

CENTRAL UNIVERSITY OF PUNJAB



Master of Library and Information Sciences (M. Lib. I. Sc.)

**Department of Library and Information
Sciences**

Batch 2023

GRADUATE ATTRIBUTES

Graduates shall have the skills for organising, processing, and retrieving information, as well as managing libraries and information centres. Further, the graduates shall be able to assess users' information needs in all types of libraries and information centres. They shall also be capable of imparting appropriate information services in libraries. Graduates shall contribute to the knowledge economy of the country by providing quality information services to library users. Graduates shall work in different cultural settings, and be equipped to make valuable contributions to society, locally and globally. Graduates shall have the knowledge and skill of developing and managing National, Regional and International Information Systems and Programmes.

Course Structure

SEMESTER – I

COURSE CODE	COURSE TITLE	Course Type	L	T	P	CR
LIS.506	Fundamentals of Library and Information Science	Core	4	0	0	4
LIS.507	Information Sources and Services	Core	4	0	0	4
LIS.508	Foundations of Computer & Information Technology in Libraries	Core	4	0	0	4
LIS.521	Knowledge Organisation – Classification	Core	4	0	0	4
LIS.523	Knowledge Organisation – Classification (Practical)	Skill based	0	0	8	4
Discipline Elective (Any one of the following)						
LIS.511	Information Sources in Science and Technology	Disciplinary Elective	3	0	0	3
LIS.513	Information Literacy in Library and Information Centres		3	0	0	
LIS.527	Fundamentals of Preservation and Conservation of Library Materials		3	0	0	
Total			20	0	8	23

SEMESTER – II

COURSE CODE	COURSE TITLE	Course Type	L	T	P	CR
LIS.509	Foundations of Computer & Information Technology in Libraries (Practical)	Skill based	0	0	4	2
LIS.522	Knowledge Organisation – Cataloguing and Metadata	Core	4	0	0	4
LIS.524	Knowledge Organisation - Cataloguing and Metadata (Practical)	Skill based	0	0	4	2
LIS.551	Information Storage and Retrieval	Core	4	0	0	4
LIS.552	Management of Libraries and Information Centres	Core	4	0	0	4

LIS.559	Emerging Trends in LIS and Research Data Management	Core	4	0	0	4
xxx.xxx	Inter-Disciplinary Course	ID	2	0	0	2
Discipline Elective (Any one of the following)						
LIS.525	Knowledge Management System	Disciplinary Elective	3	0	0	3
LIS.580	Agriculture Information Sources and System		3	0	0	
LIS.582	Public Library and community-based information system		3	0	0	
Total			17	0	8	25
ID courses offered by Department of Library and Information Sciences to other departments						
LIS.512	Scholarly Communication and Information Literacy Skills	ID	2	0	0	2
LIS.514	Foundations of Research Evaluation		2	0	0	2

SEMESTER – III

COURSE CODE	COURSE TITLE	Course Type	L	T	P	CR
LIS.501	Entrepreneurship in Library and Information Science	Skill based	2	0	0	2
LIS.554	Research Methodology and Statistical Techniques	Compulsory Foundation	4	0	0	4
LIS.562	Library Automation, Digital Libraries and Networking	Core	4	0	0	4
LIS.558	Library Automation and Digital Libraries (Practical)	Skill based	0	0	4	2
LIS.600	Research Proposal	Skill based	0	0	8	4
xxx.xxx	Value Added Course to be offered by other departments	VAC	-	-	-	2
Discipline Elective (Any one of the following)						
LIS.557	Technical Writing	Disciplinary Elective	3	0	0	3
LIS.583	Business Information System		3	0	0	
LIS.584	Health Sciences Information System		3	0	0	
LIS.585	Information Analysis, Consolidation and Repackaging		3	0	0	
LIS.561	Legal Information System		3	0	0	
LIS.556	Engineering and Technology Library and Information System		3	0	0	
LIS.573	Academic and Special Library Systems		3	0	0	
LIS.581	Social Science Information Sources and System		3	0	0	
Total			16	2	12	21
Value Added (Offered by DLISc to Other Departments)						
LIS.515	R & Python for Social Science & Humanities	VAC	2	0	0	2

SEMESTER - IV

COURSE CODE	COURSE TITLE	Course Type	L	T	P	CR
LIS.591/ LIS.601	Internship / Dissertation	Skill based	0	0	32	16
Total			0	0	32	16

L- Lectures, T- Tutorials, P- Practical

FC- Foundation Course, CC- Core Course, EC- Elective Course, IDC- Interdisciplinary Course, PC- Practical Course.

- One **non-credit hour (two contact hours) for Individualized Education Plan/tutorial** to be added for remedial teaching to cater to the learning needs of all the learners. Objective of this class is to facilitate the students to understand the concepts better, absorb and assimilate the content more effectively during extra hours.
- Every student has to take up 1 ID course and 1 VAC course of 2 credits each (Total 04 credits) from other disciplines in any two semesters of the program.
- Value added courses may be offered through MOOC if facilities are not available in the university.

Evaluation Criteria for Theory Courses

Core, Discipline Elective, Compulsory Foundation, Value Added and Interdisciplinary Courses			Entrepreneurship Course	
	Marks	Evaluation	Marks	Evaluation
Internal Assessment	25	Various	-	-
Mid-semester test (MST)	25	Subjective	25	Objective
End-semester test (EST)	50	Subjective (70%) Objective (30%)	25	Subjective

- ❖ The mid-semester test (MST) will be subjective type (25 marks)
- ❖ End semester exam (50 marks) (70% subjective type and 30% objective type).
 - The objective type will include one-word answers, fill-in the blank, sentence completion, true/false, MCQs', matching, analogies, rating and checklists.
 - The subjective type will include a very short answer (1-2 lines), short answer (one paragraph), essay type with restricted response, and essay type with extended response.

As per NEP2020 to give flexibility to teachers, the number of questions and distribution of marks shall be decided by the department. Further, the departments/teachers to conduct internal assessment for different courses using any two or more of the given methods:

- ❖ Surprise Tests, in-depth interview, unstructured interview, Jigsaw method, Think-Pair Share, Students Teams Achievement Division (STAD), Rubrics, portfolios, case based evaluation, video based evaluation, Kahoot, Padlet, Directed paraphrasing, Approximate analogies, one sentence summary, Pro and con grid, student generated questions, case analysis, simulated problem solving, media assisted evaluation, Application cards, Minute paper, open book techniques, classroom assignments, homework assignments, term paper.
- ❖ The pattern for evaluation of discipline enrichment courses (DEC) and Entrepreneurship courses were discussed. It was resolved to give 50% weightage for mid-semester test (50 marks) and 50% for final examination comprising objective type questions (50 marks) for DEC. Further, it was resolved to give 50% weightage for mid-semester test comprising objective type questions (25 marks) and 50% for final examination comprising subjective type questions (25 marks) for Entrepreneurship course.

Course Structure of M. Lib. I. Sc. Programme

SEMESTER – I

Course Code: LIS.506

Course Name: Fundamentals of Library & Information Science

Total Hours: 60 Hours

L	T	P	Cr
4	0	0	4

Course Learning Outcomes

After the completion of the course, student will be able to:

- CLO1: Have working knowledge of different types of libraries and the knowledge of the laws of library science and their implications with reference to modern library services.
- CLO2: Understand the importance of professional associations and Organisations for the development of libraries.
- CLO3: Summarise the essentialities of the professional library associations across the globe.
- CLO4: Evaluate and understand the need of library legislation, Intellectual Property Rights (IPR) in changing web-based environments.

Unit/Hours	Content	Mapping with CLOs
Unit I/ 15 Hours	<p>Library as a Social Institution: Library as a Social Institution. Development of libraries in India: Committees and Commissions on Libraries in India. Types of Libraries (Academic, Public, Special, National). Role of Library and Information Centres in Modern Society. Five Laws of Library Science and their implications. Public Relations and Extension Activities.</p> <p>Reflection: Compare the different types of libraries.</p>	CLO 1
Unit II/ 15 Hours	<p>Role of Professional Associations and Organisations for the Development of Libraries: National Library of India: Concept, Functions and Services. Professional Associations: ILA, ALA, IASLIC, CILIP, IATLIS, SLA. Role of National and International Organisations: UGC, RRRLF, UNESCO and IFLA.</p> <p>Reflection: Compare the different professional associations and national international organisations.</p>	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 15 Hours	Library Legislation and Legal Issues: Library Legislation: Need, Purpose, Objectives. Library Legislation in India: Structure and Salient Features. Press and Registration of books Act. Delivery of Books (Public Libraries) Act. Right to Information Act Reflection: Discuss the different library legislations and Model Library Act.	CLO 3
Unit IV/ 15 Hours	Information, Communication, and Professional Ethics: Information Life Cycle. Professional Skills and Competencies. Professional Ethics. Role of Library and Information Professionals in the Digital Era. Reflection: Discuss the changing role of library and information science professionals.	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Bhatt, R. K. (1995). History and development of libraries in India. Mittal Publications.
2. Buckland, M. (2017). *Information and society*. MIT Press.
3. Butler, P. (2011). *An introduction to library science*. Read Books Ltd.
4. Cherifi, H., Zain, J. M., & El-Qawasmeh, E. (2011). Digital Information and Communication Technology and Its Applications. In *Conference proceedings DICTAP* (p. 74).
5. Chowdhury, G. G. (2008). *Librarianship: an introduction*. Facet Publishing.
1. Coghill, J. G., & Russell, R. G. (Eds.). (2016). *Developing librarian competencies for the digital age*. Rowman & Littlefield.
2. Ershova, T. V., & Hohlov, Y. E. (Eds.). (2013). *Libraries in the information society (Vol. 102)*. Walter de Gruyter.
3. Feather, J. (2013). *The information society: A study of continuity and change*. Facet publishing.
4. Kanakbala A. Jani, Kiran A. Jani. (2015). *Public Libraries Acts in India: With Library Related Other Acts*. Standard Publishers (India).
5. Khanna, J. K. (1994). *Library and society*. ESS Publications, New Delhi.
6. Kumar, K. (1997). *Library organisation*. South Asia Books, New Delhi.
7. Lynden, F. C., & Chapman, E. A. (Eds.). (2002). *Advances in librarianship*. Academic Press.
8. Naib, S. (2013). *The Right to Information in India*. Oxford University Press.

9. Nasirudheen, T. (2018). *Library Movement and Development in India: A State Wise Scan*. Ess Ess Publications, New Delhi
10. Pandey, N & Dharni, K. (2015). *Intellectual Property Rights*. PHI Learning Private Limited.
11. Patel, J., Kumar, K., & Krishan, K. (2001). *Libraries and librarianship in India*. Greenwood Publishing Group.
12. Ranganathan, S.R. (2006). *Five laws of library science*. Sarada Ranganathan Endowment for Library Science, Bangalore.
13. Rubin, R. E. (2017). *Foundations of library and information science*. American Library Association.
14. Singh, S. P., & Kumar, K. (2005). *Special libraries in the electronic environment*. Bookwell.
15. Sobel, K. (2012). *Information Basics for College Students*. ABC-CLIO.
16. Taher, M. (2001). *Libraries in India's National Developmental Perspective: A Saga of Fifty Years Since Independence*. Concept Publishing Company.
17. Venkatappaiah, V., & M. Madhusudhan M. (2006). *Public Library Legislation in the New Millennium: New Model Public Library Acts for the Union, States and Union Territories*. Bookwell.

Web Resources

1. <https://en.unesco.org/>
2. <https://www.ifla.org/>
3. <http://rrrlf.nic.in/>

Course Code: LIS.507

Course Title: INFORMATION SOURCES AND SERVICES

Total Hours: 60 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Categorise the various types of information sources.
- CLO2: Conceptualise reference service, referral service and reference interview.
- CLO3: Examine the different information services and products along with their recent trends.
- CLO4: Analyse National Information Centres and Services for different user communities.

