Vidyasagar University

Midnapore-721102, West Bengal

The SYLLABUS for

MASTER OF LIBRARY AND INFORMATION SCIENCE

(M.Lib. I. Sc.)

Under Choice Based Credit System (CBCS)

(Semester Programme)



[w.e.f. 2022-23]

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Title and Commencement

The programme shall be called the full-time Master of Library and Information Science (M.Lib.I. Sc) programme under the Faculty of Arts & Commerce. This syllabus shall come into force from the academic session 2022-2023.

Objectives of the Programme

The basic objective is to teach the students the advances of professional skills for information/knowledge management so that they serve society through an institution of library or information centre and prepare themselves for pursuing research in the subject. However, the specific objectives of the programme are as follows:

1 To give the students an understanding of the advancement of various principles of Library and Information Science and to enable them to understand, appreciate and develop professionalism to work in contemporary "Information Age" and to carry the subject forward.

2 To acquaint the students with the development of the Universe of Knowledge and methods of its organization in a library/information system.

3 To train students in the techniques of Information Management and equip them with skills for applying Information Communication Technologies (ICT) in libraries and information centres.

4 To make students fully aware of various sources of information and train them in techniques of dissemination of information in the context of different user groups and finally to ensure the maximization in utilization of graphic records by the specialists in different disciplines for the development of other subjects.

5 To make critical thinkers and problem solvers and decision-makers in the profession as well as in society.

Eligibility:

The minimum qualification for admission to the Master of Library and Information Science programme is a Bachelor's degree with Honours/ Major (in any discipline) at 10+2+3 level and a Bachelor of Library and Information Science from the University, or any other university, accepted as equivalent thereto by the Statutory Bodies of the University/norms prescribed by the Regulatory Bodies as applicable subject to such conditions as may be prescribed thereof.

Intake capacity:

Sixteen (16). Reservation rules shall be as prescribed by the State Government and notified by the authorities concerned from time to time. Foreign nationals either residing in India or abroad

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or Indian nationals residing abroad may be admitted to the Master of Library and Information Science programme according to the policy guidelines laid down by the Government of India/University Executive Council from time to time.

Academic calendar: As per the university Academic calendar.

Duration and Semester System: The duration of the programme leading to the Degree of Master of Library and Information Science (M.Lib.I.Sc) shall be one academic year. A student must complete the programme within one year from the date of admission to the programme.. The academic year shall be divided into two semesters.

Programme Outcomes (PO)

The programme outcomes of the Master of Library and Information Science are given below:

1 The understanding of the advancement of various principles of Library and Information Science and to understand, appreciate and develop professionalism to work in contemporary "Information Age" and to carry the subject forward.

2 Acquaintance with the development of the Universe of Knowledge and methods of its organization in a library/information system.

3 Awareness about the techniques of Information Management and skills for applying Information Communication Technologies (ICT) in libraries and information centres.

4 Insight about various sources of information and techniques of dissemination of information in the context of different user groups and finally to ensure the maximization in utilization of graphic records by the specialists in different disciplines for the development of other subjects.

5 Development of critical thinkers, problem solvers and decision makers in the profession, as well as in the society.

Program Specific Outcomes (PSO)

1 Acknowledgement of the philosophy of librarianship.
2 Perception about the different parameters of knowledge society.
3 Ability to organize information following modern tools and techniques.
4 Awareness about academic metrics and judgments about their efficacy to evaluate academics and researches.
5 Conducting small scale research activity and writing research report in different areas of library and information science.

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Programme Career Opportunities

1 M Phil and Ph D degree for advanced studies in LIS.
2 Consultant/ Reference Librarian.
3 Director/ Head of Information Centre.
4 Library and Information Officer/ Manager.
5 Documentation Officer.
6 Information Analyst.
7 Media Monitor and Media Librarian.
8 Archivist, Manuscript Manager.
9 Assistant Librarian, Deputy Librarian, Librarian in higher academic institutes and research centres.
10 Teaching faculty in LIS Schools.

Course/ Programme Structure

- M.Lib.I.Sc curricula consist of 120 credits distributed in 20 courses in 1 academic year divided into 2 semesters.
- 114 credits are meant for Core Courses and required to be completed/earned by each student.
- 6 credits are assigned to Open Courses. Students of M.Lib.I.Sc course may opt for one Open Course either from open courses offered by this Department or from open courses offered by any other department of the University.
- Students from other departments of this University may opt for Open Courses offered by this Department.
- M.Lib.I. Sc course has a total 1000 marks (50 x 19 Core Courses + 50 x 1 Open Courses)
- Internal Assessment marks of a course are either through Continuous Evaluation (CE) or Practical (PRC) or Project (PRJ) or a combination of these elements as decided by the Course Teacher concerned.
- If internal assessment is based on CE, then it will be a combination of Test and/or Term paper and/or Seminar presentation.

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Credit Structure

Sem	Course Code	Course Title	Credit Value	Marks Distribution		
				Semester Examination	Internal Assessment	Total Marks
SEMESTER I	MLI-101	Information and Communication	6 (4-2-0)	40	10	50
	MLI-102	Knowledge Organization (Theory)	6 (4-2-0)	40	10	50
	MLI-103	Advanced Resource Description	6 (4-2-0)	40	10	50
	MLI-104	Information Sources, Products and Services	6 (4-2-0)	40	10	50
	MLI-105	Information Retrieval – I	6 (4-2-0)	40	10	50
	MLI-106	Management of Information Systems and Services	6 (4-2-0)	40	10	50
	MLI-107	Information and Communication Technology for LIS (Theory) – I	6 (4-2-0)	40	10	50
	MLI-108	Application of Information and Communication Technology in LIS (Practice) – I	6 (0-2-4)	40	10	50
	MLI-109	Research Methodology	6 (4-2-0)	40	10	50
	MLI-110	Technical Writing	6 (4-2-0)	40	10	50
		Semester Total	**60**	**400**	**100**	**500**
SE	MLI-201	Information and Society	6 (4-2-0)	40	10	50
	MLI-202	Knowledge Organisation (Practice)	6 (0-2-4)	40	10	50
	MLI-203	Resource Description of non-book materials (Practice)	6 (0-2-4)	40	10	50
	MLI-204	Open Knowledge System	6 (4-2-0)	40	10	50
	MLI-205	Information Retrieval –II	6 (4-2-0)	40	10	50

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M E S T E R II	MLI-206	Information and Communication Technology for LIS (Theory) – II	6 (4-2-0)	40	10	50
	MLI-207	Application of Information and Communication Technology in LIS (Practice) - II	6 (0-2-4)	40	10	50
	MLI-208	Quantitative Techniques in Research	6 (4-2-0)	40	10	50
	MLI-209	Studies of Academic Metrics	6 (4-2-0)	40	10	50
	MLI-210	Dissertation	6 (0-0-6)	40 (Report)	10(Viva-voce)	50
		Semester Total	**60**	**400**	**100**	**500**

The total credit for the course is 120. Total marks 1000.

Distinctive features of course content :

- **Value-added course:**
  MLI-109, MLI-204, MLI-210
- **Employability/entrepreneurship/ skill development:**
  MLI-101.4, MLI-102, MLI-106, MLI-107, MLI-108, MLI-205, MLI-206, MLI-207, MLI-104
- **Digital content:**
  MLI-102.3, MLI-103.4, MLI-104.1, MLI-104.4, MLI-105.3, MLI-107, MLI-108, MLI-202, MLI-203
- **Ethics, gender, human values, environment & sustainability:**
  MLI-110, MLI-208,
- **New course introduced:**
  MLI-110, MLI-208

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Course Structure

Course Contents Structure				Marks Distribution		
Sem	**Course Code**	**Course Title**	**Course Summary**	**Semester Exam**	**Internal Assessment**	**Total Marks**
SEMESTER I	MLI-101	Information and Communication	Unit 1: Information: Nature, Characteristics and Scope	40	10	50
			Unit 2: Information Science: Evolution and Development			
			Unit 3: Communication of Information			
			Unit 4: Information Generation and Transfer			
			Unit 5: Class Test / Project / Seminar Presentation			
	MLI-102	Knowledge Organization (Theory)	Unit 1 : Theories of Library Classification	40	10	50
			Unit 2 : Classification of Subjects			
			Unit 3 : Classification and the Internet			
			Unit 4 : Classification as a navigating tool in the distributed knowledge networks			
			Unit 4 : Class Test / Project / Seminar Presentation			
	MLI-103	Advanced Resource Description	Unit 1 : Introduction to Content Designation	40	10	50
			Unit 2 : Bibliographic Data Formats			
			Unit 3 : Authority Data Formats			
			Unit 4 : Generic and Domain-specific Metadata Schemes			
			Unit 5 : Class Test / Project / Seminar Presentation			
	MLI-104	Information Sources, Products and Services	Unit 1 : Electronic Information Sources	40	10	50
			Unit 2 : Information Products and Services			
			Unit 3 : Information Institutions and Systems			
			Unit 4 : Library Networks and Consortia			

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			Unit 5 : Class Test / Project / Seminar Presentation			
	MLI-105	Information Retrieval – I	Unit – 1: Information Storage and Retrieval Systems	40	10	50
			Unit – 2: Indexing Languages, Controlled Vocabularies, Indexing Systems			
			Unit – 3: Web Information Retrieval			
			Unit - 4 : Users and Information Retrieval			
			Unit 5 : Class Test / Project / Seminar Presentation			
	MLI-106	Management of Information Systems and Services	Unit – 1 : Management Thought and Planning of Information System	40	10	50
			Unit – 2: System Analysis and its Application in LIS			
			Unit – 3: Management Techniques			
			Unit – 4: Recent Trends in Management			
			Unit 4 : Class Test / Project / Seminar Presentation			
	MLI-107	Information and Communication Technology for LIS (Theory) - I	Unit 1 : Computer Operating System	40	10	50
			Unit 2 : High-level Programming Languages			
			Unit 3 : Database Management System			
			Unit 4 : Computer Communication System			
			Unit 5 : Class Test / Project / Seminar Presentation			
	MLI-108	Application of Information and Communication Technology in LIS (Practice) - II	Unit – 1 : Linux User Level Tasks; Linux System Administration Tasks	40	10	50
			Unit – 2 : Advanced Level Markup language and dynamic web pages			
			Unit – 3 : High level Programming Languages suitable for library operations			
			Unit – 4 : Basics of Scripting Languages			
			Unit 5 : Class Test / Project / Seminar			

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			Presentation / Viva-Voce			
	MLI-109	Research Methodology	Unit 1 : Basic Concepts	40	10	50
			Unit 2 : Research Methods			
			Unit 3 : Research in the Context of LIS			
			Unit 4 : Concept of Ethnographic Research			
			Unit 5 : Class Test / Project / Seminar Presentation			
	MLI-110	Technical Writing	Unit 1 : Fundamentals of Technical Writing	40	10	50
			Unit 2 : Documentation Process			
			Unit 3 : Technical Writing Process			
			Unit 4 : Plagiarism			
			Unit 5 : Class Test / Project / Seminar Presentation			
	MLI-201	Information and Society	Unit 1 : Information Society	40	10	50
			Unit 2 : Knowledge management			
			Unit 3 : Economics of Information			
			Unit – 4 : Marketing of Library and Information Products and Services			
			Unit 5 : Class Test / Project / Seminar Presentation			
SEMESTER	MLI-202	Knowledge Organisation (Practice)	Unit – 1 : Classification of documents representing simple subjects by Colon Classification, Edition 7 (CC-7)	40	10	50
			Unit – 2 : Classification of documents requiring addition of common isolates by CC-7			
			Unit – 3 : Classification of documents representing compound subjects by CC-7			
			Unit – 4 : Classification of documents representing complex subjects by CC-7			
			Unit – 5 : Class Test / Project / Seminar Presentation			
	MLI-203	Resource Description of non-book materials (Practice)	Unit – 1 : Non-book Materials: their types and characteristics: Overview	40	10	50
			Unit – 2 : Resource description of Non-book materials by AACR 2R			
			Unit – 3 : Resource description of			

