interpretation:

Variables and its types;

Descriptive statistics – measure of central tendency;

Co-relation, mean, mode, median, tabulation, and generalization;

Measures of dispersion, variance, and covariance, standard deviation;

Inferential Statistics – Chi-Square T-test, ANOVA, Z-test; Graphical presentation of data – bar, pie, line-graphs, histograms; Statistical packages – SPSS and its variations.

Unit 5 : Research Reporting:

Structure and components, style, contents;

Guidelines of research reports;

Style manual: Chicago, MLA, and APA,

Criteria for evaluation of research report.

References:

Bhandarkar. P.L, & Wilkinson. T. S. (1992). *Methodology & techniques of social research* Ed.9.Bombay: Himalaya.

Busha, C H & Harter, SP. (1980). *Research methods in librarianship: Techniques and interpretation.*New York: Academic.

Charles, H. et.al. (1993). *Research methods in librarianship: Techniques and interpretations.* NewDelhi: Sage.

Fowler, F.J. (1993). *Survey research methods.* New Delhi: Sage.

Goode, W.J. &Hatt, P.K. (1980). *Methods in social science research.* New Delhi: McGraw Hill.

Gopal, M.H. (1990). *An introduction to research procedure in social sciences.* Bombay: Asia, Kothari. C.R. (1990). *Research methodology.* New Delhi: Wishwaprakashan.

Krishna Kumar (1992). *Research methods in library in social science.* New Delhi: Vikas.

Krishna, S. O. R. (1993). *Methodology of research in social sciences.* Bombay: Himalaya.

Krishnaswami, O.R.(1993). *Methodology of research in social sciences.* Bombay: Himalaya.

Leddy, P. D. (1980). *Practical research: Planning design.* London: Clive-Bingley.

Mohsin , S.M. (1984). *Research methods in behavioural science.* Kolkatta: Orient Longman.

Nicholas D. &Ritchil, M.(1979). *Literature and bibliometrics.* London: Clive Bingley.

Rao, R. I. K. (1985). *Quantitative methods for library and information science.* New Delhi: WileyEastern.

Sharma, R. N & Sharma, R K. (1987). *Research methods in social sciences.* Bombay: Media Promoters & Publishers Pvt. Ltd.

3.2 INFORMATION SOURCES

(Hours of Teaching :L:T:P= 3:1:0)

(Lectures = 3 X 16 =48hrs)

(Tutorials = 1 X 16 = 16 X 2 =32 hrs)

Objectives:

- 1.To familiarize students with the meaning, definition, use and implications of Information Sources;
- 2.To study the primary, secondary tertiary sources of information sources;
- 3.To understand the electronic information sources;

Course Outcome (CO):
CO1 Understand the concept, types and importance of information / reference sources;
CO2 Clearly understand the major information resources related to primary sources of information;
CO3 Understand the important secondary sources of information like dictionaries, encyclopedias, handbooks and manuals, etc.;
CO4 Understand the relevant tertiary sources of information like directory of directories, bibliography of bibliographies, union catalogues, guides to subject literature, and evaluation of both print and electronic information sources;
CO5 Know the different non-documentary sources like human and institutional sources of information;
CO6 Understand the concept, types of e-journals, e-books, e-theses, e-newspapers, blogs and wikis, online dictionaries and encyclopaedias of e-resources;
CO7 Clearly understand the current trends in information sources different types of library and information services especially in academic libraries.

Unit 1 : Information Sources:

Meaning, definition, importance, characteristics, functions, criteria for evaluation of information sources; Types of information sources.

Unit 2 : Primary Sources:

Periodicals, research reports, conference and seminar proceedings, official publications, patents, standards, trade literature and theses and dissertations.

Unit 3 : Secondary Sources:

Indexing periodicals, abstracting periodicals, bibliographies, treatises, monographs, text books; Reference books: dictionaries, encyclopaedias, handbooks, manuals, yearbooks, almanacs, directories, biographical sources, geographical sources, statistical sources, current reference sources.