L	T	P	Cr
4	0	0	4

Unit/Hours	Content	Mapping with CLOs
Unit I/ 15 Hours	Reference and Information Sources: Information Sources - Nature, Characteristics, Types and Formats. Documentary and Non-Documentary sources of information. Categories: Primary, Secondary and Tertiary information sources. Electronic Information Resources - Subject Gateways, Web Portals. Databases: Bibliographic, Numeric, Full text, Abstracting, Indexing and Citations Databases. Evaluation of Reference sources and Web resources. Reflection: Compare different types of information sources.	CLO 1
Unit II/ 15 Hours	Reference Services: Concept, types, theories and trends. Reference interview. Information Users and their Information Needs: Categories of information users; Ascertaining Users' Information need. Reflection: Compare the different types of information needs of users and understand the various reference services provided by libraries.	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 15 Hours	Information Services and Products: Information Services and products: Concepts, definition, need and trends. Community Information Services Alerting Services: need, techniques and evaluation (CAS and SDI). Bibliographic, referral, Interlibrary Loan, document delivery and translation services. Reflection: Discuss the practical aspects of different information services.	CLO 3
Unit IV/ 15 Hours	National Centres, Information Systems and Services: Study of National, International and Commercial Information Systems and Services (CSIR-NIScPR, DESIDOC, INFLIBNET, DELNET, NKN): Background, their services and products. Reflection: Students will be encouraged to discover new services of national information centres.	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Sweetland, J. H., & Cheney, F. N. (2001). *Fundamental reference sources*. American Library Association.
2. Crawford, J. (2010). *Evaluation of library and information services*. Routledge.
3. Farmer, L. (Ed.). (2007). *The human side of reference and information services in academic libraries: adding value in the digital world*. Elsevier.
4. Foskett, D. J. (1967). *Information service in libraries*. Archon Book Hamden, Connecticut.
5. Dowell, D. R., & Fourie, D. K. (2009). *Libraries in The Information Age: An Introduction And Career Exploration (Library And Information Science Text)*. Libraries Unlimited, New York.
6. Singh, G. (2013). *Information sources, services and systems*. PHI Learning Pvt. Ltd..
7. Katz, W. A. (2002). *Introduction to Reference Work: Reference services and reference practices*. Mc Graw Hill.
8. Krishan, K. (2009). *Reference service*. Vikas Publishing House.
9. Ranganathan, S. R. (1990). *Reference service*. Sarada Ranganathan Endowment for Library Science, Bangalore.
10. Walford, A.J. (1996). *Guide to reference books*. Library Association, London.

11. Woodsworth, A., & Williams II, J. F. (2018). *Managing the economics of owning, leasing and contracting out information services*. Routledge.

Web Resources

1. <https://inlibnet.ac.in/>
2. <http://delnet.in/>
3. <http://www.niscair.res.in/>

School Board, SCIS, CUPB

Course Code: LIS.521

Course Title: Knowledge Organisation – Classification (Theory)

Total Hours: 60 Hours

Course Learning Outcomes

After the completion of the course, students will be able to:

- CLO1: Conceptualise knowledge organisation and library classification.
- CLO2: Understand the implementation of enumerative schemes of classification.
- CLO3: Understand the implementation of faceted and analytico-synthetic schemes of classifications
- CLO4: Explore recent trends in organising web-based resources.
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L	T	P	Cr
4	0	0	4

Unit/Hours	Content	Mapping with CLOs
Unit I/ 16 Hours	Introduction to Knowledge Organisation: Universe of Knowledge: Nature and attributes. Subject: Meaning and types (Basic, Compound, Complex) Nature and Modes of Formation of Subjects. Species of Library Classification. Faceted and Enumerative Schemes of classification. Brief introduction to Descriptive and Dynamic Theory of Classification. Knowledge Organisation - Classification – Concept, Purpose and Functions. Canons of Library Classification. Knowledge Classification and Book Classification. Reflection: Comprehension of knowledge organisation and the theory of library classification.	CLO 1
Unit II/ 14 Hours	Dewey Decimal Classification (DDC): Salient Features and Components of DDC. Structure and layout, organisation of basic classes, hierarchy, coverage, notation, simplicity, memorability, hospitality, Chain-Structure, flexibility, manual, DDC Summaries, Table Schedules Summaries, entries, notes and Relative Index. Historical Development and distinctions in various editions of DDC. Reflection: Discussion on the practical implications of the concepts of DDC.	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 18 Hours	<p>Colon Classification (CC) and Universal Decimal Classification (UDC): Colon Classification (CC): Salient features and Components. Facet analysis, principles of facet sequence, Fundamental Categories (PMEST), Devices, Notational System, Three planes, Mnemonics, Common Isolates (ACI and PCT), Rounds and Levels, Index. Phase Relations. Brief Introduction to the Seventh Edition of CC.</p> <p>Universal Decimal Classification (UDC): Salient Features. Nature and Scope, Structure, Notational System, Arrangement and Tables in UDC. Common Auxiliary Tables: Scope and Examples. Common Auxiliary Signs: Scope and Types. Master Reference File (UDC MRF): Basic Concept UDC Translations: Current Status.</p> <p>Reflection: Discussion on the practical implications of the concepts of CC and UDC.</p>	CLO 3
Unit IV/ 12 Hours	<p>Current Trends and Organisation of the Web Resources: Web Dewey and UDC online (Brief Description). Brief Introduction of OCLC Classify, Folksonomy: Basic concept, Tagging and Social Bookmarking. Semantic Web: Concept, need, purpose, and advantages. Simple Knowledge Organisation System (SKOS), Taxonomies and Ontologies.</p> <p>Reflection: Analysis of the current trends in organisation of web resources and the future of library classification.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Batley, S. (2014).Ed. 2nd. *Classification in theory and practice*. Oxford: Chandos.
2. Dhyani, P. (2008). *Library classification: Theory and principles*. New Delhi: New Age International (P) Ltd, New Delhi.
3. Krishan, K. (1979). *Theory of classification (4th Ed.)*. New Delhi: Vikas pub.

4. Ranganathan, S. R. (2006). *Philosophy of library classification*. Copenhagen: E. Munksgaard.
5. Satija, M. P. (2011). *A guide to the theory and practice of colon classification*. New Delhi: EssEss Publications
6. Satija, M. P. (2012). *Exercises in the 23rd edition of Dewey Decimal Classification*. New Delhi: EssEss pub.
7. Satija, M. P. (2013). *The theory and practice of the Dewey Decimal Classification system (2ndEd.)*. Oxford: Chandos Pub.
8. Wali, M. L., & Baba A. M. (1982). *Manual of library classification practice for Dewey Decimal and Colon classification schemes*. Srinagar: the auths.

Course Code: LIS.523

**Course Title: Knowledge Organisation – Classification
(Practical)**

Total Hours: 120 hours

L	T	P	Cr
0	0	8	4

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Develop knowledge and skills to classify different subjects of documents using Dewey Decimal Classification (DDC).
- CLO2: Develop knowledge and skills to classify different subjects of documents using Colon Classification (CC).
- CLO3: Develop knowledge and skills to classify different subjects of documents using Universal Decimal Classification (UDC).
- CLO4: Compare the differences between a faceted scheme of classification and an enumerative scheme of classification.

Unit/Hours	Content	Mapping with CLOs
Unit I/ 30 Hours	Classification according to DDC (23rd Ed.): Classification of Documents representing simple subjects. Use of the DDC schedule. Reflection: Understand the practical implications of classifying documents using DDC.	CLO 1
Unit II/ 30 Hours	Classification of Documents according to CC (6th revised Ed.): Classification of Documents, having simple subjects, use of PMEST. Reflection: Understand the practical implications of classifying documents using CC.	CLO 2
Unit III/ 30 Hours	Classification according to DDC (23rd Ed.): Titles with compound and complex subjects. Classification of documents using tables. Reflection: Understand the tables for classifying documents using DDC	CLO 3
Unit IV/ 30 Hours	Classification of Documents according to CC (6th revised Ed.): Titles with compound and complex subjects. Classification of documents requiring use of common isolates, phase relations, devices etc. Reflection: Understand the difference in faceted and enumerative schemes of classification practically.	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion.

Suggested Readings

1. Dewey, M., & Custer, B. A. (2011). *Dewey decimal classification and relative index (23rd Ed.)*. (Vol. 4). Albany: OCLC
2. Ranganathan, S.R. (2007). *Colon Classification (6th rev. ed.)*. Bangalore: Sarda Ranganathan Endowment for Library Science.
3. Satija, M. P. (2011). *A guide to the theory and practice of colon classification*. New Delhi: Ess Ess Publications.
4. Satija, M. P. (2012). *Exercises in the 23rd edition of the Dewey decimal classification*. New Delhi: EssEss Publications.
5. Satija, M. P. (2013). *The theory and practice of the Dewey Decimal Classification system (2nd ed.)*. Oxford: Chandos Pub.
6. Singh, S. (2011). *The theory and practice of the Dewey decimal classification system*. New Delhi: Isha Books.

Evaluation Criteria (Total 100 Marks)

Continuous Assessment	-	50 Marks
• Attendance (10)		
• Conduct of Practical (30)		
• Interaction (10)		
End Term Assessment	-	50 Marks
• Performance (30)		
• Viva (20)		

Course Code: LIS.508

Course Title: Foundations of Computer & Information Technology in Libraries

Total Hours: 45 Hours

Course Learning Outcomes

L	T	P	Cr
4	0	0	4

After the Completion of course, the students will be able to:

- CLO1: Describe the primary features of computers
- CLO2: Critically compare the types of computer networks, internet protocols and multimedia technologies.
- CLO3: Examine the functions and applications of database management systems.
- CLO4: Conceptualise Internet of things and web servers.

Unit/Hours	Contents	Mapping with CLOs
Unit I/ 16 Hours	Introduction to Computers: Computers: Generations, Types, Hardware, Input and Output Devices, Computer Architecture. Data Representation and Storage (ASCII, ISCII, Unicode). Introduction to System Software and Application Software. Operating Systems: DOS, Windows, iOS, Linux, etc. Applications Software: Word Processing, PowerPoint Presentation. Reflection: Discuss the various aspects of computer generations and types of software.	CLO 1
Unit II/ 14 Hours	Introduction to Communication Technology: Computer Networks - Topologies, Types of Networks. Internet - Web browsers, WWW. Internet Protocols and Standards – HTTP, HTTPS, FTP, SMTP, TCP/IP, URI, URL. Hypertext, Hypermedia, Multimedia, Video conferencing, Virtual Reality, Augmented Technologies. Reflection: Compare the different network topologies and applications of WWW.	CLO 2
Unit III/ 16 Hours	Database Management Systems: Database: Concepts and Components. Database Structures, File Organisation and Physical Design. Database Management System: Basic Functions, Potential Uses. Reflection: Understand the concept of database management system.	CLO 3

Unit/Hours	Contents	Mapping with CLOs
Unit IV/ 14 Hours	<p>Internet Technology: Basics of the Internet. Search Engines and Meta Search Engines. Internet Search Techniques. IoT (Internet of Things). Introduction to Web Servers: Apache Server and Internet Information Server.</p> <p>Reflection: Discuss the Internet-based technologies.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Bazzell, M. (2016). *Open source intelligence techniques: resources for searching and analyzing online information*. CreateSpace Independent Publishing Platform.
2. Blokdyk, G. (2019). *Apache Web Server A Complete Guide - 2020 Edition*. 5STARCOOKS
3. Comer, D. E. (2018). *The Internet book: everything you need to know about computer networking and how the Internet works*. Chapman and Hall/CRC.
4. Davie, B. S., & Peterson, L. L. (2019). *Computer networks*. Morgan Kaufmann.
5. Elmasri, R., & Navathe, S. (2017). *Fundamentals of database systems (Vol. 7)*. Pearson.
6. Hammons, R. L., & Kovac, R. J. (2019). *Fundamentals of Internet of Things for Non-engineers*. Auerbach Publications.
7. Hartpence, B. (2011). *Packet guide to core network protocols*. O'Reilly Media, Inc.
8. Hills, H. (2019). *Power Searching the Internet: The Librarian's Quick Guide*. ABC-CLIO
9. Lee, T. (2019). *Windows Server 2019 Automation with PowerShell Cookbook: Powerful ways to automate and manage Windows administrative tasks*. Packt Publishing Ltd.
10. Negus, C. (2019). *Linux Bible (10th Ed)*. John Wiley & Sons.
11. Panek, C. (2018). *Windows Operating System Fundamentals*. John Wiley & Sons.
12. Rajaraman, V. (2018). *Introduction to Information Technology*. PHI Learning Pvt. Ltd..
13. Rajaraman, V., & Adabala, N. (2014). *Fundamentals of computers*. PHI Learning Pvt. Ltd..
14. Sarwar, S. M., & Koretsky, R. M. (2018). *Linux: The Textbook*. CRC Press.