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II			Non-book materials according to MARC 21			
			Unit – 4: Class Test / Project / Seminar Presentation			
	MLI-204	Open Knowledge System	Unit 1 : Introduction to Open Knowledge system	40	10	50
			Unit 2 : Open Access Mechanisms			
			Unit 3 : Promoting Open Access Services and Technologies			
			Unit 4 : Open Access Mandates and Policies			
			Unit 5 : Class Test / Project / Seminar Presentation			
	MLI-205	Information Retrieval – II	Unit – 1: Information Sources, Formats and Retrieval	40	10	50
			Unit – 2: Searching in Information Retrieval System			
			Unit – 3: Evaluation of Information Retrieval Systems			
			Unit - 4 : Information Retrieval Landscape			
			Unit 5 : Class Test / Project / Seminar Presentation			
	MLI-206	Information and Communication Technology for LIS (Theory) - II	Unit 1 : Automated Library System	40	10	50
			Unit 2 : Digital Library System			
			Unit 3 : Multilingual Library System and IR System			
			Unit 4 : Field Study			
			Unit 5 : Class Test / Project / Seminar Presentation			
	MLI-207	Application of Information and Communication Technology in LIS (Practice) - II	Unit 1 : MySQL and / or PostGreSQL RDBMS	40	10	50
			Unit 2 : WWWISIS and / or ISIS 3W for Web Accessibility of ISO-2709 supported Bibliographic Databases			
			Unit 3 : Library Automation Software Managerial Level Tasks (SOUL / KOHA / WEBLIS)			
			Unit 4 : Digital Library Software GSDL / DSpace / E-Print Archive			
			Unit 5 : Unicode based Multilingual			

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			Automated and Digital Library System			
			Unit 6 : Class Test / Project / Seminar Presentation /Viva-Voce			
	MLI-208	Quantitative Techniques in Research	Unit – 1 : Useful Mathematical Devices	40	10	50
			Unit – 2 : Descriptive Statistics for collection and presentation of data			
			Unit – 3 : Analytical methods for collection and presentation of data			
			Unit - 4 : Sampling and Statistical Inference			
			Unit 5 : Class Test / Project / Seminar Presentation			
	MLI-209	Studies of Academic Metrics	Unit – 1 : Research Evaluation Metrics and Related Indicators	40	10	50
			Unit – 2 : Performance Measurement of R & D in S & T			
			Unit – 3 : Article and Author-Level Measurements			
			Unit – 4 : Measurement of Scientific Productivity			
			Unit 5: Class Test / Project / Seminar Presentation			
	MLI-210	Dissertation	Unit – 1 : Preparation of Dissertation (including Presentation in Seminar)	40	10	50
			Unit 2: Viva-voce			

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FIRST SEMESTER

Course Outcomes and Syllabus Contents of each Course

Course Code: MLI-101

Course Title: Information and Communication

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students shall be able to:

1. Identify the Information Life Cycle for Cognition, Knowledge and Wisdom.
2. Understand the relationship of information science with other disciplines.
3. Comprehend how information is communicated and its hindrances.
4. Understand the processes and methods of communication.
5. Improve the skills in understanding the basic elements of the receiver, sender, and channels that are essential for a good communication.
6. Make future communications error-free so that it improves the speed and quality of a communication process.

Course Contents:

Unit – 1 : Information: Nature, Characteristics and Scope

- Information : Attributes, Kinds, Use, Nature and Characteristics ;
- Knowledge : Nature and Characteristics, Categories, Sources of knowledge, Growth and development , Process of Cognition : different views and methodology including Spiral of Scientific Method ;
- Conceptual relation between data, information, knowledge, wisdom and related concepts;
- Information Explosion: Concept, Cause and Effects.

Unit – 2 : Information Science: Evolution and Development

- Information and knowledge as object of study in various subjects and disciplines ;

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- Information Science : Origin and development, scope and coverage, relationship with other disciplines and professions;
- Information science from system perspectives - Introduction to systems theory, Churchman systems model, Debon's EATPUT model and Component oriented models;
- Domain analysis as a theory for information science.

Unit – 3 : Communication of Information

- Historical development ;
- Types of communication: Verbal and nonverbal, Formal and informal, Communication channels and Models of communication ;
- Barriers to communication and remedial propositions ;
- Role of libraries in communication process, Trends in Information Communication: Weblogs, Wikis.

Unit – 4 : Information Generation and Transfer

- Information transfer process : Generation to utilization (Information eco-system) ;
- Information theory : Average information content of symbols in long independent and dependent sequences;
- Entropy; measurement of information;
- Social media as a tool for information transfer.

Unit – 5: Class Test / Project / Seminar Presentation

Reading List

1. Bawden, D. & Robinson, L. (2012). *Foundations of information science*. London: Facet Publishing.
2. Benjamine, J.B. (1986). *Communication: concept and contexts.* New York: Harper & Row.
3. Bhattacharyya, G. (1978). *Information science: A unified view through a systems approach*. Kolkata: IASLIC.

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4. Debons, A. & Larson, Arvid G., Ed. (1983). *Information science in action: system design*. 2 vols. Boston: Martinus Nijhoff Publishers.

5. Gilchrist, A. Ed. (2009). *Information science in transition*. London: Facet Publishing.

6. IFLA (2006). Guidelines on information literacy for lifelong learning. Retrieved from https://www.ifla.org › units › information-literacy

7. Kent, A., & HALL, C. M. (1998). *Encyclopedia of Library and Information Science*. CRC Press LLC, New York.

8. McGarry, K. J. (1981). *The changing concept of information.* London: Bingley.

9. Mukherjee, B.(2012). *Information, Communication and Society*. New Delhi: Ess Ess Publications

10. Singh, A.P. and Yuvaraj, M (2013). *Information: Communication and Society.* New Delhi: Ess Ess Publications.

11. Vickery B. C. & Vickery A. (1987). *Information science in theory and practice.* London: Butterworth.

Course Code: MLI-102

Course Title: Knowledge Organization (Theory)

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students shall be able to:

1. Understand the theoretical foundation to become a classificationist and to enhance employability of the information and library professionals.
2. Pursue anatomical study of classification schemes.
3. Make use of classification schemes for computer aided information retrieval.

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4. Become acquainted with the ontological mapping and distributed networks of today's burning social issues like gender sensitivity, social justice, egalitarianism studies etc. that will enhance the employability of the concerned aspirants.

Course Contents:

Unit – 1 : Theories of Library Classification

- Principles and postulates: Aristotle, Bacon, Harris, Richardson, Sayers, Brown, Hulme, Bliss, Ranganathan and Vickery;
- Absolute Syntax;
- Theory of Integrative Level ;
- Systems approach to knowledge organization;
- Normative principles: Laws, canons, principles and postulates.

Unit – 2 : Classification of Subjects

- Classification in an information system : Complexity of subjects, comparison of hierarchical and faceted classification schemes;
- Features of classification schemes : Literary warrant, main class order, generalia class, social science class with emphasis on gender justice & social equality, citation order and schedule order;
- General vs. Special classification schemes ;
- Design and construction of depth classification schedule.
- Comparative Study of Components and features of DDC, UDC and CC.

Unit – 3 : Classification and the Internet

- Use of Classification by search engines;
- Use of conventional classification schemes;
- Use of Thesauri and authority lists;
- Classification of electronic documents;
- Taxonomies, Folksonomies.

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Unit – 4 :Classification as a Navigating Tool in the Distributed Knowledge Networks

- Controlled vs. Uncontrolled vocabulary;
- Changing trends of various subject access tools;
- Social Classification: Concept of folksonomy and tagging;
- Concept of Domain Ontology;
- Birger Hjorland's theory based on four basic approaches to classification: Rationalism, Empiricism, Historicism and Pragmaticism;
- Concept of semantic web.

Unit – 5 : Class Test / Project / Seminar Presentation

Reading List

1. Broughton, V. (2004). *Essential classification*. London: Facet Publishing.
2. Batty, C. D. (1966). *An Introduction to Colon Classification*. London: Bingley.
3. Chan, L. M. (1985). *Cataloguing and classification: an introduction.* New York: McGraw Hill.
4. Dhyani, P. (1983). *Classification schemes and Indian libraries*. New Delhi: Metropolitan.
5. Dhyani, P. (1998). *Library classification: theory and principles*. New Delhi: Wishwa Prakashan.
6. F.I.D. (1993). *Universal Decimal Classification.* IME. London: BSI.
   Forest Press. (2002). *WebDewey*. Dublin, Ohio: OCLC Forest Press.
7. Foskett, D. J. (1974). *Classification and indexing in social sciences.* London: Aslib.
8. Foskett, A. C. (1996). *The subject approach to information.* 5th ed. London: Clive Bingley.
9. Halgamuge, S. K., & Wang, L. (2005). *Classification and clustering for knowledge discovery*. Berlin: Springer.
10. Husain, S. (2004). *Library classification: facets and analysis*. Delhi: B. R. Publishing.

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11 Kaula, P. N. (1985). *A Treatise on Colon Classification*. New Delhi: Sterling.

12 Krishan Kumar. (1980). *Theory of classification*. New Delhi: Vikas.

13 Kumbhar, R. (2011). *Library classification trends in the 21St century*. Burlington: Elsevier Science.

Lim, E. H. Y., Liu, J. N. K., & Lee, R. S. T. (2011). *Knowledge seeker: Ontology modelling for information search and management: a compendium*. Berlin: Springer

14 Maltby, A. (1975). *Sayers' manual of classification for librarians.* 5th ed. London: Andre Deutsch

15 Navalani, K., & Gidwani, N. N. (1981). *A practical guide to colon classification*. New Delhi: Oxford & IBH.

16 Needham, C. D. (1971). *Organizing knowledge in libraries.* 2nd ed. London: Andre Deutsch.

17 Ranganathan, S. R. (1967). *A descriptive account of the Colon Classification.* Bombay: Asia Publishing.

18 Ranganathan, S.R. (1966). *Elements of library classification*. 2nd ed. Bombay: UBS.

19 Ranganathan, S.R. (1967). *Prolegomena to library classification*. 3rd ed. Bombay: UBS

20 Ranganathan, S. R. (1987). *Colon Classification*. Banglore: SRELS.

21 Ranganathan, S. R. (2006). *Philosophy of library classification*. Bangalore: Ess Ess.

22 Rowley, J.E. & Farrow, J. (2000). *Organizing knowledge: an introduction to managing access to information*. 3rd ed. Aldershot: Gower.

23 Satija, M. P. (2011). *A guide to the theory and practice of Colon Classification*. New Delhi: Ess Ess Publications.

24 Sood, S. P. (1998). *Universe of knowledge and universe of subjects*. Jaipur: G. Star Printers.

25 Taylor, A. G. (2007). *Introduction to cataloguing and classification*.10th ed. New Delhi: Atlantic.

26 https://limbd.org/knowledge-classification-different-opinions-of-philosophers-

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about-knowledge- classification/
27 https://www.isko.org/cyclo/knowledge_organization
28 https://www.librarianshipstudies.com/2015/08/library-classification.html
29 https://www.libraryscience.in/2020/06/library-classification.html
30 https://www.clir.org/pubs/reports/pub91/1knowledge/

Course Code: MLI-103

Course Title: Advanced Resource Description

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students shall be able to:

1. Familiar with theoretical knowledge of advancement of resource description.
2. Know different standards of content designation.
3. Gain knowledge about computerized bibliographic data formats and authority data formats.
4. Get knowledge of different general to domain specific metadata schemas.