Unit 4 : Tertiary Sources:

Directories; Guides to reference sources; Bibliography of bibliographies; Directory of directories; Union catalogues.

Unit 5 : Human , Institutional and Electronic Sources:

Human sources: Information generators; information gatherers; information processors; information recorders; information disseminators; information retrievers; information technologists; Institutional / organisational sources: government ministries and departments, R & D organizations, learned societies, publishing houses, archives, data banks, information analysis centres, referral centres, institutional web sites. E-journals, e-books, e-theses, e news papers, Blogs, and Wikis, Online dictionaries and e-encyclopedias: free and proprietary, and other e-resources.

References:

- Chenny, F.N & Williams W.J. (1980). Fundamental reference sources. Ed2. Chicago: ALA. Donald, D. (1980). Reference service. London: Clive Bingley.
- Fjallbrant, N. &Stevenson, M. (1970). User education in libraries. London: Clive-Bingley.
- Grogan, D. J.(1982). Science and technology: An introduction to the literature. Ed4. London: Clive-Bingley.
- Guha, B. (1983). Documentation and information: services techniques and system. Calcutta: WorldPressPvt ltd.
- Kanna, J. K. (2000). Documentation and information, services systems and techniques. Agra: Y KPublishers.
- Katz ,W.A. (1992). Introduction to reference work, Ed5, New York: Mc-Graw Hill.
- Krishankumar. (2004). Reference service (5th Rev ed.). New Delhi: Vikas publishing house . Kumar, P. S. G. (2004). Information sources and services: Curriculum series in library &informationscience. New Delhi: B R publications.
- Kumar, P. S. G. (2004). Information sources and services: theory and practice. Delhi: B R publishing.
- Lambart, J. (1991). How to find information in science and technology. London: Library Association.
- Navalani, K., &Triakha, S. (1999). Library and informationsServices. Jaipur: Rawat publishing.
- Prasher, R.G. (2003). Indian libraries in IT environment. Ludhiana: Medallion press.
- Prasher, R.G. (2003). Information and its communication. Ludhiana: Medallion press.
- Ranganathan, S R. (1933). Reference Service, Ed2 . Bangalore: SRELS.
- Rogers R.(1993). Teaching information skills: A review of the research and its impact on education.London: Bowker-saur.
- Sharma, J S, & Grover, D R. (1992). Reference service and sources. Chicago: ALA. Sharma, J. S., & Grover, D. R. (1987). Reference service and sources of information. New Delhi: EssmEss publications.
- Shores Louis. (1959). Basic reference sources. Chicago: ALA.
- Sing, S. (1997). International manual of reference and information sources. New Delhi: BeaconBooks.
- Singh J (2003). Information democracy and South Asia promises and perils of the web. Ludhiana:Medallion press.
- Singh, G. (2013). Information sources, services and systems. Delhi: PHI Learning Pvt. Ltd.
- Subramanyam, K. (1981). Scientific and technical information resources. New York: Marcel Dekker.
- Velaga, V. (2005). Information sources and services. Hyderabad: Neelkamal publications.

HC 3.3 DIGITAL LIBRARIES

(Hours of Teaching: L: T: P = 3:0:1)

(Lectures = 3 X 16 = 48 hrs)

(Practicals = 1 X 16 = 16 x 2 = 32 hrs)

Objectives:

1. To provide introduction and difference of Digital Library
2. Know-how of hardware and software of Digital Library
3. Hands on practice of Green Stone and DSpace

COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Get Familiarize with internet and digital library.
CO 2	Understand the design and organisation of digital library for accessing information online.
CO 3	Know the scripts and standards required for web design.
CO 4	Understand the cyber laws and its implications on digital libraries.
CO 5	Identify computer hardware, software and other infrastructure required to develop digital library and Multimedia products.

Unit-1: Introduction to Digital Library:

Digital Library - Nature, Meaning and Definitions, Objectives, Characteristics, Digital Library Components: Identifiers – Handles – Digital Object Identifier (DOI) Persistent Uniform Resource Locator (PURL) Interoperability.