Course Code: LIS.513

Course Title: Information Literacy in Library and Information Centres

L	T	P	Cr
3	0	0	3

Total Hours: 45 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Conceptualise Information literacy and lifelong learning
- CLO2: Classify different types of Information literacy
- CLO3: Explore the association between Information literacy and library centres.
- CLO4: Analyse the types of library users and the need for user education

Unit/Hours	Content	Mapping with CLOs
Unit I/ 13 Hours	Introduction to Information Literacy: Information: Characteristics of information; Types of information; Information society, Information literacy models, standards; concept of lifelong learning. Reflection: Discuss various types of information and compare the different information literacy models.	CLO 1
Unit II/ 10 Hours	Types of Information Literacy: Digital literacy, Digital divide and information literacy, Media literacy, computer literacy, Technology Literacy. Reflection: Discuss different concepts of Information literacy in libraries.	CLO 2
Unit III/ 12 Hours	Information Literacy and Libraries: Information literacy and types of libraries, Resource literacy, Research literacy. Types of Library Users, User Education and IL instruction Design for different types of libraries. Reflection: Compare different types of information literacy in libraries.	CLO 3
Unit IV/ 10 Hours	Information Literacy Policies: International and national initiatives, Policies and guidelines IFLA, ALA, UNESCO, Information literacy skills and best practices. Reflection: Compare the information literacy policies of different organisations	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Association of College and Research Libraries (ACRL). (2018). *Information Literacy*
2. Bawden, D. (2001). *Information and digital literacies: a review of concepts*. *Journal of documentation*, 57(2), 218-259.
3. Michael C. Alewine & Mark Canada (2017). *Introduction to Information Literacy for students*. John Wiley & Sons.
4. ALA. (1989). *Presidential Committee on Information Literacy*, American Library Association. (1989).
5. Torras, M. C. & Saetre, T. P. (2009). *Information Literacy Education*. Oxford: Chandos Publishing.

Course Code: LIS.511

Course Title: Information Sources in Science and Technology

Total Hours: 60 Hours

L	T	P	Cr
4	0	0	4

Course Learning Outcomes

After Successful Completion of the course, the students will be able to:

- CLO1: Evaluate various types of information sources
- CLO2: Justify the need for reference sources in libraries and information centres.
- CLO3: Categorise various forms of electronic sources
- CLO4: Critically analyse information sources pertaining to science and technology.

Unit/Hours	Content	Mapping with CLOs
Unit I/ 10 Hours	Information Sources: Documentary and Non-Documentary Sources; Primary, Secondary and Tertiary Sources of Information. Reflection: Understand the different information sources in science and technology.	CLO 1
Unit II/ 15 Hours	Reference Sources in S&T: Dictionaries, encyclopaedias, yearbooks, directories, geographical sources, statistical sources, sources of current information. Evaluation of Reference Sources. Reflection: Compare the usefulness of different reference sources.	CLO 2
Unit III/ 15 Hours	Electronic Sources of Information: Electronic Sources: E-Books, E-Journals, ETDs, Web-OPAC; Subject Gateways/Portals, Databases, Bulletin Boards, Discussion Group/Forum, Multimedia Resources. Search Engines, search strategies for access to information sources. Reflection: Compare the functionality of different search operators.	CLO 3

Unit/Hours	Content	Mapping with CLOs
Unit IV/ 20 Hours	<p>Information Sources and Databases in S&T Web of Science, Scopus, Dimensions, . Sci-finder Major abstracting and indexing databases in Science and Technology. Open Access Resources like arXiv, ChemXseer, PubMed.</p> <p>Reflection: Understand the functionality of different databases.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Albert, Walker. (1974). *House Journals*. Encyclopaedia of Library and Information Science, New York, pp 61-64.
2. Borowick, J. N. (1996). *Technical Communication and its Applications (2nd Ed)*. Prentice Hall.
3. Chowdhury, G. G. & Chowdhury, S (2001). *Searching CD-ROM and Online*. Facet Publishing
4. Eleanor, Mitchell & Walters, Sheila A. (1995). *Document Delivery Services: Issues and Answers*. Learned Information Inc.
5. Guha, B. (1983). *Documentation and Information – Services, Techniques and Systems*. 2nd ed. World Press.
6. Hutchins, John. (1998). *Translation Technology and Translator*. Machine Translation
7. James E. Bobick & G. L. Berard (2011). *Science and Technology Resources: A Guide for Information Professionals and Researchers*. Libraries Unlimited Inc.
8. McGrath, Mike. (2004). *Interlending and Document Supply: A Review of Recent Literature (XLVII)*. Interlending and Document Supply. Vol. 32(1), pp. 50-54.
9. Penland, Patric R. (1971). *Content Analysis*. In Kent, Allen and Lancour, Harold (Eds). Encyclopaedia of Library and Information Science. New York: Marcel Dekker Inc. Vol. 5, pp. 632- 665. Prior, Albert. (1997). *Intermediaries and Electronic Information*.
10. Rowley, J. (1999). *The Electronic Library (4th ed)*. London: Library Association Publishing.
11. Saracevic, T. et al. (1990). *Nature of Interaction between Users and Intermediaries in Online Searching: A Qualitative Analysis*. In Proceedings of the 53rd Annual Meeting of the American Society for Information Science. Vol. 27, pp. 47-54.
12. Singer, Carol A. (2012). *Fundamentals of Managing Reference Collections*. Facet publishing.

13. Subramanyam, K. (1980). *Trade Catalogues: Technical Literature*. In Kent, A. et al. (eds.). *Encyclopaedia of Library and Information Science*. Marcel Dekker. Vol. 30, pp. 190- 198.

School Board, SCIS, CUPB

Course Code: LIS.527

Course Title: Fundamentals of Preservation and Conservation of Library Materials

Total Hours: 45 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Distinguish between the various types of library materials and the need for preserving.
- CLO2: Distinguish the various types of hazards occurring to library materials.
- CLO3: Analyse the process restoration and digitization.
- CLO4: Understand the planning process for digital preservation.

L	T	P	Cr
3	0	0	3

Unit/Hours	Content	Mapping with CLOs
Unit I/ 13 Hours	Library Materials: Preservation and Conservation: Need for Preservation and Conservation. Evolution of Writing Materials Palm leaves and Birch Bark: Their Nature and Preservation. Manuscripts, books, Periodicals, Newspapers, Pamphlets, etc. Non-Book Materials Guidelines of National Mission on Manuscripts. Reflection: Discuss different types of library materials.	CLO 1
Unit II/ 10 Hours	Hazards to Library Materials and Control Measures: Environmental Factors, Biological Factors, Chemical Factors. Disaster Management Reflection: Discuss various factors of hazards to library materials and control.	CLO 2
Unit III/ 12 Hours	Restoration: Binding, Different Types of Binding for Library Documents. Binding Materials. Binding Process. Standards for Library Binding. Material Repair, Microfilming and Digitisation. Reflection: Compare the varied types of binding and their purposes.	CLO 3

Unit/Hours	Content	Mapping with CLOs
Unit IV/ 10 Hours	<p>Digital Preservation (DP): Introduction, Dilemmas and critical challenges. Fundamentals - Concepts, terminology, standards, systems, Integrity, stability, and authenticity, Digital preservation frameworks, Understanding the digital object, Strategies for digital preservation, Preservation planning.</p> <p>Reflection: Understanding the planning process for digital preservation.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Bogdan, Zerek (2014). *Preservation and protection of library collections*. Chandos Publishing.
2. Diringer, D. (1953). *The Hand Produced Book*, London: Hutchinson's.
3. Feather, John (1996). *Preservation and the Management of Library Collections*. 2nd Ed. London: Library Association Publishing.
4. Feather, John (1996). *Preservation and the Management of Library Collections (2nd Ed)*. London: Library Association Publishing.
5. Filliozat, Gean (1947). *Manuscripts on Birch Bark (Bhurjapatra) and their Preservation*. Indian Archives, Vol.1, No.2, pp.102-108.
6. Harvey, Ross (1993). *Preservation in Libraries, A Reader* London: Bowker.
7. Harvey, Ross. (1994). *Preservation in libraries: principles, strategies and practices for librarians*. London: Bowker Saur.
8. Hendersen, Kathryn Luther and Henderson, William T. (ed) (1991). *Conserving and Preserving Library Materials*. Urbana Champaign: University of Illinois.
9. India. National Archives of India, (1988). *Repair and Preservation of Records*. New Delhi: National Archives of India.
10. Johnson, Arthur W. (1988). *The Practical Guide to Book Repair and Conservation*. London: Thames and Hudson.
11. Majumdar, P.C. (1957). *Birch Bark (Bhurjapatra) and Clay Coated Manuscripts in the Gilgit Collection - their Repair and Preservation*. Indian Archives, Vol 11, Nos. 1-2, pp. 77-84.
12. National Archives of India. (1988). *Repair and Preservation of Records*. New Delhi.
13. Prajapati, C.L.(1997). *Archivo-Library Materials – Their Enemies and Need of First Phase Conservation*. New Delhi: Mittal Publications.
14. Ranbir Kishore, (1962). *Preservation and Repair of Palm Leaf Manuscripts*, Ibid; Vol.14, pp. 73-78

15. Singh, R.S. (1995) *Conservation of Documents in Libraries, Archives and Museums*. New Delhi: Aditya Prakashan.
16. Suri, Jina Harisagara, (1947). *Palm Leaf Manuscripts in Jaisalmir*, Ibid, Vol.1, No.3, pp 234-35

School Board, SCIS, CUPB

Course Code: LIS.512

Course Title: Scholarly Communication and Information Literacy Skills

Total Hours: 30 Hours

Course Learning Outcomes

After completing the course, the students will be able to:

- Illustrate the need for information literacy
- Classify different types and formats of information sources
- Develop skill for searching, retrieving and evaluating information available on the web.
- Understand the uses of resources and research support tools for scholarly communication.

L	T	P	Cr
2	0	0	2

Unit/Hours	Content	Mapping with CLOs
Unit I/ 7 Hours	Fundamentals of Information Literacy: Descriptions of Data, Information and Knowledge Concept of Information Literacy. Benefits of being Information Literate. Need for Information in different disciplines. Reflection: Understand the benefits of information literacy.	CLO 1
Unit II/ 7 Hours	Types and formats of information sources: Printed sources and electronic sources. Primary, secondary, and tertiary sources. Published and unpublished sources. Open Access and Subscription based sources. General and Scholarly sources. Reflection: Comprehending the different types and format of information sources.	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 8 Hours	<p>Methods for selection, evaluation and retrieval of information.</p> <p>Knowledge organisation in the library.</p> <p>Tools for searching information: Library catalogues, Databases, Search Engines, Subject Gateways and Directories.</p> <p>Searching Techniques: Boolean, Wildcard, Truncation, Phrase and Keyword searching.</p> <p>Evaluation of Information Resources – Peer Reviewed Literature.</p> <p>Reflection: Comprehend the implications of the concepts.</p>	CLO 3
Unit IV/ 8 Hours	<p>Scholarly Resources and Research Support Tools:</p> <p>Scholarly Communication: Definition, Stakeholders and their Activities.</p> <p>Citation and Indexing Databases: Web of Science and Scopus.</p> <p>Reference Management Systems: Mendeley, Zotero.</p> <p>Academic SNSs: ResearchGate, Academia.edu, ORCID.</p> <p>Plagiarism: Concept, Types and detection Tools.</p> <p>Reflection: Use of various Scholarly resources and tools.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion.

Suggested Websites

1. Library - Wesleyan University. (2017). *Information Literacy*. Retrieved from <http://www.wesleyan.edu/libr/inforyou/infolitdefined.html>
2. Källund, A.-S. (2017). Searching Information: Search techniques. Retrieved from https://uva.libguides.com/searching_techniques.
3. Penn State University Libraries. (2017). Evaluating Information. Retrieved from https://libraries.psu.edu/services/research-help/evaluating_information.
4. San Diego State University. (2015). Evaluating Information, 1–3. Retrieved from https://library.sdsu.edu/research-services/research-help/evaluating_information.
5. University of Reading. (n.d.). Search techniques. Retrieved from <https://www.reading.ac.uk/library/finding-info/guides/databases/libsearching-databases-search-techniques.aspx>.