Course Contents:

Unit – 1 : Introduction to Content Designation

- Role of content designation in bibliographic data exchange;
- Content Designation Standards- Physical Standards (ISO-2709, Z 39.2, MARC-XML etc.);
- Content Designation and Logical Standards (ISBDs, AACR, FRBR, FRAD, FRSAD etc.);
- Content Designation Standards – Framework Standards (CCF, UNIMARC, MARC-21).

Unit – 2 : Bibliographic Data Formats

- Evolution of Principles for Bibliographic Description;
- Development of Codes for Bibliographic Record;
- Standards and Formats for Bibliographic Record;
- ISBD, ISO 2709, CCF, UNIMARC, MARC 21, etc.;

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- Comparison of CCF, UNIMARC and MARC-21;
- Distributed Cataloguing (Z 39.50 protocols and services).

Unit – 3: Authority Data Formats

- Scope, objectives and use of authority data formats;
- Role of authority list in library cataloguing;
- MARC-21 Authority Data Format;
- FRAD and FRSAD model.

Unit – 4 : Generic and Domain-specific Metadata Schemas

- Metadata: Use, functions, models and best practice guidelines;
- Generic Metadata Schema: Dublin Core;
- Metadata Schema using RDF and XML;
- Learning Object Domains: GEMS, IEEE-LOM, CanCore;
- ETD Domain: ETD-MS, UKETD, Shodhganga;
- Other domains: Geographical Data, Science Data, Music, Image, News Items, Publishing etc.

Unit – 5: Class Test / Project / Seminar Presentation

Reading List

1. Bean, C.A.., & Green , R. (2001). *Relationships in organization of knowledge*. London: Kluwer.
2. Bowman, J. H. (2003). *Essential cataloguing. London: Facet Publishing*.
3. Chan, L. M. (1994). Cataloging and classification: an introduction. New York: McGraw-Hill.
4. Chapman ,Liz. (1984). *How to catalogue: a practical handbook*. London: Clive Bingley.
5. Delsey ,T. (1999). *The logical structure of AACR – Part I & Part II*. Retrieved from http://www.nlc-bnc.ca/jsc/aacrdel.html

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6. Heaney, M. (1995). *Object-oriented cataloguing. Information Technology and Libraries*, 14(3), 135–153.

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9. IFLA. (1998). *IFLA: Functional requirements for bibliographic records: final report*. Munchen: K.G. Saur.

10. Le, B. P. (2005). *Functional requirements for bibliographic records (FRBR): hype or cure-all?* Binghamton, NY: Haworth Information Press.

11. Welsh, A., & Batley, S. (2012). *Practical cataloguing: AACR, RDA and MARC 21*. Chicago: Neal-Schuman, an imprint of the American Library Association.

12. Yee, M.M. & Layne,, S.S. (1998). *Improving online public access catalogue*. Chicago: ALA.

13. Zeng, M. L., & Žumer, M. (January 01, 2010). *Introducing FRSAD and mapping it with SKOS and other models.* International cataloguing and bibliographic control, 39, 3, 53-56.

14. Zeng, M. L., Žumer, M., Salaba, A., & IFLA Working Group on the Functional Requirements for Subject Authority Records (FRSAR). (2011). Functional *requirements for subject authority data (FRSAD): a conceptual* model. Berlin: De Gruyter Saur.

Course Code: MLI-104

Course Title: Information Sources, Products and Services

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students shall be able to:

1. Comprehend Electronic Information Resources.
2. Know the theoretical foundation on design issues of information products.
3. Understand the concept ‘Consortia’ and their importance in improving the quality of information resources.

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4. Gain k1nowledge on Library Networking.

Course Contents:

Unit – 1 : Electronic Information Sources

- Traditional and classical vs. electronic information sources;
- Categories, characteristics and utility of electronic sources of information;
- Online and off-line bibliographic databases (Reference, Referral and Source databases);
- E-journals, e-journal gateways and electronic reference tools;
- Discussion forums, ListServs, bulletin boards, subject directories, subject gateways, institutional repositories and digital libraries.

Unit – 2 : Information Products and Services

- Information analysis and consolidation products: Types and characteristics;
- IAC methodology;
- Utility and designing of e-alerting services (e-CAS & e-SDI);
- ICT enabled information services (user services, MIS support services, web based services, etc.).;
- Information products and services relating to special library and information systems (Corporate library system, media and communication library system, industrial library system, medical library system).

Unit – 3 : Information Institutions and Systems

- Libraries and information centers: Types and their organization;
- Data Centres and Referral Centers;
- Science data networking systems in India: overview;
- Information systems: Structure, functions, objectives, features and system design;
- Global information systems (INIS, AGRIS, MEDLARS etc.): Structure and services;
- Indian information systems (in the fields of science & technology, biotechnology, medical science, agricultural science, environmental science, statistics, humanities and social science);
- Designing of information system.

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Unit – 4: Library Networks and Consortia

- Resource sharing and library networking: Need, structure and management;
- Global library networks (OCLC, RLIN, WLN, BLAISE, etc): Structure and services;
- Indian library networks and their services (INFLIBNET, DELNET, etc.): Structure and services;
- Library consortia: Scope, need, objectives, functions, features and services;
- Global and Indian library consortia initiatives (ICOLC, SPARC, INDEST, UGC-Infonet, FORSA etc.): Structure and services;
- Social networking (Face book, Twitter, LinkedIn etc.) and its application in library and information systems and services;
- Collaborative and international librarianship: overview;

Unit – 5 : Class Test / Project / Seminar Presentation

Reading List

1. Cassell, K. A., & Hiremath, U. (2013). *Reference and information services: An introduction*. London: Facet Publishing

2. Chatterjee, A (2013). *Elements of information analysis, consolidation and repackaging (IACR)*; Kolkata: Prova Prakashani

3. Chatterjee, A. (2017). *Elements of Information Organization and Dissemination*. Oxford: Chandos Publishing

4. Cheney, F. N. (1975). *Fundamental reference sources*. Chicago: American Library Association.

5. Crawford, J. (2006). *The Culture of evaluation in library and information services*. Burlington: Elsevier Science.

6. Crawford, J., & Aslib. (2000). *Evaluation of library and information services*. London: Aslib

7. Farmer, L. S. J. (2007). *The human side of reference and information services in*

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academic libraries: Adding value in the digital world. Oxford: Chandos

8. Foskett, D. J. (1994*). Information service in libraries*. New Delhi: Anmol Publications.

9. Guha, B. (1983). *Documentation and information: services, techniques and systems*. Calcutta: World Press.

10. Katz, B. (2002*). Introduction to reference work. Boston: McGraw-Hill*. Katz, W. A., & Tarr, A. (1978). Reference and information services: a reader.

11. Kumar K. (1996). *Reference service*. New Delhi: Vikas Pub. House. Lankes, R. D., & Nast, P. (2008). Virtual reference service: from competencies to assessment. New York: Neal-Schuman Publishers.

12. Lester, Ray, Ed. (2005-2007). *New Walford: guide to reference sources*. 2 vols. (Vol. 1)

13. Lipow, A. G. (2003). *The virtual reference librarian's handbook*. Berkeley, Calif.: Library Solutions Press.

14. Lipson, C. (2006). *Cite right: A quick guide to citation styles--MLA, APA, Chicago, the sciences, professions, and more.* Chicago: University of Chicago Press. Metuchen, NJ: Scarecrow Press.

15. Ranganathan, S. R. (2006). *Reference service*. Bangalore: Sarada Ranganathan Endowment for Library Science.

16. Ross, C.S., Nilsen, K., & Dewdney, P. (2002). *Conducting the reference interview: a how-to-do manual for librarians*. London: Facet Publishing. *Science, Technology and Medicine,* Vol. 2 – Social Sciences). London: Facet Publishing.

17. Stevens, R. E., & Smith, L. C. (1986). *Reference work in the university library*. Littleton, Colo.: Libraries Unlimited.

Course Code: MLI-105

Course Title: Information Retrieval – I
Full Marks -50
Semester Examination Marks - 40 Internal Assessment / Project -10

Course Outcomes:

After studying this course, students shall be able to:

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1. Gain knowledge of different evolutionary phases of information retrieval.
2. Use tools and techniques of information description.
3. Design tools for indexing language and their use.

Unit – 1: Information Storage and Retrieval Systems

- Definition, Objectives, Scope, Components, Purpose, Information transfer, Assimilation;
- Scholarly information, Information communication, Information transfer cycle;
- Information Retrieval Vs Information Mining : Objectives, scope, purpose;
- Design of IR system: Points of view, factors for consideration, and phases in designing.

Unit – 2: Indexing Languages, Controlled Vocabularies, Indexing Systems

- Philosophy, Contribution, Evolution of Concepts of Cutter, Kaiser, Ranganathan, Farradane, Coates, etc.;
- Indexing Languages: Objectives, scope, limitations, controlled vocabularies, Natural Language Indexing;
- Vocabulary Control devices (Classification Scheme, Subject Heading List, Thesaurus etc.) : Characteristics, function, design, Automated Indexing;
- Indexing Systems: Chain, PRECIS, UNITERM, Keyword Indexing, citation indexing.

Unit – 3: Web Information Retrieval

- Search Engines: Definition, components, function;
- Metadata : Definition, types, need, initiatives;
- Web Indexing : Definition, types, need;
- Meta Search Engines: Definition, types, function.

Unit - 4 : Users and Information Retrieval

- Users: Definition, types, teeds, information behavior;
- User study : Objectives, methodology, need analysis;
- Models of Information Behavior: HIB models – Wilson's model, Dervin model, Ellis's model, Bates model, Kulthau's model; Information search models - Belkin's model, Saracevic's model;
- Trends in Information Behaviour: Action Research, Fake News awareness.

Unit – 5 : Class Test / Project / Seminar Presentation

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Reading List

1. Aitchison, J., Gilchrist, A. & Bawden, D. (2000). *Thesaurus construction and use: a practical manual.* 4th ed. London: Aslib.

2. Anderson, James D. (1997). *Guidelines for indexes and related information retrieval devices: a technical report.* Bethesda, Maryland: National Information Standard Organization

3. Bawden, D. (2007). *Information seeking and information retrieval: the core of the information curriculum. Journal of Education for Library and Information Science*, 48 (2), pp.125-138.

4. Chatterjee, A. (c2017). *Elements of Information Organization and Dissemination*. Oxford: Chandos Publishing.

5. Chowdhury, G. G. (2010). Introduction to modern information retrieval. 3rd ed. London, Facet Publishing.

6. Chu, H. (2003). *Information representation and retrieval in the digital age*. Medford, N.J: Published for the American Society for Information Science and Technology by Information Today.

7. Foskett, A. C. (1996*). Subject approach to information.* 5th Ed. London*: The Library Association*.

8. Ghosh, S. B. and Satpathi, J. N., Eds. (1998). *Subject indexing systems: concepts, methods and techniques*. Calcutta. IASLIC.

9. Guha, B. (1983). *Documentation and Information: Services, Techniques and Systems*. Delhi: World Press.

10. Lancaster, F. W. (1979). *Information retrieval systems: characteristics, testing, and evaluation*. 2nd ed. New York, John Wiley.

11. Lancaster, F. W. (1998). *Indexing and abstracting in theory and practice.* 2nd ed. Champaign, Illinois: University of Illinois.

12. Lancaster, F.W. (1986). *Vocabulary control for information retrieval*. 2nd ed. Arlington, VA: Information Resources.