Digital Resources: Nature, Characteristics and types, Digital Library Services

Unit-2: Digital Library Initiatives

Evolution of Digital Libraries, DLI-I and DLI-II, E-Lib Programme,

Digital Library Initiatives at International level and in India. Digital Library Software: GSDL, D-Space, E-Prints and Fedora. Institutional Repositories.

Unit-3: Design and Organisation of Digital Library

Architecture: Distributed, Federated, Service Oriented and Component based - Architectures.

Protocols and Standards. User Interfaces: Multilingual, Personalization and Visualization.

Unit-4: Social, Economic and Legal Issues:

Social, Economic and Legal Issues of Digital library. Challenges and Concerns for Digital Library. Skilled manpower. Advantages and dis- advantages of Digital library.

Unit-5: Digital Resource Management:

Building Digital Library Resources – Born Digital and Digitized,

Digital Content (Image and Text) Creation: general issues, Digitization process, standards, file formats, Unicode, Metadata.

Selection and Acquisition of materials for Digitization.

Storage and retrieval/usage of Digital Resources. Digital Library Evaluation. Digital Collection Management and Evaluation – Issues and Strategies, Digital Rights Management.

Reference:

- Xavier, C. World Wide Web Design with HTML. New Delhi: TMH, 2000.
- Cooper. Michael D. Design of Library Automation System: File Structure, Data Structures and Tools. New York: John Wiley, 1996.
- David Baker Wendy Evans, Digital Library Economics (Chandos Information Professional Series) 9781843344032, Chandos Publishing.
- Diane Kresh , The Whole Digital Library Handbook :9780838909263 , ALA Editions 2015
- Diane Kresh, WHOLE DIGITAL LIBRARY HANDBOOK: 9788184082326, Indiana Publishing House 2015.
- G. G. Chowdhury. Introduction to Digital Libraries. London: Facet Publishing, 2013

HC 3.4 Digital Libraries and (Practical)

(Hours of Teaching: L: T: P= 2:0:4)
(Practicals = 4 X 16 = 64 X 2 = 128hrs)

Acquaintance and hands on experience in design and development of a digital library using any one of the digital library softwares viz. Green stone, DSpace. (Each Student shall compulsorily maintain practical record and submit the same at the time of practical examination)

SOFT CORE (ANY ONE)

SC 3.1: INFORMETRICS, SCIENTOMETRICS AND WEBOMETRICS

(Hours of Teaching: L:T:P = 3:1:0)
(Lectures = 3 X 16 = 48 hrs)
(Tutorials = 1 X 16 = 16 X 2 =32hrs)

- Objectives: 1. To acquaint students with various qualitative techniques.
2. To study characteristics of literature.

Unit-1: Introduction and Evolution

Introduction and need of metric studies in scholarly communication; Evolution of metric studies (From Librametrics to Altmetrics); Open Content Metrics.

Informatics : Origin, Meaning and definition, Terminologies, Evolution of Infometrics
Informatics Data: Sources of Informetric Data, Planning and carrying out alnformetric Tools;
Informetrics Laws and Distributing : Bradford’s Law of Scattering, Lotka’s Law of Scientific Productivity, Zip’s Law of Word Occurrences, price’s Square Root Law, 80/20 Rule.

Unit-2: Describing Literature: Growth Models; Scattering and Seepage; Identification, Defining and describing of Subject Literature; Authorship and Collaboration: Concept of Solo and Collaborative Research – Identification, Measurement and quantification.

Unit-3: Citation Analysis: Concept, Reasons for Citations: Origin, History and Development of Citation Analysis; Normative Theory of Citing, Citation Behavior; Co-citation, Bibliographical Coupling; Obsolescence: Concept, Synchronous v/s Dichronous Studies; Methodology for study of Obsolescence of literature.

Unit-4: Webometrics: Quantitative Analysis of Scholarly Scientific Communications, hypertext links and Various phenomena on the Web.