Course Code: LIS.514

Course Title: Foundations of Research Evaluation

Total Hours: 30 Hours

L	T	P	Cr
2	0	0	2

Course Learning Outcomes

After completing the course, the students will be able to:

- CLO1: Understand the process of scholarly communication
- CLO2: Understand the process of research evaluation
- CLO3: Understand the various metrics involved in research evaluation.
- CLO4: Analyse the process of institutional rankings.

Unit/Hours	Content	Mapping with CLOs
Unit I/ 8 Hours	Scholarly Communication: Concept of scholarly communication. Stakeholders in scholarly communication. Peer review process. Migration of peer-reviewed journals from print to Web-based. Open Access Publishing and its impact on journals. Creative Commons. Reflection: Discuss publishing models and impact of open access publishing.	CLO 1
Unit II/ 7 Hours	Research Evaluation Systems: Performance-based research evaluation systems. Size-based research evaluation systems. Peer-review-based research evaluation systems. Reflection: Contemplate and understand the process of research evaluation.	CLO 2
Unit III/ 8 Hours	Research evaluation metrics: Concept of bibliometrics. Citation analysis. Journal Level Metrics: Journal Impact Factor, Citescore, SNIPP. Author-level metrics: h-index, g-index, m-quotient index, i-10 index Reflection: Discuss and calculate the various metrics involved in research evaluation.	CLO 3

Unit/Hours	Content	Mapping with CLOs
Unit IV/ 7 Hours	<p>Ranking of Institutions: Approaches in ranking of institutions. Issues and Challenges in ranking of institutions. World University Rankings. National Institutional Ranking Framework (NIRF)</p> <p>Reflection: Contemplate upon the process of institutional rankings.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion.

Suggested Readings

- Cronin, B. (2005). *The hand of science: Academic writing and its rewards*. Scarecrow Press.
- Leydesdorff, L. (2001). *The challenge of scientometrics: The development, measurement, and self-organization of scientific communications*. Universal-Publishers.
- Rao, I. K. R. (2010). *Growth of literature and measures of scientific productivity: Scientometric models*. Ess Ess Publications.
- Smith, K. L., & Dickson, K. A. (2016). *Open access and the future of scholarly communication: policy and infrastructure* (Vol. 9). Rowman & Littlefield.
- Sooryamoorthy, R. (2020). *Scientometrics for the Humanities and Social Sciences*. Routledge.
- Sugimoto, C. (2016). *Theories of informetrics and scholarly communication*. De Gruyter.
- Thelwall, M. (2009). Introduction to webometrics: Quantitative web research for the social sciences. *Synthesis lectures on information concepts, retrieval, and services*, 1(1), 1-116.

Web-based resources

- DORA Website (n.d). <https://sfdora.org/>
- Web of Science Websites (n.d). <https://clarivate.com/webofsciencegroup/solutions/web-of-science/>
- Lib Guides of JCU (n.d). <https://libguides.jcu.edu.au/research-indicators/snip-and-sjr>
- NIRF Website (n.d.). <https://www.nirfindia.org/Home>

SEMESTER – II

Course Code: LIS.509

Course Title: Foundations of Computer & Information Technology in Libraries (Practical)

Total Hours: 60 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Develop skill set for implementing and maintaining library servers.
- CLO2: Understand the process of creating databases.
- CLO3: Understand the processes of websites creation and maintenance
- CLO4: Develop skill sets for the applications of cloud based services.

L	T	P	Cr
0	0	4	2

Unit/Hours	Contents	Mapping with CLOs
Unit I/ 15 Hours	<p>Operating Systems and Application Software: Installation and Functions of Different Operating Systems: Window & Linux. Setting of Desktop, Library Server and its Maintenance. MS Office: Word, Excel, Access and PowerPoint Presentation. Scripting and Programming Languages.</p> <p>Reflection: Hands on skills for implementing and maintaining library servers.</p>	CLO 1
Unit II/ 15 Hours	<p>Database Creation and Library Software: Installation and Creation of Databases: Import, Export, Hyperlinks and using XAMP (Apache, MySQL, PHP,).</p> <p>Reflection: Understanding databases in depth for implementation in libraries.</p>	CLO 2
Unit III/ 15 Hours	<p>Websites: Creation and Maintenance. Introduction of Development of the Internet and the World Wide Web. Practice Basics of HTML and XML. Developing websites using open-source solutions. Development of blogs for libraries.</p> <p>Reflection: Develop skill on scripting languages and blogs.</p>	CLO 3

Unit IV/ 15 Hours	Applications of Cloud based Services: Concept and type of services. Google drive. Drop Box. Google Workspace (Docs, Forms, Sheets, Slides) Reflection: Understand and apply the concept of cloud computing.	CLO 4
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Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion.

Suggested Readings

1. Habraken, J. (2018). *Microsoft Office 2019 Inside Out*. Microsoft Press.
2. Lambert, J. (2017). *Windows 10 step by step*. Microsoft Press.
3. Lindsay, A. (2019). *Linux: 2019 NEW Easy User Manual to Learn the Linux Operating System and Linux Command Line*. Amazon Digital Services LLC - KDP
4. Meloni, J. C. (2008). *Sams teach yourself PHP, MySQL and Apache all in one*. Pearson Education India.
5. Mint, C. (2019). *Linux Beginners Guide: A Comprehensive and Updated Guide for Beginners to Learn Linux Operating System, Easy Installation and Configuration Including Tips and Essentials Principles*.
6. Panek, W. (2016). *MCSA Microsoft Windows 10 Study Guide: Exam 70-697*. John Wiley & Sons.
7. Pogue, D. (2019). *Windows 10 May 2019 Update: The Missing Manual: The Book That Should Have Been in the Box*. O'Reilly Media.
8. Rajan, L. (2018). *Google Cloud Platform Cookbook*. Packt Publishing Limited.
9. Siahaan, V & Sianipar, R. (2019). *MS Access And SQL Server Crash Course: A Step by Step, Project-Based Introduction to Java GUI Programming*. Sparta Publishing.

Evaluation Criteria

Continuous Assessment

- Attendance (10)
- Conduct of Practical (30)
- Interaction (10)

-Total 100 Marks

-50 Marks

End Term Assessment

- Performance (30)
- Viva (10)
- Record Book (10)

-50 Marks

Course Code: LIS.522

Course Title: Knowledge Organisation – Cataloguing and Metadata

Total Hours: 60 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Critically compare different forms of catalogue
- CLO2: Analyse the different entries rendered in catalogues
- CLO3: Justify the need and purpose of union catalogues
- CLO4: Explore the modern practices and recent trends in cataloguing

L	T	P	Cr
4	0	0	4

Unit/Hours	Content	Mapping with CLOs
Unit I/ 16 Hours	Forms of Library Catalogue: Library Catalogue: Concept, objectives and functions. Physical forms of Library Catalogue: Conventional and Non-conventional, Web OPAC. Types of Catalogue: Dictionary Catalogue, Classified Catalogue, Alphabetic-Classified Catalogue, Alphabetical-Subject Catalogue. Reflection: Compare different forms and types of catalogues.	CLO 1
Unit II/ 14 Hours	Catalogue Entries and Subject Cataloguing: Catalogue Entries: Main entry and Added entries (According to CCC 5th ed. and AACR-2). Subject Cataloguing: Meaning, purpose, objectives, approaches (Chain Procedure and Sear's List of Subject Headings). Reflection: Understand the theoretical aspects of cataloguing standards.	CLO 2
Unit III/ 14 Hours	Normative Principles and Union Catalogue: Selective, Simplified and Centralised Cataloguing. Authority File, Shelf List, ISBN, ISSN. Canons and Principles of Cataloguing: Their application to CCC and AACR -2 and its revision. Union Catalogue: Concept, purpose, Union Catalogues of INFLIBNET, DELNET and OCLC. Reflection: Understand the various normative principles in cataloguing and analyse the different union catalogues.	CLO 3

Unit/Hours	Content	Mapping with CLOs
Unit IV/ 16 Hours	<p>Current Trends in Cataloguing: Metadata: meaning, purpose, use, & types. Metadata Standards: DUBLINCORE, MARC 21. Standards for Bibliographic Information Interchange & Communication: Z39.50, SRU/SRW (Search/Retrieve via URL/Search/Retrieve Web service). Standards for Bibliography Record Formats and Description: ISBD, CCF, RDA, FRBR.</p> <p>Reflection: Understand the concept of metadata and current trends in cataloguing.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Bowman, J. H. (2003). *Essential cataloguing*. London: Facet.
2. Chan, L. M., & Hodges, T. (2015). *Cataloging and classification: An introduction* (3rd ed.). Lanham, Md: Scarecrow Press.
3. Chowdhury, G. G., & Chowdhury, S. (2007). *Organizing information: From the shelf to the Web*. London: Facet.
4. Girja, K., & Krishan, K. (2011). *Theory of cataloguing* (5th ed.). Delhi: Vikas Pub. House.
5. Gorman, M., Winkler, P. W., Joint Steering Committee for Revision of AACR., & American Library Association. (2003). *Anglo-American cataloguing rules*. Ottawa: Canadian Library Association.
6. Sanghamitra Pradhan (2019), *Cataloguing of Non-print Resources: A Practical Manual*. Ess Ess Publications.
7. Register, R., & McIlroy, T. (2016). *The Metadata Handbook: A Book Publisher's Guide to Creating and Distributing Metadata for Print and Ebooks*. DataCurate.
8. Sears, M. E., & In Westby, B. M. (2018). *Sears List of subject headings* (22nd ed.). New York: H.W. Wilson.
9. Smiraglia, R. P., Riva, P., & Zumer, M. (2013). *The FRBR Family of Conceptual Models*. Routledge, London.
10. Welsh, A. & Batley, S. (2012). *Practical cataloguing: AACR, RDA and MARC 21*. London: Facet Publishing.

Course Code: LIS.524

Course Title: Knowledge Organisation - Cataloguing and Metadata (Practical)

Total Hours: 60 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Develop skill set for cataloguing various types of documents using AACR 2.
- CLO2: Apply AACR-2 to catalogue documents which have corporate authorship.
- CLO3: Develop skill set and develop insights for cataloguing documents using CCC
- CLO4: Hands-on learning Machine Readable Cataloguing (MARC) and online cataloguing techniques

L	T	P	Cr
0	0	4	2

Unit/Hours	Content	Mapping with CLOs
Unit I/ 14 Hours	Anglo American Cataloguing Rules, 2nd ed. 1988: Single authorship. Shared authorship. Collections and works produced under editorial direction. Works of mixed responsibility (Collaborators). Revision of works. Adaptation of texts. Biographical works. Pseudonyms. Sacred scriptures and Multi-volume documents. Note: Sears List of Subject Headings will be followed for Subject Cataloguing. Reflection: Understand cataloguing various types of documents using AACR 2.	CLO 1
Unit II/ 14 Hours	AACR – 2: Corporate authorship Government bodies: Executive, Legislative, Judiciary; Institutions, Associations, Conferences Proceedings). Composite books (With and without collective title page, bound with). Microforms. Computer files. Sound recordings. Motion pictures and Video recordings. Serials. Note: Sears List of Subject Headings will be followed for Subject Cataloguing. Reflection: Understand cataloguing of documents which have corporate authorship.	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 20 Hours	<p>Classified Catalogue Code, 5th ed. by Dr. S.R. Ranganathan: Single authorship. Shared authorship. Work of mixed responsibility (Collaborators). Adaptation of texts and Pseudonyms. Multi-volume documents. Corporate authorship (Government bodies: Executive, Legislative, Judiciary; Institutions, Associations, Conference Proceedings). Composite books (ordinary and artificial). Festschrift volumes. Serials.</p> <p>Reflection: Understand cataloguing documents using CCC.</p> <p>Note: Chain Procedure will be followed for Subject Cataloguing.</p>	CLO 3
Unit IV/ 12 Hours	<p>Subject Cataloguing: MARC 21. LCSH (Library of Congress Subject Heading).</p> <p>Reflection: Understand Machine Readable Cataloguing (MARC) and online cataloguing techniques.</p>	CLO 4

Suggested Readings

1. Chan, L. M. (2015). *Cataloguing and classification: An Introduction (3rd ed.)*. New York: Scarecrow Press.
2. Gorman, M., Winkler, P. W. (Eds.), Joint Steering Committee for Revision of AACR., & American Library Association. (2003). *Anglo-American cataloguing rules*. Ottawa: Canadian Library Association.
3. Ranganathan, S.R. (2000). *Cataloguing practice (2nd ed.)*. Bangalore: Sarada Ranganathan Endowment for Library Science.
4. Ranganathan, S. R., & Neelameghan, A. (2006). *Classified catalogue code: With additional rules for dictionary catalogue code*. New Delhi: Ess Ess Pub..
5. Sears, M. E. (2018). *Sears list of subject headings (22nd ed.)*. New York: H.W. Wilson.
6. Studwell, W. E., & Carter, R. C. (2013). *Library of Congress Subject Headings: philosophy, practice, and prospects*. Routledge.
7. Welsh, A., & Batley, S. (2012). *Practical cataloguing: AACR, RDA and MARC 21*. London: Facet Publishing.