13. Madge, O. L. (Ed.). (2021). New Trends and Challenges in Information Science and Information Seeking Behaviour. New Trends and Challenges in Information Science and Information Seeking Behaviour Lecture Notes in Networks and Systems (LNNS, volume 193). Switzerland: Springer Cham.

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14. Peters, C., Braschler, M., & Clough, P. (2012). *Multilingual information retrieval: from research to practice*. Heidelberg: Springer.

15. Sarkhel, Juran Krishna (2001). *Information analysis in theory and practice*. Kolkata: Classique Books, 2001.

16. Tripathi, Aditya. (2011). Overview of web indexing, metadata, interoperability and ontologies. https://www.researchgate.net/publication/349732452_OVERVIEW_OF_WEB_INDEXING_METADATA_INTEROPERABILITY_AND_ONTOLOGIES

17. Vickery, B. C. (1986). *Knowledge representation: a brief review. Journal of Documentation*, 42 (3), pp.145-159.

Course Code: MLI-106

Course Title: Management of Information Systems and Services

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students shall be able to:

1 Manage libraries and information centres.
2 Acquaint themselves with Management Schools of Thought
3 Apply management techniques in libraries
4 Management process in liberalized society.

Course Contents:

Unit – 1 : Management Thought and Planning of Information System

- Management approaches and management philosophy;
- Manegement theory – concepts and historical prospective;
- Management theory and schools of thought: Classical, Neo-classical and Modern Management theory – their applications in Library and Information Centres;
- Monitoring and controlling techniques: OR, MIS, MBO, SWOT, Network Analysis, PERT / CPM;
- Performance evaluation of Libraries/ Information Centres and services.

Unit – 2: System Analysis and its Application in LIS

- System – concept and classification, library as system;

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- System analysis – concept and background, design and process;
- Application of System theory to Libraries and Information Centres;
- Planning Local and National Information System.

Unit – 3: Management Techniques

- Interpersonal Relation, Group dynamics, Johari Window Model;
- Leadership: Theories, styles, approaches and models;
- Communication: Methods of communication, types of communication model;
- Motivation: Theories of motivation, sources of motivation;
- Total Quality Management: Elements, objectives and benefits, quality indicator in LIS domain;
- Application of TQM in libraries/information centres;

Unit – 4: Recent Trends in Management

- Change management: Changes in procedures, methods; Problems in incorporating change; techniques in managing change;
- Globalization and its impact on management practices in Indian libraries/information centres;
- Marketing and customer relationship management in libraries/information centres;
- Stress and conflict management in libraries/information centres.

Unit – 5: Class Test / Project / Seminar Presentation

Reading List

1. Bakewell, K. G. B. (1997). *Managing user-centred libraries and information services.* 2nd ed. London: Maxwell.

2. Cook, C. (2002). *The maturation of assessment in academic libraries: The role of LibQUAL+ TM.* Bradford, England: Emerald Group Pub

3. Coote , H. & Batchelor, B. (1997). *How to market your library services effectively*. 2nd ed. London: Aslib.

4. Crawford, J. (1997). *Evaluation of library and information services effectively*. 2nd ed. London: Aslib.

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5. Dunham, J. (2001). Stress in the workplace: past, present and future. London: Whurr Publishers.

6. Evans, G. E. (1983). *Management techniques for librarians.* 2nd ed. New York: Academic Press.

7. Evans, G. E. and Layzell, P. (2007). *Management basics for information professionals.* 2nd ed. London: Libraries Unlimited.

8. Gautam, J. N. (1991). *Library and information management.* New Delhi: Prentice-Hall India

9. Hayes, R. M. (2001). *Models for library management, decision-making, and planning.* San Diego, Calif.: Academic Press.

10. Heath, F. M., Kyrillidou, M., & Askew, C. A. (2004). *Libraries act on their LibQUAL+ findings: From data to action.* Binghamton, NY: Haworth Information Press.

11. Katz, W.A. (1980). *Collection development, the selection of materials for libraries*. New York: Holt, Rinehart & Winston.

12. Krishan Kumar. (1985). *Library manual.* New Delhi: Vikas

13. Lancaster, F. W., & Sandore, B. (1997). *Technology and management in library and information services.* Champaign, Ill: University of Illinois Graduate School of Library and Information Science.

14. Laughlin, S., & Wilson, R. W. (2008). *The quality library: A guide to staff-driven improvement, better efficiency, and happier customers.* Chicago: American Library Association.

15. Martin, J. (2009). *Human resource management*. Los Angeles: SAGE

16. Mittal, R.L. (1984). *Library administration: theory and practice*. 5th ed.. Delhi: Metropolitan

17. Mukherjee, K. (2007). Customer relationship management. New Delhi: Prentice Hall.

18. Ranganathan, S.R. (1959). *Library administration*. 2nd ed. Bombay: Asia Publishing

19. Spiller, David. (1974). *Book selection: an introduction to principles and practice.* Rev. 2nd ed. London: Clive Bingley

20. Sutherland, V. J. and Cooper, C. L. (2000). Strategic stress management: an organizational approach. London: Macmillan.

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Course Code: MLI-107

Course Title: Information and Communication Technology for LIS (Theory) – I

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students shall be able to:

1. Distinguish multi-user operating system with single user operating system and various tasks associated with use and administration of multi-user operating system.
2. Recognise various features of multi-user operating system as an open source operating system.
3. Explore various kinds of high level programming languages, their features, areas of application, strengths and weaknesses.
4. Understand different file structures, file organisation methods including hashing algorithm for indexing.
5. Appreciate the merits of open source RDBMS for various library applications.
6. Distinguish between P2P and client / server architecture with various features and relationships of networking.
7. Conceptualize the Address System and the DNS.
8. Evaluate the internet and intranet applications in LIS activities.
9. Explain various networking models like ISO-OSI, TCP/IP reference model.

Course Contents:

Unit – 1 : Computer Operating Systems

- Operating Systems : Fundamentals, roles and features;
- Multi-user (Unix-like) operating systems (user level and administrative level);
- Operating systems and library automation software;
- Open source operating systems.

Unit – 2 : High-level Programming Languages

- Overview of high-level programming languages and their use in problem solving;

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- Overview of Algorithmic high-level programming languages (Any one of C, PASCAL and FORTRAN);
- Overview of scripting high-level programming languages (Any one of PHP, ASP, PERL and Java).

Unit – 3 : Database Management System

- File organization and file structures; Indexing and hashing;
- Bibliographical database management system: Special features and handling problems;
- Database architecture and data modeling;
- Open source RDBMS (MySQL and PostGreSQL).

Unit – 4 : Computer Communication System

- Network features and relationships (peer-to-peer and client/server relationships);
- IP Address system and DNS;
- OSI networking model;
- TCP/IP reference model;
- Internet and intranet.

Unit – 5 : Class Test / Project / Seminar Presentation

Reading List

1. Botto, Francis. (1993). *Multimedia, CD-ROM and compact disc: a guide for users and developers.* New Delhi: Galgotia.
2. Bradley, P. (1999). *Internet power searching: the advanced manual*. New York: Neal-Schuman Publishers.
3. Bradley, P. (2007). *How to use Web 2.0 in your library*. London: Facet.
4. Deenadayalu, R. (1990). *Compmuter science* (Vol. 2). New Delhi: TMH.
5. Engard, N. C. (2009). *Library mashups: Exploring new ways to deliver library data*. Medford, N.J: Information Today, Inc.

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6. Engard, N. C. (2010). *Practical open source software for libraries*. Oxford: Chandos Publishing.

7. Gorman, M. (2003). *The enduring library: technology, tradition, and the quest for balance.* Chicago: American Library Association.

8. Hagler, R. (1997). *The bibliographic record and information technology*. Chicago: American Library Association.

9. Jacsó, P., & Lancaster, F. W. (1999). *Build your own database.* Chicago: American Library Association.

10. Jean, G. (2011). *Digital library*. New Delhi: World Technologies

11. Introduction to the Semantic Web. Cambridge University https://cambridgesemantics.com/blog/semantic-university/intro-semantic-web/semantic-web-misconceptions/
12. Artificial Intelligence and Intellectual Freedom https://repository.ifla.org/bitstream/123456789/1646/2/annex_1_artificial_intelligence_and_intellectual_freedom.pdf

13. IFLA Statement on Libraries and Artificial Intelligence https://repository.ifla.org/handle/123456789/1646

14. Shaping a community research agenda in data science. OCLC https://www.oclc.org/research/events/2020/011420-shaping-a-community-research-agenda-for-data-science.html
15. Responsible Operations: Data Science, Machine Learning, and AI in Libraries https://www.oclc.org/research/publications/2019/oclcresearch-responsible-operations-data-science-machine-learning-ai.html

Course Code: MLI-108

Course Title: Application of Information and Communication Technology in LIS (Practice) – I

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

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Course Outcomes (CO)

After studying this course, students shall be able to:

1. Identify different user- level tasks and administrative tasks for maintaining any multi-user Operating System.
2. Execute operations essential for working in UNIX environment- both user level and administrative level tasks.
3. Develop dynamic web pages incorporating forms, frames and style sheets.
4. Develop programmes in high level languages specifically meant for library operations.
5. Connect backend databases with web interface with the application of scripting language.

Course Contents:

Unit – 1 : Linux User Level Tasks; Linux System Administration Tasks

Unit – 2 : Advanced Level Markup language and dynamic web pages

Unit – 3 : High level Programming Languages suitable for library operations

Unit – 4 : Basics of Scripting Languages

Unit – 5 : Class Test / Project / Seminar Presentation / Viva-Voce

Reading List

1. Kam, D. (2009). *Role and policy implications of ICT in India.* New Delhi: Shree Publishers & Distributors.

2. Kernighan, B. W., & Ritchie, D. M. (1988). *The C programming language.* Englewood Cliffs, N.J: Prentice Hall.

3. Leon, A. & Mathews, L. (2004.). *Fundamentals of information technology* (Latest edition.). Chennai: Leon Tech World.

4. Library of Congress. (1988). *Advances in library information technology.* Washington, D.C: Cataloging Distribution Service, Library of Congress.

5. Matthews, J. R. (1980). *Choosing an automated library system: A planning guide.* Chicago: American Library Association.

6. Mukhopadhyay, P. (2013). *Course of action: Library information technology.* Kolkata: Prova Prakashani.

7. Mukhopadhyay, P. (2014). *Course of action: Automated library system.* Kolkata: Prova Prakashani.

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8. Satyanarayana, N. R. (1995). *A manual of computerisation in libraries.* New Delhi: Wishwa Prakashan.

9. Rajaraman, V. (1995). *Fundamentals of computers.* New Delhi: PHI.

10. Rajasekharan, K., & Nafala, K. M. (2007). *Creation of digital document archives with Winisis.* Kerala Institute of Local Administration.

11. Scott, M. L. (2006). *Programming language pragmatics*. San Francisco, CA: Morgan Kaufmann Pub.

12. Sinha, P. K. (1992). *Computer fundamentals: concept, systems and applications* (2nd ed.). Delhi: BPB Publications.

13. Tanenbaum, A. S. (1996). *Computer networks.* Upper Saddle River, N.J: Prentice Hall PTR.

14. Tanenbaum, A. S. (1984). *Structured computer organization*. Englewood Cliffs, N.J: Prentice-Hall.

15. Vaughan, J., & ALA TechSource. (2011). *Web scale discovery services*. Chicago, Ill: ALA TechSource.

16. Viswanathan, T. (1992). *Telecommunication switching systems and networks*. New Delhi: Prentice Hall of India Private Ltd.