Unit-5: Citation Databases

Scopus, Web of Knowledge, PubMed, Medline, Google Scholar,
Tools for bibliometric and scientometric studies,
Latest trends in Informatics, Scintometrics and Webometrics.

Reference:

- Bradford, S C (1971). Documentation. London: Crosby Lockwood
Bruce, Harry. CoLIS 4: Proceedings of the Fourth International Conference on
Conceptions of Library and Information Science, Seattle, WA, USA, July 21-25, 2002
Libraries Unlimited, 2002, pp336
Christiaan, Everard and Noyons, Marie. Bibliometrics Mapping as Science policy and Research
Management Tool. DSWO press, 1999, pp220.
Cronin, B (1984). The citation process. The Role and significance of citations in scientific
Communications. London: Taylor Graham Communication London: Taylor Graham, 1984
Egghe, L (1990). Introduction to Informetrics. Amsterdam: Elsevier
Leo Egghe, R. Rousseau. Introduction to Informetrics, Quantitative Methods in Library,
Documentation and Information Science, Elsevier Science publishers, 1990, pp450
Meadows A J (1974). Communication in Science. London: Butterworth's
Nicholas D and Ritchie, M (1978). Literature and Bibliometrics. London: Clive-Bingley
Price, Dereck De Solla (1963). Little science big science. New York: Columbia University
Ravichandra Rao, I K (1992). Informatics, Bangalore: SRELS
Thelwall, Michael. Introduction to Webometrics: Quantitative Web Research for the Social Sciences,
Morgan and Claypool Publishers, 2009, pp115.

SC 3.2: NETWORKS, NETWORKING AND LIBRARY CONSORTIA

(Hours of Teaching: L:T:P=3:1:0)

(Lectures = 3 X 16 =48hrs)

(Tutorials = 1 x 16=16 X 2 = 32hrs)

Objectives:

1. Student will understand What a telecommunication network?
2. Students become aware about Switched Network
3. Student will able to identify different consortia.

COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Understand the different computer networks like LAN, MAN and WAN.
CO 2	Learn different topologies of networks.
CO 3	Acquaint themselves with popular library networks- INFLIBNET, DELNET and DESINET.
CO 4	Understand the different Web Browsers and Search Engines.
CO 5	Provide services such as Bulletin Board Service and Document Delivery Service using Internet.

Unit-1: Introduction to Networks

Computer Networks: Meaning, Definitions and Characteristics.

Network media: Twisted-Pair Cable, Unshielded Twisted-Pair (UTP) Cable, Shielded Twisted-Pair (STP) Cable, Coaxial Cable, Optical fibre,

Network Components- Ethernet Cable, Network Interface Cards, Hubs, Routers, Gateway, Modem. Network types: LAN, WAN, MAN, CAN, PAN, Wireless Networks: WiFi:

Unit-2: Topologies of Network

Concept of Topology

Types: Bus, Ring, Mesh, Star, Tree etc.

Data Networks: Integrated Services Digital Network (ISDN), Digital Subscribers Line(DSL), Asynchronous Transfer Mode (ATM), etc.

Unit-3:Library and Information Centre Networks

Origin and History of Library Networks in India, INFLIBNET, CALIBNET and DELNET; Network based Services: Document Delivery service, on-line Service, and Teleconferencing etc. Communication Networks: NICNET, INET, BSNL, ERNET

Unit-4: Library and Information Networks at the International Level

Online Computer Library Center (OCLC); Research Libraries Group (RLG) — RLIN

Joint Academic Network (JANET);Consortium of University Research Libraries (CURL)

Unit-5: Consortia

-Consortia-Concept, definition, Need, uses, and types of consortia; Criteria for selection of consortia;, CSIR e-journals consortia, UGC-Infonet, FORSA consortia, IIM'S consortium.

Reference:

Andrew, Judith. Digital Libraries: Policy Planning and Practice. Hampshire: Ashgate, 2004. Brophy, Peter. Libraries without walls: The distributed delivery of Library and Information Services. London: Facet Publishing, 2004.