Evaluation Criteria

Continuous Assessment

- Attendance (10)
- Conduct of Practical (30)

-Total 100 Marks

-50 Marks

- Interaction (10)

End Term Assessment

-50 Marks

- Performance (30)
- Viva (20)

School Board, SCIS, CUPB

Course Code: LIS.551

Course Title: Information Storage and Retrieval

Total Hours: 60 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Analyse the types of indexing systems and their techniques.
- CLO2: Critically examine the usefulness of vocabulary control in information retrieval.
- CLO3: Evaluate the various search strategies used for retrieving information.
- CLO4: Assess the techniques for evaluating information retrieval systems.

L	T	P	Cr
4	0	0	4

Unit/Hours	Content	Mapping with CLOs
Unit I/ 17 Hours	Indexing Systems and Techniques: Assigned and Derived Indexing. Pre-Coordinate and Post Coordinate indexing. Chain Indexing, PRECIS, POPSI. Keyword Indexing: KWIC, KWAC, KWOC. Concept of Automatic Indexing. Citation Indexing: Features of Scopus, Web of Science, Google Scholar. Reflection: Compare the different indexing systems.	CLO 1
Unit II/ 14 Hours	Vocabulary Control: Vocabulary Control: Need, Purpose, Functions, types and characteristics. Vocabulary Control Tools. Subject Headings- Library of Congress Subject Headings Thesaurus: Features, Structure and Construction, ERIC, UNESCO Thesaurus. Taxonomies. Reflection: Comprehend the practical implications of vocabulary control in libraries.	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 14 Hours	<p>Information Searching and Media: Search Methods and Search Strategy: Boolean Search, Heuristic Search, Proximity Search, Phrase Search, Truncation search etc. Information Searching in Different Media: Print, Electronic and Internet. Federated Search: Concept and Features. Web-Scale Discovery System (WSDS): Concept and Features. Data Mining</p> <p>Reflection: Understand the search methods and search strategy.</p>	CLO 3
Unit IV/ 16 Hours	<p>Information Retrieval System and Abstracting System: Abstracting Concept, Definition and types Information Retrieval System: Concept, definition, types, characteristics, components of ISRS. Information Retrieval Models. Library information retrieval systems. Evaluation of an Information Retrieval System</p> <p>Reflection: Understand the various aspects of the information retrieval system.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Aitchison, J., Gilchrist, A. & Bawden, D. (2005). *Thesaurus construction and use: a practical manual (4th ed.)*. London: Taylor and Francis.
2. Bates, M.J. (2012). *Understanding information retrieval systems: management, types and standards*. Boca Raton, FL: CRC press.
3. Bertino, E., Ooi, B. C., Sacks-Davis, R., Tan, K. L., Zobel, J., Shidlovsky, B., & Andronico, D. (2012). *Indexing techniques for advanced database systems (Vol. 8)*. Springer Science & Business Media.
4. Cleveland, D. & Cleveland, A. (2013) *Introduction to indexing and Abstracting. (4th ed.)*. Englewood: Libraries Unlimited.
5. Fransson, J. (2011). *Efficient Information searching on the web: a handbook in the art of searching for information*. Sweden: Fransson.
6. Harpring, P. (2010). *Introduction to controlled vocabularies: terminology for art, architecture, and other cultural works*. Getty Publications.
7. Kamila, K., & Das, B. (2012). *Monograph of Library & Information Science*. Knowledge Publishing House.
8. Kowalski, G.J. & Maybury, M.T. (2002). *Information Storage and Retrieval System: theory and implementation (2nd ed.)*. New York: Kluwer.

9. Manning, C. D., Raghavan, P., & Schütze, H. (2008). *Evaluation in information retrieval*. Introduction to information retrieval, 151-175.

School Board, SCIS, CUPB

Course Code: LIS.552

Course Title: Management of Libraries and Information Centers

Total Hours: 60 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Analyse the different schools of management thought
- CLO2: Ascertain the process of managing resources in the library
- CLO3: Explore the concepts of human resource management
- CLO4: Critically examine the process of planning and managing financial aspects of the library.

L	T	P	Cr
4	0	0	4

Unit/Hours	Content	Mapping with CLOs
Unit I/ 18 Hours	Schools of Management Thought: Classical, Neo-classical and Modern management theories. Principles of Scientific Management. Fayol's Principles. Functions of Management (POSDCORB). Reflection: Understand the social and practical aspects of school of management thought.	CLO 1
Unit II/ 15 Hours	Library Resource Management: Library and Information Centres Management - Book Selection Tools and Principles. Library Acquisition, Technical Processing, Circulation, Serial Control, Maintenance and Stock Verification. Preservation and Conservation; Hazards and Control Measures of Library Materials. Reflection: Understand the concept of Library resource management.	CLO 2
Unit III/ 16 Hours	Human Resource Management and Marketing: Human Resource Management – Planning, Job Analysis, Job Description, Job Evaluation, Selection, Recruitment, Motivation, Training and Development, Performance Appraisal. Project Management - SWOT, PEST, PERT / CPM. Total Quality Management (TQM). Marketing of Library Products and Services. Reflection: Understand the concept of human resource management and marketing in libraries and information centres.	CLO 3

Unit/Hours	Content	Mapping with CLOs
Unit IV/ 17 Hours	<p>Library Planning and Financial Management: Financial Management in Libraries - Sources of Finance, Resource Mobilisation, Budgeting Methods; Cost Effective and Cost Benefit Analysis, Annual Reports & Statistics; Library Authority and Committee. Library Building, Furniture and Equipment; Green Library Building; Information Commons; Makerspace; Security and Safety. Management Information System (MIS), MBO, Change Management, Disaster Management, Crisis Management.</p> <p>Reflection: Understand the library planning and financial management in library and information centres.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Beard well, Ian & Holden, Len. (1997). *Human Resource Management: A contemporary perspectives*. Financial Times/ Prentice Hall.
2. Bryson Jo. (2018). *Effective Library and Information Management*. Jaico Pub. House
3. Bryson, J. (2017). *Managing information services: A sustainable approach*. Routledge Pub.
4. Christian, A. R. (2013). *Academic library management: Universities, colleges and institutions*. Jaipur: Vista Publishers.
5. Dorado, A. (2012). *New trends in library management*. London: Koros
6. Drucker, Peter F. (2002). *Management Challenges for the 21st century*. Oxford; Butterworth Heinemann.
7. Durean, J. M. & Clements, D. W. G. (1986). *Principles of the preservation of library materials*. IFLA.
8. Edwards, E. G. (2005). *Developing Library & Information Centre Collections*. Westport: Libraries Unlimited.
9. Evans, G. Edward & Layzell, Patricia. (2007). *Management Basics for Information Professionals* (2nd Ed). Libraries Unlimited.
10. Harvey, Poss. (1993). *Preservation in libraries: a reader*. RR Bowker.

11. Johnson, P. (2018). *Fundamentals of collection development & management (4th ed.)*. Chicago: American Library Association.
12. Kotler, Philip (2015). *Marketing Management (15th Ed)*. New Delhi: Pearson. Narayana, G J. (1991).
13. Krishan, K. (2007). *Library Management in Electronic Environment*. New Delhi: Har-Anand Publication.
14. Robert A. (2000). *Change Management*. Response Books.
15. McKnight, S. (2011). *101 ideas for successful library management*. London: Facet.
16. Mittal, R. L. (2007). *Library administration: Theory and practice (4th ed.)*. Delhi: EssEss Pub.
17. Rowley, Jennifer (2016). *Information Marketing*. Routledge.
18. Sood, N. M. (2011). *Fundamentals of library administration and management*. New Delhi: Mahaveer& Sons.
19. Stoner, James A F (et.al). (2003). *Management: Global Perspectives (10th Ed)*. Pearson India.
20. Stueart, R. D., Moran, B. B. & Morner, C. J. (2017). *Library and information center management (9th Ed)*. Englewood, Colo: Libraries Unlimited.
21. Thanuskodi, S. (2013). *Challenges of academic library management in developing countries*. Hershey PA: Information Science Reference.
22. Velasquez, D. (2013). *Library management 101: a practical guide*. Chicago: ALA Editions, an imprint of the American Library Association.

L	T	P	Cr
3	0	0	3

Course Code: LIS.525

Course Title: Knowledge Management

Total Hours: 45 Hours

Course Learning Outcomes

L	T	P	Cr
3	0	0	3

After Successful Completion of the course, the students will be able to:

- CLO1: Conceptualise knowledge management and knowledge economy
- CLO2: Determine the various strategies deployed in knowledge management
- CLO3: Examine the tools used in knowledge management systems.
- CLO4: Justify the importance of Knowledge management in libraries and information centres

Unit/Hours	Content	Mapping with CLOs
Unit I/ 12 Hours	Knowledge Management: Basics: KM Meaning, Types of knowledge, Principles, Knowledge Economy: Characteristics features, Need Difference between Information Management and Knowledge Management. Reflection: Understand the relationship between different concepts of Knowledge Management.	CLO 1
Unit II/ 13 Hours	Knowledge Management: Capturing tacit knowledge – methods. Knowledge codification – tools and procedures. Knowledge Mapping; Knowledge testing; Knowledge transfer. Reflection: Comprehend the tasks associated with knowledge management.	CLO 2
Unit III/ 10 Hours	Knowledge Management System and Tools: Knowledge management tools, Data mining. Managing knowledge workers. Reflection: Understand the tools of knowledge management.	CLO 3

Unit/Hours	Content	Mapping with CLOs
Unit IV/ 10 Hours	<p>Knowledge Management Portals: Knowledge Management in Library and Information Centres. Knowledge creation and knowledge architecture – Nonaka’s model, KM Systems</p> <p>Reflection: Understand the application of knowledge management in libraries and information centres.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Anderson, Paul. (2012). *Web 2.0 and Beyond: Principles and Technologies*. CRC Press
2. Awad, Elias M (2011). *Knowledge Management*. Prentice Hall India.
3. Cappelli, Peter. (2010). *The performance effects of it-enabled knowledge management practices*. Cambridge.
4. Christee Gabour Atwood. (2009). *Knowledge Management Basics*. ASTD Pess.
5. Dalkir, Kimiz & Liebowitz, Jay (2011). *Knowledge Management Theory & Practice*. MIT Press
6. Easterby-Smith, Mark & Lyles, Marjorie A. (2011). *Handbook of organizational learning and knowledge management*. Wiley.
7. Hislop, Donald. Ed. 3rd (2013). *Knowledge Management in organization*. Oxford.
8. Holsapple, Clyde. (2013). *Handbook on Knowledge Management 1: Knowledge*
9. Jennex, Murray E. (2008). *Knowledge Management: Concepts, Methodologies, Tools and Applications*. Information Science Reference.
10. Liebowitz, Jay (2012). *Knowledge Management Handbook: Collaboration and Social Matters*. Springer.
11. Mohiuddin, M., Halilem, N., Kobir, A., & Yuliang, C. (Eds.). (2017). *Knowledge Management Strategies and Applications*.
12. Nazim, M., & Mukherjee, B. (2016). *Knowledge management in libraries: concepts, tools and approaches*. Chandos Publishing.
13. Rao, M. (2012). *Knowledge management tools and techniques*. Routledge.