17. Walsh, T. (2005). *Introducing ICT: Basic to intermediate.* Dublin: Gill & Macmillan

Course Code: MLI-109
Course Title: Research Methodology
Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students shall be able to:

1. Understand the subject-domain specific research activities.

2. Comprehend about overall research methodologies to enhance the employability in this subject field..

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3. Develop clear conception of research process in libraries.

4. Gain familiarity with a subject-specific phenomenon and to achieve new insights into various subject domains.

5 Portray accurately the characteristics of a particular individual, situation or a group related to any subject domain.

6 Determine various parameters with which any phenomenon occurs or with which it is associated with something else.

Course Contents:

Unit – 1 : Basic Concepts

- Research: Meaning, Scope, Objective and Characteristics; Kinds – Fundamental / Basic and Applied; and Research Methods;
- Developing Research Project and Writing Research Proposal;
- Concept of Research in the Context Various Broad Disciplines (Physical Sc. Chemical Sc. Earth Sc. Space Sc. Medical Sc. Engineering Sc. Mathematical and Computer Sc. Agricultural Sc. Life Sc. Social Sc. Etc.);
- Research in Science and Humanities: Basic Differences;
- R & D systems in India (DST, DBT, DAE, CSIR, ICMR, ICAR, ISRO, ICSSR, INSA etc.)

Unit – 2 : Research Methods

- Historical Research: Nature, Scope and Sources of Historical Data including the Methods of Ascertainment of their Authenticity;
- Experimental Research: Nature and Types, Experimental Design; Research Design - Steps;
- Descriptive / Survey Research: Nature and Types, Data collection tools and techniques, Sampling – Types and Techniques, Scope of Experiment in Social research;
- Sampling: Concepts of Statistical Population, Sample, Sampling Frame, Sampling Error, Sample Size, Non Response. Characteristics of a good sample. Probability Sample – Simple Random Sample, Systematic Sample, Stratified Random Sample & Multi-stage

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sampling. Determining size of the sample – Practical considerations in sampling and sample size;

- Case study and Delphi method;
- Organisation, analysis and interpretation of data;
- Writing Research Report.

Unit – 3 : Research in the Context of LIS

- Theory and Empirics in LIS Research: Basic Concepts;
- Concept of Research in Social Sciences;
- Role of Libraries / Information Centres in Research;
- Trends of Research in Library and Information Science;
- Ethics of Research;
- New frontiers of multi-disciplinary domains like big data, data analytics, social justice based on gender neutrality and societal egalitarianism and their implications in the context of LIS research.

Unit – 4 : Concept of Ethnographic Research

- Introduction, Action Research, Integrated Research to study Culture integrated research to study subalterns, gender sensitivity, tribal culture, social justice etc.;
- Planning an Ethnographic Research;
- Collection and Documentation of Data;
- Different Methods: Participant Observation, Field Notes, In-Depth and Group Interviews, Diaries and Self-Documentation etc.

Unit – 5 : Class Test / Project / Seminar Presentation

Reading List

1. *Das, N.G. (2009). Statistical methods. Calcutta: Tata McGraw-Hill.*
2. *Donald, H. K. & Boyce, Bert R. (1991). Operations research for libraries and*

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3. *Glazier, Jack D, & Hall, Peter M. (1992). Qualitative research in information management. Englewood, CO: Libraries Unlimited.*

4. *Goon, A.M., Gupta, M.K. and Dasgupta, B. (1978). Basic statistics. Calcutta: World Press.*

5. *Gorman, G.E. & Clayton, Peter. (2004). Qualitative Research for the Information*

6. *Hafner, Arthur W. (1997). Descriptive statistical techniques for librarians. (2nd ed.). Chicago: American Library Association.*

7. *Hernon. P. (1989). Handbook of statistics for library decision making. Norwood, NJ: Ablex*

8. *information agencies: techniques for the evaluation of management decision alternatives. San Diego: Academic Press.*

9. *Khan, M. A. (2002). Research methods in library and information science. New Delhi: Cosmo Publications.*

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

11. *Lawal, I. O. (2009). Library and information science research in the 21st century: a guide for practicing librarians and students. Oxford,l UK: Chandos Pub.*

12. *literature. Brookfield, VT: Gower*

13. *London: Library Association.*

14. *Losee, Robert M., Jr., & Worley, Karen A. (1993). Research and evaluation for information professionals. San Diego: Academic Press.*

15. *McClure, Charles R. & Hernon, Peter, Ed. (1991). Library and Information science research: perspectives and strategies for improvement. Norwood,NJ: Ablex Publishing Corporation.*

16. *Moore, N. (2006). How to do research. 3rd ed. London: Facet Publishing.*

17. *Pickard, Alison Jane. (2012). Research Methods in Information. 2nd ed. London: Facet. Prytherch, Ray. (1994). Information management and library science: a guide to the*

18. *Professional: a practical handbook. 2nd ed. London: Facet.*

19. *professionals: Information management and systems. 2nd ed. Wagga Wagga,*

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Australia: Center for Information Studies, Charles Stuart University

20. *Simpson, I. S. (1990). How to interpret statistical data: A guide for librarians and information scientists. London: Library Association.*

21. *Slater, Margaret, Ed. (1990). Research methods in library and information studies.*

22. *Stephen, Peter, & Hornby, Susan. (1995). Simple statistics for library and information professionals. London: Library Association.*

23. https://www.educba.com/types-of-research-methodology/
24. https://ccsuniversity.ac.in > bridge-library
25. https://libguides.wits.ac.za/

Course Code: MLI-110

Course Title: Technical Writing

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students shall be able to:

1. **U**nderstand the process of technical writing.
2. Acquir**e** concept of commercial and industrial documentation along with various other related skills like editing, reviewing, proof-reading etc.
3. Clarify different aspects of plagiarism.
4. Identify the quality of scholarly communication in any subject.
5. Know the techniques of identification of predatory and truly scholarly journals.

Course Contents:

Unit - 1 : Fundamentals of Technical Writing

- Purpose, scope and characteristics of technical writing; difference from creative writing;
- Role of a Technical Writer;
- Principles of Technical Writing;
- Documentation deliverables ;

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- Printed documentation and Online Help Systems;
- Working with images and illustrations;
- Different types of communication process: oral, non-verbal, written and electronic;
- Reader-Writer analysis; Fog Index and Flesch Formula.

Unit - 2 : Documentation Process

- Understanding Audience/Readers;
- Collecting and Organizing information ;
- Disseminating information verbally and visually;
- Development of documents;
- Language as a medium of communication;
- Different forms of discourse;

Unit - 3 : Technical Writing Process

- Steps in technical writing, Document development process: technical report, review article, short communication, state-of-the-art report, trend report, dissertation;
- Guidelines and tools for technical writing, process of editing;
- Documentation Planning;
- Selection of Tools ;
- Information Architecture ;
- Templates and Page design;
- Audience Profiling.

Unit – 4 : Plagiarism

- Reasons and scope of Plagiarism;
- Methods of detection; plagiarism checking software;
- Sources of plagiarism;
- Predatory publications;
- Role of plagiarism in growth of predatory publications.

Unit – 5 : Class Test / Project / Seminar Presentation

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Reading List

1. Basu, B. N. (2011). *Technical writing;* New Delhi: Prentice Hall.

2. Blake, G. (1993). *The elements of technical writing*; New York: Macmillan.

3. Buckley, J and Mcmurrey, D. A. (2011). *Handbook of technical writing*; Boston: Cengage Learning.

4. Chatterjee, A (2013). *Elements of information analysis, consolidation and repackaging (IACR)*; Kolkata: Prova Prakashani.

5. Etter, A. (2015). *Modern technical writing: an introduction to software documentation*; Amazon Asia-Pacific.

6. Gill, J (2012). *How to Get Started as a Technical Writer*; Createspace Independent Pub.

7. Hackos, J. T. and Van Laan, K. (2012). *The insider's guide to technical writing*; California: XML Press.

8. Morgan, K; Spajic, S and McCart, A. (2015). *Technical Writing Process: The simple, five-step guide that anyone can use to create technical documents such as user guides, manuals and procedures*; Amazon Asia-Pacific.

9. Olsen, L. A. and Huckin, T. N. (1991). *Technical writing and professional communication*, 2nd Ed. New York: McGraw Hill.

10. Seetharama, S (2015). *Guidelines for technical writing for librarians & information professionals*; New Delhi: Ess Ess Pub.

11. https://www.instructionalsolutions.com/blog/become-a-technical-writer

12. https://www.skillsyouneed.com/write/technical-writing.html
13. https://techwhirl.com/what-is-technical-writing/
14. https://plagiarismdetector.net/
15. https://osc.cam.ac.uk/about-scholarly-communication/author-tools/considerations-when-choosing-journal/predatory-publishers
16. https://instr.iastate.libguides.com/predatory
17. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7237319/
18. https://beallslist.net/

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SECOND SEMESTER

Course Code: MLI-201

Course Title: Information and Society

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students shall be able to:

1. Comprehend and understand the concept of an information society and the information policies designed to promote societal growth.
2. Become familiar with economic concepts and management of information as well as knowledge.
3. Understand the importance of marketing of information products and services for the libraries and information centres.

Course Contents:

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Unit – 1 : Information Society

- Social implications of information ;
- National and International plans, policies and programmes relating to information for development, with special reference to India and developing countries ; Information technology policy of India;
- Politics of information : Global Information Order vs. Indigenous Knowledge System, Information explosion vs. Information dearth, Information divide and digital divide ; freedom, confidentiality and privacy of information ;
- Information Society and Knowledge Society: Characteristics, changing role of information organizations and professionals; the developing world perspective.

Unit – 2 : Knowledge Management

- Information. and Knowledge Management
- Knowledge management cycle: Knowledge creation, acquisition, capture, codification;
- Knowledge management tools : Selection and evaluation of knowledge management tools;
- Knowledge and organization: Knowledge workers, essential skills for knowledge workers; Role of library professionals in Knowledge management.

Unit – 3 : Economics of Information

- Economics of information : Scope and objective ;
- Information economics vs. economics of information ;
- Information as a resource: Production, distribution and consumption of information and knowledge;
- Economic analysis models, cost-benefit analysis and cost effectiveness.

Unit – 4 : Marketing of Library and Information Products and Services

- The marketing concept: Relevance and application in the information field;
- Planning and design of marketing strategy;
- Marketing research: Objectives and strategies, marketing segmentation and targeting methods;

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- Marketing mix: New product development and designing products, product life cycle, pricing decisions and promotion strategies.

Unit – 5 : Class Test / Project / Seminar Presentation

Reading List

1. Arrow, Kenneth J. (1984). Collected papers. V.4: *The Economics of Information*. Cambridge, MA: Harvard University Press

2. Bell, D. (1980). *The social framework of the information society.* In Derrouzos M C & Moses,L. (eds), The computer age: a twenty year view. Cambridge: MIT Press.

3. Dearnley, J. & Feather, J. (2001). *The wired world: an introduction to the theory and practice of the information society*. London: Library Association.

4. Delanty, G. (2001). *Challenging knowledge: the university in the knowledge society*. Open University Press.

5. Dordick, H.S. & Wang, G. (1993). *The information society: a retrospective view*. Newbury Park, CA: Sage.

6. Drucker, P. (1998). From capitalism to knowledge society. *The knowledge economy*, 15-34.

7. Feather, J. (2008). *The information society: a study of continuity and change.* 5th ed. London: Facet Publishing.

8. Geneva principles on the information society (2003). Retrieved from https://www.itu.int/net/wsis/docs/geneva/official/dop.html

9. Khanna, J. K. (1987). *Library & society*. Kurukshetra: Research Publications.

10. Levin, D K and Lippman, A, Ed. (1995). *The Economics of information*. 2v. Cheltenham: Edward Elgar Publishing.

11. Machlup, F. (1984). *The economics of information and human capital.* Princeton: Princeton University Press.

12. Martin, W. J. (1995). *The global information society.* Brookfield, VT: Gower.

13. Masuda, Y. (1980). *The information society as post-industrial society*. Washington, D.C.: World Future Society.

14. Mukherjee, B.(2012). *Information, Communication and Society*. New Delhi: Ess

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Ess Publications

15. Singh, A.P. and Yuvaraj, M (2013). *Information: Communication and Society*. New Delhi: Ess Ess Publications.

16. Singha Roy, D. K. (2014). *Knowledge society: new identities in emerging India*. New York: Cambridge University Press.