Chwan-Hwa (John) Wu. Introduction to Computer Networks and Cybersecurity. New Delhi, CRC Press, 2013.

Janczewski, Lech. Internet and intranet security management: risks and solutions. Hershey: Idea, 2000.

Kurose, James F. and Ross, Keith W. Computer Networking: A Top-Down Approach. 6th Ed. New York: Pearson, 2012.

Pandian, Paul M. and Jabhekar, Ashok: Internet for Libraries and Information Centres, New Delhi: McGraw Hill, 2001.

Schwartz, D. T. et. al. Internet based organizational memory and Knowledge Management. London: Ida Group publisher, 2000.

Open Elective:**OE 3.1: INFORMATION LITERACY:**

COURSE OUTCOMES (COs)	
After completing this paper, the students will be able to:	
CO 1	Able to understand the concept and importance of the information literacy
CO 2	Able to understand the historical perspectives of information literacy;
CO 3	Able to understand the different types of information resources literacy;
CO 4	Have knowledge about information literacy models;
CO 5	Have knowledge about information literacy skill and competencies;

Objectives:

- 1.To know the concept and importance of information literacy;
- 2.To understand the historical perspectives of information literacy;
- 3.To identify different types of information resources;
- 4.To gain knowledge about information literacy models;

Unit-1: Information Literacy:

Meaning, definition; importance; historical perspective of information literacy.

Unit-2: Types of Information Literacy:

Computer literacy, Media literacy, Digital literacy, Technology literacy.

Information Literacy Skills and Competencies: Challenges of information literacy Programs, Information literacy initiatives in global perspective.

Unit-3: Information Literacy Models and Components:

SCONUL seven pillar, B-6, Seven, ANCIL, Empowering 8 Model

References:

- A.L.A. (1989). Final report of the A.L.A. presidential committee on information literacy. Chicago: A.L.A.
- Alewine, M. C., & Mark C. (2017). Introduction to information literacy for students. Wiley BlackwellPublication.
- Baldwin, V A. (2005). Information literacy in science & technology disciplines. Lincoln: University ofNebraska.
- Barker, K. and Lonsdale, R. (Ed.). (1994). Skills for life: The value and meaning of literacy. London:Taylor Graham.
- Bawden, D. (2001). Information and digital literacies: A review of concepts.
- Blanchett, H. (2010). A guide to teach information literacy. London: Facet.
- Bravender, P., McClure, H., & Gayle S. (2015). Teaching information literacy threshold concepts: Lesson plans for librarians. Chicago: American Library Association.
- Broussard, Mary Snyder. (2017). Reading, research, and writing: teaching information literacy with process-based research assignments. Chicago: American Library Association.
- Corrall, S. (2010) . Information literacy through inquiry. London: Facet.
- De Abreu, B. S., Mihailidis, P., Lee, A. Y.L., Melki, J., & McDougall, J. (2017). Internationalhandbook of media literacy education . London: Routledge publications.
- Devine, J. (2009). Going beyond google: The invisible web in learning and teaching. London: Facet.
- Dominika, D. (2016). Data information literacy: Librarians, data and the education of a new generation of researchers. New York: Scitus Academics LLC.
- Downey, A. (2016). Critical information literacy: Foundations, inspiration, and ideas. Sacramento:Library Juice Press.
- Eisenberg, M. B., Lowe, C. A., & Spitzer, K. L. (2004). Information literacy: Essential skills forinformation age. London: Libraries unlimited.
- Eisenberg, M.B. (2004). Information literacy: essential skill for the information age. West Port:Libraries unlimited.
- Forster, M. |(2017). Information literacy in the workplace. London: Facet Publishing.
- Godwin, P., & Parker, J. (2008). Information literacy meets library 2.0. London: Facet. Grassian. E.S. (2005). Learning to lead and manage information literacy instruction. New York: NeilSchuman publishers.
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- Martin, A., & Rader, H. (2003). Information and IT literacy: Enabling learning in the 21st century. London: Facet.