School Board, SCIS, CUPB

Course Code: LIS.580

Course Title: Agriculture Information Source and System

Total Hours: 45 Hours

Course Learning Outcomes

L	T	P	Cr
3	0	0	3

After the Completion of course, the students will be able to:

- CLO1: Ascertain the role and functions of libraries in Agricultural institutions.
- CLO2: Critically examine the collections acquired by the libraries in Agricultural institutions.
- CLO3: Analyse the organisational structure and nature of services offered by the libraries in Agricultural institutions.
- CLO4: Summarise the financial and human resource management policies adopted by the libraries in Agricultural institutions

Unit/Hours	Content	Mapping with CLOs
Unit I/ 13 Hours	Agricultural Science Libraries and their Development: Objectives and Functions of Agriculture libraries. History and Development of Libraries with Special Reference to India. Role of ICAR, Committees and Other Agencies in the Development of Agricultural Libraries in India. Reflection: Understand the agricultural science libraries development in India.	CLO 1
Unit II/ 13 Hours	Collection Development and Management: Periodicals, Conference Literature, Grey Literature, Patents, Standards, Specifications and Government Publications, etc. Non-Book Materials. Electronic Resources and Online Databases Reflection: Comprehend the collection development and management in agricultural science libraries.	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 12 Hours	<p>Library Organisation, Administration and Information Services. Organisational Structure. Staff Manual, Library Surveys, Statistics and Standards, etc. CAS, SDI, Abstracting and Indexing Services Library Bulletin, Newspaper Clipping Services Computerised Services. Resource Sharing and Networking: AGRIS, INAGRIS, CABI, etc. Information Literacy Programmes.</p> <p>Reflection: Understand various types of information services and networks in agricultural science libraries.</p>	CLO 3
Unit IV/ 12 Hours	<p>Financial and Human Resource Management: Determination of Finance, Sources of Finance. Types of Budget. Nature, Size, Selection, Recruitment, Qualification and Training. Responsibilities and Duties. Competency Development.</p> <p>Reflection: Understand the finance and human resource management in agricultural science libraries.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussions.

Suggested Readings

1. Bhatt V, S.(1989). *Information resources in agricultural research in 40 years of agricultural research in India*. ICAR, New Delhi.
2. Chotey, Lal (1998). *Agricultural libraries and information systems: a handbook for users*. R K Techno Science Agency, New Delhi.
3. Daymath, Y and Ruttan v,w.(1979). *Agricultural development: an international perspective*. John Hopkins, Baltimore.
4. Deshmukh, P, P (1990). *Standardization of library and information services with special reference to scientific and agricultural libraries*. ABC, New Delhi.
5. KUMAR, P,S,G (2008). *Agricultural librarianship: MLISc elective paper*. B.R. Publication, New Delhi.
6. Sharma, R,D (1989). *The agricultural information network for India*. Society for Information Science, New Delhi.
7. Subbairha, R.(1988). *Agricultural librarianship in India: an overview*. Metropolitan, New Delhi.
8. Swaminathan, M,S (1989). *Report of the working group on agricultural*

research and education for the formulation of the eighth plan. Planning Commission, ICAR, New Delhi.

School Board, SCIS, CUPB

Course Code: LIS.582

Course Title: Public Library and Community based information System

Total Hours: 45 Hours

Course Learning Outcomes

After the Completion of the course, the students will be able to:

- CLO1: Critically assess the nature, organisation and governance of public libraries in India.
- CLO2 Examine the need for library legislations and policies for public libraries.
- CLO3: Analyse the organisational structure of public libraries.
- CLO4: Determine the resource sharing and automation procedure in the public library system.

L	T	P	Cr
3	0	0	3

Unit/Hours	Content	Mapping with CLOs
Unit I/ 13 Hours	Public Library: Meaning, importance, functions. Role of Public Library in literacy and mass education. Public Library Movement in India: Recommendation by S.R. Ranganathan, Advisory Committee for India, UNESCO manifesto, Role of Raja Ram Mohan Roy Library Foundation (RRRLF) and National Library (Kolkata). Organisation of Public Library System: National, regional and State, Library governance. Reflection: Discuss the public library movement in India and the organisation of public libraries	CLO 1
Unit II/ 10 Hours	Public Library Legislation in India: Study of salient features of existing library acts in India: Andhra Pradesh, Arunachal Pradesh, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Karnataka, Kerala, Maharashtra, Manipur, Mizoram, Odisha, Rajasthan, Tamilnadu, Uttar Pradesh, Uttaranchal, West Bengal. Library and Information Policies at National and International level Reflection: Discuss library legislations and policies at state, national and international levels	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 12 Hours	<p>Organisation of a Public Library: Manpower Development: Qualifications, recruitment, job description. Job analysis, staff manual. Library Finance: Sources, budgeting, accounting and auditing. Library Building and Equipment Planning, Concept of Modular Equipment Building. Library Furniture and Equipment. Collection Development: Print, Non-Print (including electronic documents. Organisation of various Sections: Periodical, Technical, Reference, Circulation and Maintenance Section. Reflection: Comprehend the practical and social implications of various concepts</p>	CLO 3
Unit IV/ 10 Hours	<p>Resource, Sharing and Automation: Networking, Integrated public library system. Library Automation: Automating the house-keeping services in various sections in the public libraries. Library services to special groups of people including physically handicapped, mentally challenged, visually impaired, Prisoners and Children. Reflection: Discuss resource sharing, in-house operations and information services in public libraries</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. American Library Association. (1967). *Minimum Standards for Public Library Systems*. Chicago. ALA.
2. Barua, B P. (1992). *National Policy on Library and Information Systems and Services for India: Perspectives and Projections*. Popular.
3. Batt, Chris. (1998). *Information Technology in Public Libraries*. Library Association.
4. Corbett, E V. (1979). *Fundamentals of Library organization and Administration*. New York: Oxford IBH.

5. Gardner, F M. (1978). *Public Library Legislation: A Comparative Study*. UNESCO.
6. Garforth, C. (2001). *Agricultural knowledge and information systems in Hagaz, Eritrea*. SD Dimensions. FAO
7. Gates, J K. (1990). *Introduction to Librarianship*. Neal-Schuman.
8. IFLA.(2010). *IFLA Guidelines for Public Libraries*. The Hague: IFLA
9. IFLA. (2001). *The Public Library Service: IFLA/UNESCO Guidelines for development*.
10. John Carlo Bertot, Charles R. McClure and Paul T. Jaeger (2010) *Public Libraries and the Internet: Roles, Perspectives, and Implications*, Libraries Unlimited
11. Leeuwis, C. (2015). *Communication for rural innovation: rethinking agricultural extension (3rd Ed)*. Blackwell Science.
12. Martin, Lowell A. (2003). *Enrichment: A history of the Public Library in the United States in the Twentieth Century*. Scarecrow.
13. Murison, W J. (1988). *The Public Library: Its origin, purpose and significance*. Clive Bingley.
14. Otsuka, Keijiro. Kalirajan K P. (2008). *Agriculture in developing countries: technology issues*. Sage
15. Patel, Jashu & Krishan Kumar (2004). *Libraries and Librarianship in India*. Westport: Greenwood
16. Ramirez, R. (1997). *Understanding farmers' communication networks: combining PRA with agricultural knowledge systems analysis*. International Institute for Environment and Development
17. Ranganathan, S R. (1959). *Library Administration*. Bangalore: SRELS.
18. Röling, Niels G (1988). *Extension science: information systems in agricultural development*. Cambridge University Press
19. Sharma, C D & Ojha D C (1989). *Information systems: agriculture and environment*. RBSA.
20. Shera, Jesse H. (2017). *Foundations of the Public Library: The Origins of the Public Library Movements in New England (1629-1855)*. Andesite Press.
21. Spedding, C.R.W. (2012). *An introduction to agricultural systems*. (2nd. ed). Springer
22. Venkatappaiah, V. (1990). *Indian Library Legislation*. Vol.I&II Union Library Bills and Acts. Daya Publishing House.
23. White, Horbert S. (1985). *Library Personnel Management*. Knowledge Industry Publications.

Course Code: LIS.515

Course Title: R & Python for Social Science & Humanities

Total Hours: 30

Course Learning Outcomes:

After completion of the course, scholars shall be able to:

- CLO1: Learn the Various Concepts of Computer Programming
- CLO2: Understand the Use of R & Python and Its Syntaxes
- CLO3: Learn about Various R and Python Packages for Data Science Applications
- CLO4: Writing Programs for Data Science Applications

L	T	P	Credit
2	0	0	2

Course Contents

Unit/Hours	Content	Mapping with CLOs
Unit I/ 6 Hours	Introduction to Programming Languages and Its Use: Programming Languages. Applications of Programming Languages. Reflection: Discuss the various concepts of computer programming.	CLO 1
Unit II/ 12 Hours	Concepts and Syntaxes in R & Python Programming: Installation of R, R-Studio, Syntaxes and Libraries in R. Installation of Python, IDEs for Python, Syntaxes of Python. Basic Concepts of Data Structures (DS), DS in R & Python. Basic Concepts of Simple Algorithms, Implementation in R & Python. Reflection: Compare the syntax of R and Python.	CLO 2
Unit III/ 5 Hours	Data Science Applications in Various Disciplines: Arts & Humanities: Exploring Various Libraries, Packages & Projects. Sciences: Exploring Various Libraries, Packages & Projects. Social Sciences: Exploring Various Libraries, Packages & Projects. Reflection: Analyse the applications of data science.	CLO 3

Unit/Hours	Content	Mapping with CLOs
Unit IV/ 7 Hours	<p>Developing Programs for Data Analysis: Version Control and IDEs. Program Development. Developing R-Packages. Developing Python Projects.</p> <p>Reflection: Develop programmes for practical programming.</p>	CLO 4

Transaction Mode

Lecture, Hand-On Lab, Recorded Lectures, YouTube, Discussion following GitHub & Stack overflow, Invited Lectures.

Evaluation criteria

There shall be an end term evaluation of the course for 50 marks for a duration of 2 hours. (Which will include development of a program with Open Book/internet.) The course coordinator shall conduct the evaluation.

Suggested Readings

- Peng, R. D. (2016). *R programming for data science* (pp. 86-181). Victoria, BC, Canada: Leanpub.
- Tippmann, S. (2015). Programming tools: Adventures with R. *Nature*, 517(7532), 109-110.
- Matloff, N. (2011). *The art of R programming: A tour of statistical software design*. No Starch Press.
- Brooker, P. D. (2019). *Programming with Python for Social Scientists*. Sage.
- Grus, J. (2019). *Data science from scratch: first principles with python*. O'Reilly Media.
- Chambers, J. M. (2008). *Software for data analysis: programming with R* (Vol. 2). New York: Springer.
- Kaya, E., Agca, M., Adiguzel, F., & Cetin, M. (2019). Spatial data analysis with R programming for environment. *Human and ecological risk assessment: An International Journal*, 25(6), 1521-1530.
- Braun, W. J., & Murdoch, D. J. (2021). *A first course in statistical programming with R*. Cambridge University Press.
- Singh, A. K., & Allen, D. E. (2017). *R in Finance and Economics: A Beginner's Guide*.
- Fox, J., & Andersen, R. (2005). Using the R statistical computing environment to teach social statistics courses. *Department of Sociology, McMaster University*, 2-4.
- Edelman, A., Wolff, T., Montagne, D., & Bail, C. A. (2020). Computational Social Science. *Annual Review of Sociology*, 46.
- Igual, L., & Seguí, S. (2017). Introduction to data science. In *Introduction to Data Science* (pp. 1-4). Springer, Cham.

Web Resources

- <https://cran.r-project.org/>
- <https://www.rstudio.com/>
- <https://pypi.org/>
- <https://www.anaconda.com/>
- <https://github.com/>
- <https://datascience.stackexchange.com>
- <https://stackoverflow.com/questions/tagged/data-science>
- <https://www.edx.org/course/python-for-data-science-2>

School Board, SCIS, CUPB

SEMESTER – III

Course Code: LIS.554

Course Title: Research Methodology and Statistical Techniques

L	T	P	Cr
4	0	0	4

Total Hours: 60 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Conceptualise research, research methods and research design.
- CLO2: Critically examine the process of data collection, data analysis and usage of statistical techniques and software packages for research.
- CLO3: Develop skills in preparing research proposals, citation styles and avoiding plagiarism.
- CLO4: Evaluate the indicators used for assessing research impact.