17. Sharma, Pandey S.K. (1987). *Library and society*. New Delhi: Ess Ess Publications.

18. UNESCO (2005). Towards Knowledge societies. Retrieved from http://www.unesco.org/en/worldreport

19. Webster, F. (2002). *Theories of the information society*. 2nd Ed. London: Routledge.

Course Code: MLI-202

Course Title: Knowledge Organisation (Practice)

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students shall be able to:

1 Acquaint themselves with Colon Classification (CC).
2 Build class number of documents through CC-7.
3 Understand classification of compound subjects following CC-7.

Course Contents:

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Unit – 1 : Classification of documents representing simple subjects by Colon Classification, Edition 7 (CC-7)

Unit – 2 : Classification of documents requiring addition of common isolates by CC-7

Unit – 3 : Classification of documents representing compound subjects by CC-7

Unit – 4 : Classification of documents representing complex subjects by CC-7

Unit – 5 : Class Test / Project / Seminar Presentation

Reading List

1. Dhiman, A. K. & Yashoda Rani. (2005). *Learn library classification*. New Delhi: Ess Ess.

2. Dhyani, P. (1998). *Library classification: theory and principles*. New Delhi: Wishwa Prakashan.

3. Dhyani, P. (1983). *Classification schemes and Indian libraries*. New Delhi: Metropolitan.

4. Foskett, D. J. (1974). *Classification and indexing in social sciences.* London: Aslib.

5. Halgamuge, S. K., & Wang, L. (2005). *Classification and clustering for knowledge discovery*. Berlin: Springer.

6. Hunter, E. J. (1988). *Classification made simple.* Aldershot: Gower.

7. Husain, S. (2004). *Library classification: facets and analysis*. Delhi: B. R. Publishing.

8. Navalani, K., & Gidwani, N. N. (1981). *A practical guide to colon classification*. New Delhi: Oxford & IBH.

9. Needham, C. D. (1971). *Organizing knowledge in libraries.* 2nd ed. London: Andre Deutsch.

10. Pathak, L. P. (2000). *Sociological terminology and classification schemes*. New Delhi: Mittal Publications.

11. Ranganathan, S. R. (2006). *Philosophy of library classification*. Bangalore: Ess Ess.

12. Ranganathan, S.R. (1966). *Elements of library classification*. 2nd ed. Bombay: UBS.

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13. Ranganathan, S.R. (1967). *Prolegomena to library classification*. 3rd ed. Bombay: UBS.

14. Ranganathan, S. R. (1987). *Colon Classification*. Bangalore: SRELS.

15. Rowley, J.E. & Farrow, J. (2000). *Organizing knowledge: an introduction to managing access to information*. 3rd ed. Aldershot: Gower.

16. Satija, M. P. (2011). *A guide to the theory and practice of Colon Classification*. New Delhi: Ess Ess.

17. Taylor, A. G. (2007). *Introduction to cataloguing and classification*.10th ed. New Delhi: Atlantic.

18. Vickery, B. C. (1968). *Faceted classification: a guide to construction and use of special schemes*. London: Aslib

Course Code: MLI-203

Course Title: Resource Description of Non-book Materials (Practice)
Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students will be able to:

1. Familiar with the rules and techniques of describing various types of non -book materials using AACR 2R.
2. Know the MARC21 tagging of similar materials.
3. Identify drawbacks of AACR2R in describing modern types of media and how to tackle it.

Course Contents:

Unit – 1 : Non-book Materials: their types and characteristics: Overview

Unit – 2 : Resource description of Non-book materials by AACR 2R

Unit – 3 : Resource description of Non-book materials according to MARC 21

Unit – 4: Class Test / Project / Seminar Presentation

Reading List

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1. Clack, D. H. (1990). *Authority control: Principles, applications, and instructions*. Chicago: American Library Association.

2. Hoffmann, C. F. B. (1980). *Getting ready for AACR 2: The cataloger's guide*. White Plains, NY: Knowledge Industry Publications.

3. Hunter, E. J. (1979). *AACR 2: An introduction to the second edition of Anglo-American cataloguing rules*. London: C. Bingley.

4. Hunter, E. J., & Fox, N. J. (1980). *Examples illustrating AACR 2: Anglo-American cataloguing rules.* 2nd ed. London: Library Association.

5. Hunter, E. J. (1989). *An introduction to AACR 2: A programmed guide to the second edition of the Anglo-American cataloguing rules, 1988 revision*. London: C. Bingley.

6. Hunter, E. J. (1989). *Examples illustrating AACR 2 1988 revision*. London: Library Association.

7. IFLA International Programme for UBC. (1984). *Guidelines for authority and reference entries*. London: IFLA International Programme for UBC.

8. Lehnus, D. J. (1971). *How to determine author and title entries according to AACR: An interpretive guide with card examples*. Dobbs Ferry, N.Y: Oceana Publications.

9. Machlup, Fritz.(1962). *The production and distribution of knowledge in the United States*

10. Maxwell, Robert & Maxwell, Margaret F. (1997). *Maxwell s handbook of AACR2.*

11. Olson, N. B., Intner, S. S., & Swanson, E. (1992). *Cataloging of audiovisual materials: A manual based on AACR 2*. DeKalb, Ill: Minnesota Scholarly Press.

12. Olson, N. B., Swanson, E., & Intner, S. S. (1985). *Cataloging of audiovisual materials: A manual based on AACR 2*. Mankato, Minn: Minnesota Scholarly Press.

13. Parameswaran, M. (1988). *Headings and access points for personal authors and corporate bodies: A comparative study of the Anglo-American Cataloguing Rules (2nd ed.) and the Classified Catalogue Code (5th ed.)*. Thesis (MSc) –

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Course Code: MLI-204

Course Title: Open Knowledge System
Full Marks -50
Semester Examination Marks - 40 Internal Assessment / Project -10

Course Outcome (CO)

After studying this course, students shall be able to:

1 Facilitate ethical use of scholarly information by the information professionals.
2 Empower future professionals through using open knowledge resources.
3 Develop libraries with open resources.

Unit – 1 : Introduction to Open Knowledge System

- Philosophy, Necessity and Purpose, Creative Commons;
- History and landmarks of open access movement - Project Gutenberg;
- Open access resources – characteristics, categories, advantages.

Unit – 2 : Open Access Mechanisms

- Open access models - Green Open Access, Gold Open Access, Gratis and Libre Open Access, Hybrid Model;
- Open access journals (Fee-based and No-Fee based, Popular);
- Open access repositories - Institutional repositories, GNU Project.

Unit – 3 : Promoting Open Access Services and Technologies

- Open access initiatives - Open access organizations, Open access scholarly publisher association, Public Library of Science (PLOS);
- Open access advocacy - Open access federation (BASE, CORE etc), Open access India;
- Open access policy tools – SHERPA/RoMEO, OpenDOAR.

Unit – 4 : Open Access Mandate and Policies

- Open access Declarations, Mandate, Policies, Licensing;

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- Model policies - NIH Public Access Policy, UNESCO open access policy to scientific information;
- Open access in India – National open access policy of India.

Unit – 5 : Class Test / Project / Seminar Presentation

Reading List

1. Chan, Leslie. (2012). *Re-imagining research impact in the open knowledge environment*. https://repository.up.ac.za/bitstream/handle/2263/19884/Chan_Reimagining(2012).pdf?seque

2. Chan, L., Kirsop, B., & Arunachalam, S. (2005). *Open access archiving: the fast track to building research capacity in developing countries*. London: Science and development network (SciDevNet). https://www.researchgate.net/profile/Arunachalam-Subbiah/publication/23778268_Open_Access_Archiving_The_Fast_Track_to_Building_Research_Capacity_in_Developing_Countries/links/0f31753191407ccec5000000/Open-Access-Archiving-The-Fast-Track-to-Building-Research-Capacity-in-Developing-Countries.pdf

3. Clinic on Library Applications of Data Processing, Sutton, B., Davis, C. H., University of Illinois at Urbana-Champaign., & Committee on Institutional Cooperation. (1992). *Networks, open access, and virtual libraries: implications for the research library*. Urbana-Champaign: Graduate School of Library and Information Science, University of Illinois at Urbana-Champaign.

4. Crawford, W. (2011). *Open access: what you need to know now*. Chicago: American Library Association.

5. D'Antoni, S., Savage, C., & Unesco. (2009). *Open educational resources: Conversations in cyberspace*. Paris: United Nations Educational, Scientific and Cultural Organization.

6. European Union. & UNESCO (2008). *Open Access: opportunities and challenges*. Luxembourg: EUROPE.

7. Godwin, P. & Parker, J. (2012). *Information literacy beyond Library 2.0*. London: Facet Pub.

8. Harnad, Stevan. (2008). *Mandate Open Access to maximizing research progress*. (http://hdl.handle.net/10077/2603.)

9. Harnad,S. (2005). *Impact analysis in the open access era*. Retrieved September 5,

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2013 from http://openaccess.eprints.org/index.php?/archives/2005/10/10.html.

10. Hood, A. K., & Association of Research Libraries. (2007). *Open access resources*. Washington, D.C: Association of Research Libraries.

11. ISSN International Centre & Unesco. (2013). *ROAD: Directory of open access scholarly resources*.
12. Jacobs, N. (2006). *Open access: key strategic, technical and economic aspects*. Oxford: Chandos.
13. Mukhopadhyay, P. (2014). *Interoperability initiatives*. In UNESCO course on Open Access (Module 4: Interoperability and Retrieval in OA – Unit 2). New Delhi: CEMCA/UNESCO.
14. Mukhopadhyay, P. (2014). *Resource description*. In UNESCO course on Open Access (Module 4: Interoperability and Retrieval in OA – Unit 1). New Delhi: CEMCA/UNESCO.
15. Okada, A., Connolly, T., & Scott, P. J. (2012). *Collaborative learning 2.0: Open educational resources*. Hershey PA: Information Science Reference.

16. Schmidt, B., & Kuchma, I. (2012). *Implementing open access mandates in Europe: Open AIRE study on the development of open access repository communities in Europe*. Göttingen: Universitätsverlag Göttingen.

17. Suber, P. (2012). *Open access*. Cambridge, Mass: MIT Press.

18. Swan, A & Chan, L. (2009). *Open access scholarly information sourcebook: practical steps for implementing open access*.(s.l.): Openoasis.org.

19. Swan, A., & UNESCO. (2012). *Policy guidelines for the development and promotion of open access*. Paris: United Nations Educational, Scientific, and Cultural Organization.

20. UNESCO. (2013). *An open door to UNESCO's knowledge*.

21. UNESCO. (2006). *UNESCO open access resource directory*. Paris: United Nations Educational Scientific and Cultural Organization.

22. Willinsky, J. (2006). *The access principle: the case for open access to research and scholarship*. Cambridge, Mass: MIT Press.

Course Code: MLI-205

Course Title: Information Retrieval – II
Full Marks -50
Semester Examination Marks - 40 Internal Assessment / Project -10

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Course Outcome (CO)

After studying this course, students shall be able to:

1 Identify the characteristics of information sources and databases
2 Develop theoretical foundation and information searching mechanism
3 Gain knowledge of interface design
4 Understand the purpose and process of evaluating information retrieval systems.