Unit/Hours	Content	Mapping with CLOs
Unit I/ 16 Hours	<p>Concept of Research: Research - Concept, Characteristics, Scope and Research Ethics. Types of Research – Basic and Applied, Interdisciplinary and Multidisciplinary. Research Methods: Historical, Descriptive, Experimental and Delphi. Research Design, Review of Literature; Hypothesis; Sampling Techniques. Reflection: Students will comprehend the difference between different types of research.</p>	CLO 1
Unit II/ 16 Hours	<p>Research methods and Statistical Techniques. Methods of Data Collection (Qualitative and Quantitative): Questionnaire, Interview, Observation, Library Records, Scales and Checklist. Statistics- Data and Variables. Correlation, Regression and Cross Tabulation. Statistical Packages – Spreadsheet, SPSS. Reflection: Students will understand the different methods of data collection.</p>	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 14 Hours	<p>Research Report Writing: Research Proposal and Report Writing and Citation Tools. Reference Management Tools. Evaluation of Research Report.</p> <p>Reflection: Students will learn the structure of research proposal and report writing including reference management tools.</p>	CLO 3
Unit IV/ 14 Hours	<p>Research Metrics: Metric Studies in LIS - Bibliometrics, Scientometric, Webometrics, Altmetrics. Journal Impact Factor. Institutional and Author level metrics; h-Index, g-Index, i10 Index. Research Trends in Library and Information Science.</p> <p>Reflection: Discuss different research metrics.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Charles H. Busha & Stephen, P. Harter. (1980). *Research Methods in Librarianship: Techniques and Interpretation*. New York: Academic Press.
2. Das, A. K. (2015). *Research evaluation metrics* (Vol. 4). UNESCO Publishing.
3. Frye, C. (2018). *Microsoft Excel 2019 step by step*. Microsoft Press.
4. Glänzel, W., Moed, H. F., Schmoch, U., & Thelwall, M. (Eds.). (2019). *Springer Handbook of Science and Technology Indicators*. Springer Nature.
5. Goode, William J and Hatt, Paul K.(2017). *Methods in Social Research*. Asia law House.
6. Goon, A M. (2016). *Fundamental of Statistics*. Calcutta: World Press
7. Gopal, M. H: (1992). *An Introduction to Research Procedure in Social Sciences*. New Delhi, Vikas, Pub. House
8. George, D., & Mallery, P. (2016). *IBM SPSS statistics 23 step by step: A simple guide and reference*. Routledge.
9. Krishnaswami, O.R. (2013). *Methodology of Research in Social Sciences*. New Delhi : Himalaya
10. Kumar, R. (2019). *Research methodology: A step-by-step guide for beginners*. Sage Publications Limited.
11. Larson-Hall, J. (2015). *A guide to doing statistics in second language research using SPSS and R*. Routledge.
12. Leo, Egghe and Rousseau, Ronald. (2001). *Elementary Statistics for Effective Library and Information Service Management*. London: Aslib

13. Marurice, B. Line. (1989). *Library Surveys: an introduction to the use, planning procedure and presentation of surveys (2nd ed)*. London : Bingley
 14. Mary Lee, Bundi. (1983). *Reader in Research Methods for Librarianship USA*: Greenwood Press.
 15. Ngulube, P. (Ed.). (2019). *Handbook of Research on Connecting Research Methods for Information Science Research*. IGI Global.
 16. Powell, Ronad, R. (2004). *Basic research methods for librarians*. Norwood: Ablex
 17. Powell, Ronald R. and Connaway, Lynn Silipigni. (2010). *Basic Research methods for Librarians (4th ed)*. Westport: Libraries unlimited.
 18. Terrell, S. R. (2012). *Statistics translated: A step-by-step guide to analyzing and interpreting data*. Guilford Press.
- Verzani, J. (2018). *Using R for introductory statistics*. Chapman and Hall/CRC.

Course Code: LIS.562

Course Title: Library Automation, Digital Libraries and Networking

L	T	P	Cr
4	0	0	4

Total Hours: 60 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Critically analyse the need and steps involved in automating libraries.
- CLO2: Discover the bibliographic standards and tools used for library automation.
- CLO3: Examine the process of digitization and the usefulness of digital preservation.
- CLO4: Analyse the significance of institutional repositories in libraries and information centres.

Unit/Hours	Content	Mapping with CLOs
Unit I/ 19 Hours	Library Automation: Library Automation Needs, scope and Definition. Library Automation – Areas, Planning, Selection of Hardware and Software, Implementation and Evaluation. Standards for Library Automation. Barcode, RFID, NFC (Near Field Communication), QR Code, Biometric, Smartcard: Features and Applications. Reflection: Discuss the different aspects of library automations.	CLO 1
Unit II/ 16 Hours	Library Automation Standard and tools: In-house Operations: Acquisition, Cataloguing, Circulation, Serial Control, OPAC, etc. Bibliographic Standards: Dublin Core and MARC. Introduction to Metadata: Types of Metadata. Library Software Packages: Overview and Housekeeping Operations. Case Studies: Koha. Reflection: Discuss library in-house operation and standards and tools of library automation.	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 16 Hours	Digital Library and Institutional Repository. Digitization – Planning, Selection of Materials, Hardware, Software, Process, Issues. Digital Library: Genesis, Characteristics, Types, Architecture; Standards, Formats and Protocols, DOI. Digital Library Initiatives – National and International. Institutional Repositories - Need, Purpose, Types and Tools Reflection: Understand the concept of digital library and Institutional repository.	CLO 3
Unit IV/ 12 Hours	Networking: Need, benefits, topologies. Internet technology. Wireless Communication – Media, Wi-fi, Li-fi, Mobile Communication. Networks Security- Firewalls, Anti-virus software. Reflection: Students will learn the basic concepts of networking.	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Bishop, A. P., Van House, N. A., & Bittenfield, B. P. (Eds.). (2003). *Digital library use: Social practice in design and evaluation*. MIT Press.
2. Boardman, Mark. (2005). *The language of websites*. London: Rutledge Taylor & Francis Group.
3. Bolan, Kimberly, & Cullin, Robert. (2011). *Technology made simple: An improvement guide for small and medium libraries*. Chicago: American Library Association.
4. Bradley, Phil. (2003). *WWW: How to design and construct web pages*. London: Aslib.
5. Chowdhury, G. G. & Chowdhury, Sudatta. (2003). *Introduction to Digital Libraries*. Ane Books.
6. Chowdhury, G. G., & Chowdhury, Sudatta. (2001). *Information sources and searching on the World Wide Web*. London: Facet Publishing.
7. Chowdhury, G. G., & Foo, S. (Eds.). (2012). *Digital libraries and information access: research perspectives*. Facet Publishing.
8. Cohn, John M., Kelsey, Ann L., & Fiels, Keith Michael. (1998). *Planning for library automation: A practical handbook*. London: Library Association.
9. Deegan, Marilyn & Tanner, S. (2006). *Digital Preservation*. Facet Publishing.

10. Fox, Edward; Andre Goncalves, Marcos & Shen, Rao (2012). *Theoretical Foundations for Digital Libraries: The 5S Approach*. Morgan and Claypool
11. Ingersoll, Patricia, & Culshaw, John. 2004. *Managing information technology: A handbook for systems librarians*. Westport, CT: Libraries Unlimited.
12. Jones, Richard et al. (2006). *The Institutional Repository*. Oxford: Chandos Publishing.
13. Judith, Andrews & Derek, Law. (2017). *Digital Libraries*. Routledge.
14. Lucy A. Tedd & Andrew Large. (2004). *Digital Libraries: Principles and Practice in a Global Environment*. G.G. Saur.
15. Osborne, Larry N., & Nakamura, Margaret. (2004). *Systems analysis for librarians and information professionals (2nd ed.)*. Englewood, CO: Libraries Unlimited.
- Pandian, M. P. (2010). *RFID for libraries: a practical guide*. Elsevier.
16. Purcell, Aaron. (2016). *Digital Library Programs for Libraries and Archives: Developing, Managing, and Sustaining Unique Digital Collections*. ALA
17. Rao, Ravichandran I. K. (1990). *Library automation*. New Delhi: Wiley Eastern.
18. Reynolds, Dennis. 1985. *Library automation: Issues and applications*. New York: Bowker.
19. Rice-Lively, Mary Luhn, & Chen, Hsin-Liang. 2006. *Scenarios and information design; A user-oriented practical guide*. Oxford: Chandos Publishing.
20. Rowley, J.E. 1993. 2nd ed. *Computer for libraries*. London: Clive Bingley.
21. Satyanarayana, N. R. 1995. *A manual of computerization of libraries*. New Delhi: Viswa Prakashan.
22. Satyanarayana, N. R. 2014. *A manual of library automation and networking*. Lucknow: Ess Ess Pub.
23. Xavier, C. 2017. *World Wide Web design with HTML*. New Delhi: TMH.

Course Code: LIS.558

**Course Title: Library Automation and Digital Libraries
(Practical)**

Total Hours: 60 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Design a fully-fledged automation system for various functions of the library.
- CLO2: Create an institutional repository for capturing the intellectual output of the organisation.

L	T	P	Cr
0	0	4	2

Unit/Hours	Content	Mapping with CLOs
Unit I/ 30 Hours	Library Automation Practice: Full Practice of Koha including these modules <ul style="list-style-type: none">• Cataloguing• Authorities• Circulation & Offline circulation• Patron management• Acquisitions• Serials management• OPAC• Koha Administration• Inventory• Course Reserves• Reporting Module• Label printing & multi-format notices• Library News Publisher Introductory practice of NewGenLib, SOUL, E-granthalaya Reflection: Understand various functions of library automation software	CLO 1
Unit II/ 30 Hours	Digital Library Software Creation and Management of Repository using D-Space. Backend and Frontend Customisation of the D-Space repository. Introductory practice of using E-Prints. Introductory practice of using Greenstone. Reflection: Design and develop a digital library.	CLO 2

Evaluation Criteria: Total Marks**- 50 Marks**

Continuous Assessment:

- 25 Marks

- Practical Record: (10)
- Lab Performance (15)

End- Term Assessment:

- 25 Marks

- Conduct of practical (15)
- Viva (10)

Suggested Readings

1. Mishra, V. (2016). *Basics of Library Automation, Koha Library Management Software and Data Migration: Challenges with Case Studies*. Ess Ess Publications.
2. Poornima, G & Girish, R. (n.d). *Creating and Managing Institutional Repository Using DSpace: A Case Study Approach*. Educreation Publishing.
3. Sharma, A. (2019). *Koha for Beginners*. Willford Press
4. Sirohi, S., & Gupta, A. (2010). *Koha 3 Library Management System*. Packt Publishing Ltd.
5. Witten, I. H., Bainbridge, D., & Nichols, D. M. (2009). *How to build a digital library*. Morgan Kaufmann.
6. Zhang, A., & Gourley, D. (2014). *Creating digital collections: a practical guide*. Elsevier.

Course Code: LIS.559

Course Title: Research Data Management and Emerging Trends in LIS

Total Hours: 60 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Outline research data management in libraries
- CLO2: Understand various research data management services in libraries services for the libraries and information Centre.
- CLO3: Apply Web 2.0, 3.0 and Mobile based technologies for rendering library services.
- CLO4: Justify the implications of social networking tools in libraries.