Unit – 1: Information Sources, Formats and Retrieval

- Resource Description: Library Catalogue and OPAC;
- Information Content: CD-ROM IR; Text and Multimedia IR; Online IR;
- Digital Information: Institutional Repositories, Access through Institution;
- Web Information: Web Searching Mechanism.

Unit – 2: Searching in Information Retrieval System

- Purpose, Prerequisites, Pre-search interview, Searching process;
- Retrieval models : Boolean Search model, Probabilistic retrieval model, Vector processing model; Natural language processing model;
- Formulation of Search Strategy: Search techniques - Boolean, Proximity, Range, Limiting, Truncation, String search;
- Use of classical library and information retrieval tools and techniques in Internet.

Unit – 3: Evaluation of Information Retrieval Systems

- Evaluation Fundamentals: Definition, Philosophy, Purpose, Methodologies;
- Evaluation Process: Types, Function, Levels of evaluation; Criteria;
- Evaluation Experiments: Parameters, Methodologies, Significance, Criticism;
- Evaluation of Scholarly Database: Content, User Interface, Subject Domains, Search Facilities.

Unit - 4 : Information Retrieval Landscape

- Information Infrastructure: Definition, Purpose, Design, Retrieval;
- Cloud Computing: Information contents, Formats, Access, Retrieval;

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- Semantic Web: Definition, Purpose, Function, Existence;
- Geographic Information System: Definition, Purpose, Information Retrieval, Ethical Issues.

Unit – 5 : Class Test / Project / Seminar Presentation

Reading List

1. Aitchison, J., Gilchrist, A. & Bawden, D. (2000). *Thesaurus construction and use: a practical manual*. 4th ed. London: Aslib.

2. Anderson, James D. (1997). *Guidelines for indexes and related information retrieval devices: a technical report*. Bethesda, Maryland: National Information Standard Organization.

3. Baeza-Yates, R. & Ribeiro-Neto, Berthier (1999). *Modern information retrieval*. New York: ACM Press; Harlow, England: Addison-Wesley.

4. Bawden, D. (2007). Information seeking and information retrieval: the core of the information curriculum. *Journal of Education for Library and Information Science*, 48 (2), pp.125-138.

5. Ceri, S., Bozzon, A., Brambilla, M., Della Valle, E., Fraternali, P. & Quarteroni, S. (2013). *Web information retrieval*. Heidelberg: Springer.

6. Chowdhury, G. G. (2010). *Introduction to modern information retrieval*. 3rd ed. London, Facet Publishing.

7. Chu, H. (2003). *Information representation and retrieval in the digital age*. Medford, N.J: Published for the American Society for Information Science and Technology by Information Today.

8. Foskett, A. C. (1996). *Subject approach to information*. 5th ed. London: The Library Association.

9. Fugmann, R. *Subject analysis and indexing: theoretical foundation and practical advice.* Frankfurt: Verlag, 1983.

10. Ghosh, S. B. & Satpathi, J. N., Eds. (1998). *Subject indexing systems: concepts, methods and techniques*. Calcutta. IASLIC.

11. Gilchrist, A. (1997). *From classification to knowledge organization*.

12. Hyvönen, E. (2012). *Publishing and using cultural heritage linked data on the semantic Web*. San Rafael, Calif: Morgan & Claypool Publishers.

13. International Organization for Standardization. (2013). *Information and documentation: Thesauri and interoperability with other vocabularies*. Geneva: ISO.

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14. ISO 2788:1986. *Guidelines for the establishment and development of monolingual thesauri.* Geneva: International Organization for Standardization.

15. Lancaster, F. W. (1998). *Indexing and abstracting in theory and practice*. 2nd ed. Champaign, Illinois: University of Illinois.

Course Code: MLI-206

Course Title: Information and Communication Technology for LIS (Theory) – II
Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students will be able to:

1. Design automated libraries through open source library management softwares (LMS).
2. Gain knowledge on establishing digital library and institutional repositories.
3. Manage language complexities in information retrieval.

Course Contents:

Unit – 1 : Automated Library System

- Library Automation: importance, evolution, functions, implementation and evaluation;
- Library automation software in India; Comparison of various software available in India;
- Open source software for library automation (KOHA, WEBLIS etc.);
- Trends of library automation software.

Unit – 2 : Digital Library System

- Automated, electronic, digital and virtual library systems;
- Digital library architecture, user interface and design issues; Metadata – types, functions and schemas;
- Open source digital library software (GSDL, DSpace, E-print Archive, Fedora) and their implementation;

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- Institutional repositories, research archives and electronic thesis and dissertations (ETD) management;
- Interoperability and Crosswalk; OAI/PMH and metadata harvesting.

Unit – 3 : Multilingual Library System and IR System

- Introduction to multilingual computing and its requirements;
- UNICODE (UTF-8 and UTF-16) and its application;
- Design and development of multilingual automated and digital library system (with special reference to Bengali language);
- Expert System; Decision Support System; Knowledge Discovery / Data Mining, Data Analytics;
- NLP Tools and Techniques.

Unit – 4 : Field Study

- Students are required to visit different types of Library and/or Information System to get idea about the recent development of ICT applications in the same. They are also required to submit a report individually on the above within the date of formal dissolution of classes. The choice of field in which the study is to be conducted will be decided by the Departmental Committee.

Unit – 5 : Class Test / Project / Seminar Presentation

Reading List

1. Bradley, P. (2007). *How to use Web 2.0 in your library*. London: Facet.
2. Bradley, P., & Aslib. (2000). *World Wide Web: how to design and construct web pages*. London: ASLIB.
3. Chowdhury, G. G., & Chowdhury, S. (2001). *Searching CD-ROM and online information sources*. London: Facet Publishing.
4. Engard, N. C. (2010). *Practical open source software for libraries*. Oxford: Chandos Publishing.

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5. Gorman, M. (2003). *The enduring library: technology, tradition, and the quest for balance*. Chicago: American Library Association.

6. Hagler, R. (1997). *The bibliographic record and information technology*. Chicago: American Library Association.

7. Jacsó, P., & Lancaster, F. W. (1999). *Build your own database*. Chicago: American Library Association.

8. Jean, G. (2011). *Digital library*. New Delhi: World Technologies.

9. Kernighan, B. W., & Ritchie, D. M. (1988). *The C programming language*. Englewood Cliffs, N.J: Prentice Hall.

10. Leon, A. & Mathews, L. (2004.). *Fundamentals of information technology* (Latest edition.). Chennai: Leon Tech World.

11. Library Association & Library Information Technology Centre. (1996). *Library technology*. London: Published jointly by the Library Association and the Library Information Technology Centre.

12. Matthews, J. R. (1980). *Choosing an automated library system: A planning guide*. Chicago: American Library Association.

13. Mukhopadhyay, P. (2013). *Course of action: Library information technology*. Kolkata: Prova Prakashani.

14. Mukhopadhyay, P. (2014). *Course of action: Automated library system*. Kolkata: Prova Prakashani.

15. Rajasekharan, K., & Nafala, K. M. (2007). *Creation of digital document archives with Winisis*. Kerala Institute of Local Administration.

16. Scott, M. L. (2006). *Programming language pragmatics*. San Francisco, CA: Morgan Kaufmann Pub.

17. Vaughan, J., & ALA Tech Source. (2011). *Web scale discovery services*. Chicago, Ill: ALA Tech Source.

18. Williams, H. E., & Lane, D. (2002). *Web database applications with PHP & MySQL*. Beijing: O'Reilly.

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Course Code: MLI-207

Course Title: Application of Information and Communication Technology in LIS (Practice) – II

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students will be able to:

1. Develop skill in RDBMS and MySQL.
2. Design ISO-2709 supported Web Enabled Bibliographic Database on ISIS platform.
3. Establish automated library, digital library and institutional repositories through Open Source Software.

Course Contents:

Unit – 1 : MySQL and / or PostGreSQL RDBMS

Unit – 2 : WWWISIS and / or ISIS 3W for Web Accessibility of ISO-2709 supported Bibliographic Databases

Unit – 3 : Library Automation Software – Managerial Level Tasks (SOUL / KOHA / WEBLIS)

Unit – 4 : Digital Library Software – GSDL / DSpace / E-Print Archive; Unicode based Multilingual Automated and Digital Library System

Unit – 5 : Class Test / Project / Seminar Presentation /Viva-Voce

Reading List

1. Anuradha, K.T., & Savanur, Kiran P. (2010). *Installing newgenlib: open source library automation package.* (SRELS Journal of Information Management, 2010, Vol.47, p621.). Sarada Ranganathan Endowment for Library Science.

2. Ayres, F. H., Ridley, M., Nielsen, L. P. S., & British Library. (1998). *The Bradford OPAC 2: Managing and displaying retrievals from a distributed search in Z39.50.* Boston Spa: British Library Research and Innovation Centre.

3. Breeding, M. (2009). *Opening up library systems through web service and SOA: Hype, or reality?.* Chicago: ALA TechSource.

4. Library and Information Technology Association (U.S.). (2002). *Open source*

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software for libraries: An open source for libraries collaboration. Chicago: LITA.

5. Morris, A., & Dyer, H. (1998). *Human aspects of library automation*. Brookfield, Vt: Gower

6. Mukhopadhyay, P. (2005.). *Library automation – software packages*. Unit 6 IN MLIS – MLII-104 (ICT Applications – Part I), New Delhi: IGNOU.

7. Mukhopadhyay, P. (2005). *Introduction to Library Automation*. Unit 1 IN CICTAL – BLII-003 (Library Automation and Digitization), New Delhi: IGNOU.

8. Mukhopadhyay, P. (2006). *Five laws and ten commandments: The open road of library automation in India.* (Proceedings of the National Seminar on Open Source Movement - Asian Perspective, XXII, IIT Roorkee, 2006. IASLIC, Kolkata. 2006. p. 27-36.) IASLIC.

9. Mukhopadhyay, P. (2008). *Library automation through Koha.* Kolkata: Prova Prakashani.

10. Mukhopadhyay, P. (2014). *Library automation processes*. Unit 2 IN BLIS – Course 9 (ICT in Libraries), New Delhi: IGNOU.

11. Murphy, F. J., Pollitt, A. S., & White, P. R. (1991). *Matching OPAC user interfaces to user needs.* Huddersfield: The Polytechnic of Huddersfield.

12. Pitkin, G. M. (1991). *The Evolution of library automation: Management issues and future perspectives.* Westport, CT: Meckler.

13. Singh, M., & Sanaman, G. (December 01, 2012). *Open source integrated library management systems: Comparative analysis of Koha and New Gen Lib*. Electronic Library, 30, 6, 809-832.

14. Sirohi, S., & Gupta, A. (2010). *Koha 3 library management system*. Birmingham: Packt Pub.

15. Texas State Library. (1995). *Library automation standards and guidelines*. Austin, Tex: Texas State Library, Library Development Division.

16. Tramullas, J., & In Garrido, P. (2013). *Library automation and OPAC 2.0: Information access and services in the 2.0 landscape*. Hershey, Pa: Information Science Reference.

17. Winnebago Software Company. (1993). *Guide to library automation: A step-by-*

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step introduction. Caledonia, MN: Winnebago Software Co.

Course Code: MLI-208
Course Title: Quantitative Techniques in Library and Information Centres
Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students will be able to:

1. Build mathematical and statistical foundation of measuring information activities.
2. Explore methodologies for analysis of data.
3. Understand sampling techniques in detail.
4. Understand the hypothesis and to know the methods of testing it
5. Develop capacity building of collection, collation and analysis of subject-specific data

Course Contents:

Unit – 1 : Useful Mathematical Devices

- Concept of Function, Independent and Dependent Variables;
- Graphical Presentation of Functions Set Theory and Relations among Functions;
- Concept of errors (Absolute, Relative and Percentage Errors);
- Concept of Common and Natural Logarithm;
- A.P. Series and G.P. Series;
- Concept of Permutation and Combination.

Unit – 2 : Descriptive Statistics for Collection and Presentation of Data

- Concepts of frequency distribution and relative frequency distribution;
- Measures of Central Tendency (Mean, Median Mode, Other Averages);
- Measures of Dispersion (Range, Mean Deviation, standard Deviation);

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- Measures of Skewness and Kurtosis;
- Curve fitting and method of least squares;
- Measures of Relationship (Covariance, Correlation, Regression, Pearson's Correlation Coefficient and Spearman's Rank Correlation Co-efficient).

Unit – 3 : Analytical Methods for Collection and Presentation of Data

- Analysis of Variance (ANOVA Technique, One-Way ANOVA, Two-Way ANOVA), Analysis of Co-Variance (ANOCOVA);
- Linear Regression Analysis (Least Squares Estimation, Standard Error, Coefficient of Determination);
- Interpolation: Finite Differences, Differences of a Polynomial Function, Newton's Formula;
- Basic concepts of theoretical distribution.

Unit - 4 : Sampling and Statistical Inference

- Sampling Techniques;
- Probability Theories;
- Hypotheses Testing – Non-parametric tests (Chi-square test, Sign test), Parametric tests; Variance analysis;
- Statistical Inference (Point Estimation, Interval Estimation, Sample Size and its determination, Testing of Significance).

Unit - 5 : Class Test / Project / Seminar Presentation /Viva-Voce

Reading List

1. Agarwal, B.L. (2013). *Basic Statistics*. New Delhi: New Age
2. Agresti, A. and Finlay, B. (1997). *Statistical Methods for the Social Sciences*, 3rd ed. New Jersey: Prentice Hall

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3. Cantu-Ortiz, F.J. ed. (2018). *Research Analytics: Boosting University Productivity and Competitiveness through Scientometrics*. London: CRC Press
4. Das, N.G. (2009). *Statistical Methods*. New Delhi: Tata McGraw Hill
5. Diekhoff, G.M. (1996). *Basic Statistics for the Social and Behavioral Sciences*. New Jersey: Prentice Hall
6. Elhance, D.N., Elhance, V and Aggarwal, B.M. (2010). *Fundamentals of Statistics*. New Delhi: Kitab Mahal.
7. Gun, A.M., Gupta, M.K. and Dasgupta, B. (2011). *Basic Statistics.* Kolkata: World Press
8. Levin, J and Fox, J.A. (1997). *Elementary Statistics in Social Research*, 7th ed. New York: Longman
9. Mohaty, B and Misra, S. (2015). *Statistics for Behavioral and Social Sciences*. New Delhi: Sage
10. Patten, M.L (2017). *Understanding Research Methods: An Overview of the Essentials*. London: Routledge
11. Rao, I.K.R (2010). *Growth of Literature and Measures of Scientific Productivity*. New Delhi, Bangalore: Ess Ess Pub. Sarada Ranganathan Endowment for Library Science.
12. Saxena, H.C and Kapur, J.N. (2015). *Mathematical Statistics*, 20th Ed. New Delhi: S. Chand.
13. Singh, Y.K. (2006). *Fundamentals of Research Methodology and Statistics.* New Delhi: New Age
14. Sprinthall, R.C. (1997). *Basic Statistical Analysis*, 5th ed. Boston: Allyn and Bacon
15. Taylor, B., Sinha, G and Ghoshal, T (2006). *Research Methodology: A Guide for Researchers in Management and Social Sciences*. New Delhi: Prentice Hall
16. Vaughan, L (2009). *Statistical Methods for the Information Professional*. New Jersey: Information Today
17. Walsh, A. (1990). *Statistics for the Social Sciences: with Computer Applications*. New York: Harper & Row.
18. http://www.openintro.org/stat/
19. https://ocw.mit.edu/courses/18-650-statistics-for-applications-fall-2016/
20. https://ocw.mit.edu/courses/18-05-introduction-to-probability-and-statistics-spring-2014/
21. https://www.socscistatistics.com/

Course Code: MLI-209

Course Title: Studies of Academic Metrics

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

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Course Outcomes (CO)

After studying this course, students will be able to:

1. Explore metrics for evaluation of scholarly communication.
2. Measure research performances and productivity of agents of research activities.
3. Enhance the aspirants' data analysis skill and competencies in order to escalate the employability of library and information professionals in the areas of big data analytics/ data science.
4. Measure the quality of journals and their articles.
5. Identify potential authors in any subject domain.
6. Identify potential research institutions and the prolific research topics in different subject domains.
7. Implement different methods for analysis of research impact using altmetric tools.

Course Contents:

Unit – 1 : Research Evaluation Metrics and Related Indicators

- Use of Citation-based Indicators for Research Evaluation;
- Concepts of Librametrics, Bibliometrics, Scientometrics, Informetrics, Webometrics, etc.;
- Common Bibliometric Indicators;
- Citation Analysis;
- Classical Bibliometric Laws (Bradford's Law, Lotka's Law, Zipf's Law, Pareto's Law, Sengupta's Law, Benford's Law);
- Transition from Citation-based Indicators to Author Level and Article Level Metrics for Research Evaluation;
- Non-Citation Indicators;
- Author Level Indicators Using Authors' Public Profiles [including normalized h-index and tapered h-index], g-index, e-index, R-index, a-index etc.);
- Article Level Metrics Using Altmetric Tools;
- Indexes for personal success of researchers;
- Indexes for characterization of research networks;

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- Indexes for measuring quality of scientific output.

Unit – 2 : Performance Measurement of R & D in S & T

- Citation Databases- The Web of Science, Scopus, Indian Citation Index (ICI);
- CiteSeerX, Google Scholar and Google Scholar Citations;
- Analytical Products with Journal Performance Metrics;
- Journal Citation Reports (JCR®);
- New Platforms for Evaluating Scholarly Communications;
- SCImago Journal & Country Rank (SJR) [ScimagoJR.com], eigenFactor.org, Publish or Perish (POP) Software, Journal Metrics.com;
- Openrefine, bibexcel, vosviewer;
- Bibliometric and informetric measurements in different emerging subject domains of science (amplituhedron, conformal bootstrap, black hole information paradox, holographic entanglement entropy etc.) and social science (gender neutrality, feminism, social justice, actuarial science etc.).

Unit – 3 : Article and Author-Level Measurements

- Unique Identifiers for Authors and Researchers;
- Open Researcher and Contributor ID (ORCID);
- Article Level Metrics (Altmetrics), Measuring Altmetrics using Altmetric.com;
- Measuring Altmetrics using Impact Story.org;
- Altmetrics for Online Journals;
- Academic Social Networks;
- ResearchGate.net, Academia.edu, GetCited.org, Social Science Research Network;
- Other Important Social Networks;
- Regional Journal Networks with Bibliometric Indicators;
- SciELO – Scientific Electronic Library Online, Redalyc, Online Citation and Reference Management Tools (Mendeley, CiteULike, Zotero, Google Scholar Library, EndNote Basic).

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Unit – 4 : Measurement of Scientific Productivity

- Vickery's Interpretation and Brook's Work;
- Characteristics of Bibliometric distributions;
- Ageing and Obsolescence study – Half-life Calculation;
- Validity of bibliometric measurement and application of bibliometric laws in libraries and information centres;
- Models of Growth of Literature: Derek De Solla Price Generalized Model (Based on Little Science, Big Science); Power Model; Exponential Model; Logistic Model; Gompertz Model etc.

Unit – 5 : Class Test / Project / Seminar Presentation

Reading List

1. Andres, A. (2009). *Measuring academic research: how to undertake bibliometric study*. Oxford: Chandos Publishing.

2. Andrews, Penny & Leeds Metropolitan University. (2013). *Amplifying your research and academic profile – a researcher's guide to social media and altmetrics.*

3. Borgman, C. L. (1990). *Scholarly communication and bibliometrics*. Newbury Park: Sage Publications.

4. Braun, T. (2007). *The impact factor of scientific and scholarly journals: Its use and misuse in research evaluation: a selection of papers reprinted mainly from the journal Scientometrics*. Budapest: Akadémiai Kiadó.

5. Cronin, B., & Sugimoto, C. R., Ed. (2014). *Beyond bibliometrics: harnessing multidimensional indicators of scholarly impact*. Cambridge, Mass.: MIT Press.

6. De Bellis. N. (2009). *Bibliometrics and citation analysis: from the Science citation index to cybermetrics*. Lanham, MD: Scarecrow Press.

7. Tattersall, A. (2014). *Altmetrics: A practical guide for librarians, researchers and academics*. London: Facet Pub.

8. Thelwall, M.A. (2004). *Link analysis: an information science approach*. London: Elsevier Academic.

9. Thelwall, M. (2009). *Introduction to webometrics: quantitative web research for the*

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social sciences. San Rafael: Morgan & Claypool.

10. Garfield, E. (1979). *Citation Indexing – Its theory and application in science and technology and humanities*. New York: John Wiley.

11. Sen, B. K. (2005). *Indian National Science Academy & Indian National Commission for History of Science. Growth of scientific periodicals in India (1901-1947).*

12. Mukhopadhyay, P. (2002). *The calculation of web impact factors for educational institutes of India: a webometric study.* Proceedings of the National Seminar on Information Management in Electronic Libraries (ImeL), Kharagpur, 2002. Indian Institute of Technology, Kharagpur 2002 (pp. 531–539).

13. Egghe, L. (2005). *Power laws in the information production process: Lotkaian informetrics*. Amsterdam: Elsevier/Academic Press.

14. Egghe, L. & Rousseau, R. (1990). *Introduction to informetrics: quantitative methods in library, documentation, and information science*. Amsterdam: Elsevier Science Publishers.

15. Egghe, L., Neelameghan, A., & Sarada Ranganathan Endowment for Library Science. (2000). *Lectures on informetrics and scientometrics*. Bangalore: Sarada Ranganathan Endowment for Library Science.

16. Egghe, Leo. (2009). *Lotkaian informetrics and applications to social networks*. The Belgian Mathematical Society.
17. https://emeunet.eular.org/scientometrics.cfm
18. https://www.oecd.org/sti/inno/scientometrics.htm
19. https://firstmonday.org/ojs/index.php/fm/article/view/2874/2570
20. https://scientometrics.hse.ru/en/instructions/
21. http://www.garfield.library.upenn.edu/essays.html
22. https://liu.cwp.libguides.com/c.php?g=225325&p=4966525
23. https://www.nihlibrary.nih.gov/services/bibliometrics/bibliometrics-training-series
24. https://subjectguides.york.ac.uk/bibliometrics
25. https://www.wrclib.noaa.gov/tools/bibliometrics.html
26. https://lib.guides.umd.edu/bibliometrics/bibliometrics
27. https://www.altmetric.com/products/free-tools/
28. https://altmetrics.org/tools/
29. https://uri.libguides.com/researchimpact/tools

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30. https://libguides.lb.polyu.edu.hk/altmetrics/tools

Course Code: MLI-210

Course Title: Dissertation

Full Marks – 50 Examination Marks – 40 Class Test / Project / Seminar Presentation - 10

Course Outcomes (CO)

After studying this course, students will be able to:

1. Understand and follow the research process.
2. Converge assimilated knowledge and acquired technological skill.
3. Gain experience the freedom of conducting research.

Course Contents:

Unit – 1 : Preparation of Dissertation (including Presentation in Seminar)

Unit – 2 : Viva-voce

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