L	T	P	Cr
4	0	0	4

Unit/Hours	Content	Mapping with CLOs
Unit I/ 15 Hours	Research Data Management: Types of research data and sources. Storing, Curation and Preservation of Research Data: Documentation and Metadata. Data Management Plan and related tools. FAIR Principles. Data Privacy and Ethics. Reflection: Students will learn the role of librarians in Research Data Management.	CLO 1
Unit II/ 15 Hours	Research Data Management Services: Concept of Research Data Management Services, Need and benefits. Data repositories. Starting Research Data Management Services. Planning and organising the RDM services. Promoting the RDM services. Evaluating and refining the RDM services. Reflection: Understand the research data services in libraries.	CLO 2
Unit III/ 15 Hours	Web Technology and Web Based Services: Web 2.0 and 3.0 (Library 2.0): Concept, Characteristics, Components; Instant Messaging, RSS Feeds, Podcasts, Vodcasts, Ask a Librarian Web-Scale Discovery Services. Mobile based Library Services and Tools: Library Apps, Mobile Library Instructions, SMS Alerts, Geo-Location, Reference Enquiry. Reflection: Students will learn different Web 2.0 tools/technologies and mobile based library services.	CLO 3

Unit/Hours	Content	Mapping with CLOs
Unit IV/ 15 Hours	Social Web Networks and Content Management Systems. Collaborative Services- Social Networks, Social Tagging. Content Management Systems. Research Information Management System. Research Information Management Tools (IRINS, VIVO). Reflection: Discuss various social web networks and understand the Research Information Management System.	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Adler, S. et.al. (2000) *Extensible Stylesheet Language (XSL) Version 1.0*, W3C Recommendation accessed at <http://www.w3.org/TR/xsl>.
2. Benz, B. and Durant, J.R.(2003). *XML 1.1 Programming Bible (Covers J2EE, Java, Databases, Web Services and .NET)*. New Delhi: Wiley Publishing
3. Bhardwaj, R. K., & Banks, P. (2019). *Research Data Access and Management in Modern Libraries*. New York: IGI Global.
4. Blood, Rebecca. (2002). *The Weblog Handbook: Practical Advice on Creating and Maintaining Your Blog*. Cambridge: Perseus Publishing
5. Hjelm, J. and Stark, P. (2002). *XSLT: The Ultimate Guide to Transforming Web Data*. New York: John Wiley.
6. Jones, K. M., & Farrington, P. A. (2011). *Using WordPress as a library content management system*. American Library Association.
7. Kadushin, C. (2012). *Understanding social networks: Theories, concepts, and findings*. OUP USA.
8. Ray, J. M. (Ed.). (2014). *Research data management: Practical strategies for information professionals*. Purdue University Press.
9. Willinsky, John. (2006). *Access Principle: Case for Open Access to Research and Scholarship*. Cambridge: MIT Press, Digital Libraries and Electronic Publishing.

Course Code: LIS.501

Course Title: Entrepreneurship in Library and Information Sciences

Total Hours: 30 Hours

Course Learning Outcomes:

On the completion of this course, students will be able

- CLO1: To develop understanding about problems and prospects in entrepreneurship.
- CLO2: To gain insights about entrepreneurial with library and information science.
- CLO3: To develop understanding about Socio-Info-entrepreneurship.
- CLO4: To develop insights into entrepreneurship and sustainability.

L	T	P	Cr
1	0	0	2

Unit/Hours	Content	Mapping with CLOs
Unit I/ 08 Hours	Entrepreneurship: Entrepreneurial Structure; Nature, Characteristics, functions and its role in economic development. Entrepreneurship-problems and prospects in India. Entrepreneurial Behaviour and Skills. Reflection: Understand the practical and social implications of entrepreneurship.	CLO 1
Unit II/ 08 Hours	Entrepreneurship and Library and Information Science: Role of industries/entrepreneur's associations and self-help groups. Funding opportunities for start-ups. Basic start-up problems. Preliminary contracts with the vendors, suppliers, bankers, principal customers. Contents of business plan/ project proposal. Reflection: Understand the practical and social implications of concepts in library and information science.	CLO 2
Unit III/ 07 Hours	Socio-Info-entrepreneurship: Social Info-entrepreneurship: concept, definition, implications, planning, implementation, sustainability etc , Case studies. Study of information systems, planning, designing, structure, workflow, evaluation. Open access information systems: Indian kanoon, India code Commercial information system: LexisNexis, Westlaw. Reflection: Discuss the impact of entrepreneurship to society.	CLO 3

Unit IV/ 07 Hours	Planning, Evaluation and Sustainability: Planning, Management and Development of products, Information services, etc. Assessment of existing information systems (open access and enterprise), different models of information systems, Case studies. Reflection: Understand the planning, evaluation and sustainability issues.	CLO 4
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Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Awe, S. C. (2012). *The entrepreneur's information sourcebook: Charting the path to small business success*. ABC-CLIO.
2. Carlson, E., & Koch, J. (2018). *Building a successful social venture: A guide for social entrepreneurs*. Berrett-Koehler Publishers.
3. Eden, B. L. (Ed.). (2008). *Content management systems in libraries: case studies*. Scarecrow Press.
4. Krautter, M., Lock, M. B., & Scanlon, M. G. (Eds.). (2014). *The entrepreneurial librarian: Essays on the infusion of private-business dynamism into professional service*. McFarland.
5. Neck, H. M., Neck, C. P., & Murray, E. L. (2019). *Entrepreneurship: the practice and mindset 1st Edition*. Los Angeles: Sage Publications
6. Pellen, R., & Miller, W. (2014). *Innovations in science and technology libraries*. Routledge.
7. Rowley, J. E. (2011). *Being an information innovator*. London: Facet Publishing.
8. Pamela, B., & Hepfer, C. (2009). *Risk and Entrepreneurship in Libraries: Seizing Opportunities for Change*: American Library Association
9. The Harvard Business Review entrepreneur's handbook: everything you need to launch and grow your new business (2018). Boston, Massachusetts : Harvard Business Review Press
10. Willinsky, John. (2006). *Access Principle: Case for Open Access to Research and Scholarship*. Cambridge: MIT Press, Digital Libraries and Electronic Publishing.

Evaluation Criteria

- ❖ 50% weightage for mid-semester test comprising objective type questions (25 marks)
- ❖ 50% for final examination comprising subjective type questions (25 marks).

Course Code: LIS.600

Course Title: Research Proposal

Total hours: 120

Course Learning Outcomes

After the completion of course the students will be able to:

CLO1: Ascertaining the research problem and formulating the research questions.

CLO2: Planning the research design including methodology, scope, hypothesis after conducting the literature review on the topic of research

CLO3: Preparing the synopsis for research project

L	T	P	Cr
0	0	8	4

Preparing a Research Proposal

Those who opt the group dissertation shall prepare the research proposal in a group mentioning the name of all members. A group consisting of a maximum of four students may work together on one project. These students may work using a single approach or multidisciplinary approach.

The research proposal shall be prepared including the following: Title, Statement of the problem, Literature Review, Objectives of the study, Hypotheses, Scope, Methodology of the study, Conclusion, Bibliography

For detail guidelines relating to research proposal, please access the university website: <http://www.cup.edu.in>

Evaluation Criteria

The evaluation of dissertation proposal in the third semester will carry 50% weightage by supervisor and 50% by HoD and senior-most faculty of the department.

Research Proposal (Third Semester)		
	Marks	Evaluation
Supervisor	50	Dissertation proposal (Novelty, innovation, contemporality etc.) and presentation
HoD and senior-most faculty of the department	50	Dissertation proposal and presentation

Course Code: LIS.557

Course Title: Technical Writing

Total Hours: 45 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Infer the concepts involved in the communication process
- CLO2: Analyse the role of languages in the process of communication.
- CLO3: Summarise the structure and functions of technical communication.
- CLO4: Illustrate the editing, editorial process and editorial tools for technical writing.

L	T	P	Cr
3	0	0	3

Unit/Hours	Content	Mapping with CLOs
Unit I/ 13 Hours	Communication Process: Overview of Communication Process. Characteristics Features of Technical Writing. Target Groups in Written Communication. Reader-Writer Relation. Reflection: Understand the communication processes.	CLO 1
Unit II/ 10 Hours	Linguistics: Language as a Medium for Communication of Thought. Functional English Style: Semantics, Syntax and Diction. Readability and Text. Aberrations in Technical Writing Reflection: Students will learn the functional engine style.	CLO 2
Unit III/ 12 Hours	Structure and Functions of Technical Communication 12 hours Structure: Definition, Purpose, Characteristics and Functions. Collection, Organisation and Presentation of Data. Case Studies: Preparation of Short Communication, Review Article, Technical Reports, Monographs, Dissertations and House Bulletins. Reflection: Students will learn the structure and functions of technical communication.	CLO 3
Unit IV/ 10 Hours	Technical Editing and Editorial Tools: The Editor. Editorial Process. Editorial Tools Reflection: Students will learn editorial tools.	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Huckin, T.N. and Leslie, A.O. (1984). *English for Science and Technology*. New York: Mc Graw Hill.
2. IGNOU, (1989). *Editing in Distance Education* (IGNOU Handbook-6). New Delhi: IGNOU.
3. IGNOU, (1990). *General Principles of Writing*. New Delhi: IGNOU.
4. Reep, D.C. (2014). *Technical Writing, Principles, Strategies, and Readings (8th Ed)*. Pearson.
5. Sherman, T.A. (2018). *Modern Technical Writing*. Franklin Classics.
6. Simon, A.R and Simon, J. (1993). *Computer Professional's Guide to Effective Communications*. New York: McGraw Hill.
7. SIS. (1990). *Fourth Training Course in Technical Communication*. Jodhpur: SIS.
8. WiCLOx, D.L. and Nolte, L. W. (1997). *Public Relations Writing and Media Techniques*. New York: Harper and Row Publishers.
9. Swain, D.V. and Swain, J.R. (1991). *The Issue of Audience*. In *Scripting for the New Audio-Visual Technologies (2nd ed)*. Chapter 4. Boston: Focal Press.
10. Taneja, R.D. (1990). *Audience Analysis and Adaptation: In Fourth Training Course in Technical Communication*. New Delhi: SIS.
11. Vallins, G.H. (1988). *Good English*. Bombay: Rupa.
12. Weisman, H. M. (1992). *Basic Technical Writing. (6th Ed)*. Columbus: Charles Orenill Publishing.

Course Code: LIS.583

Course Title: Business Information System

Total Hours: 45 Hours

L	T	P	Cr
3	0	0	3

Course Learning Outcomes

After the Completion of the course, the students will be able to:

- CLO1: Conceptualise the nature and characteristics of business information.
- CLO2: Determine the information sources and products related to business.
- CLO3: Critically analyse the role of institutions and networks that disseminate business information
- CLO4: Summarise the process for organising business information for end user support

Unit/Hours	Content	Mapping with CLOs
Unit I/ 12 Hours	Business Information: Nature and characteristics: Its role, generation and utilisation. Systems view of business information. Components of Business Information Systems: Resources, centres, consultants, suppliers, financial organisations, industrial promoters, etc. Users of business information: Categories, role, functions, and needs. Reflection: Discuss the various aspects of business information.	CLO 1
Unit II/ 10 Hours	Business Information Sources and Products: Sources of Information: Directories, Digests, Market, Research Reports, Trade Literature, Technical Notes, Company Profiles, Patent, Design and TradeMarks, Standards, Databases. Information services: CAS, SDI, Technical Enquiry Service, other computerised services. Reflection: Compare business information sources and products.	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 13 Hours	Business Information Institutions and Networks: Information Networks: overview of Business Information Networks. Institutional: national and international: Studies related to the activities of: NIDCS, IIFT, ITPO, CII, FICCI, UNIDO, UNCTAD. Reflection: Compare business information networks.	CLO 3
Unit IV/ 10 Hours	Organizing Business Information for End user Support: Database System: Business Measurement System. Business Planning System. Text Management System: Text retrieval system. Office systems Management Support Systems: Decision support systems; information centres. Resources of Business Information, CMIE. Reflection: Discuss the workflow of business information for end user support.	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Reading

- Atherton, P. (1980). *Handbook for information systems and services*. In Handbook for information systems and services. Paris: UNESCO.
- Campbell, M.J. (Ed.). (1975). *Manual of business library practice*. NY: Shoe String
- Curtis, G., & Cobham, D. (2008). *Business information systems: Analysis, design and practice*. NY: Pearson Education.
- Kourouthanassis, Panos & Giaglis, George M.(2016).*Pervasive information systems*. Routledge.
- Kushniruk, Andre W & BoryckiHuman, Elizabeth (2008). *Human, Social, and organizational aspects of health information systems*. Hershey PressInc.

Course Code: LIS.584

Course Title: Health Sciences Information System

Total Hours: 45 Hours

L	T	P	Cr
3	0	0	3

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Understand the information need in Health Sciences
- CLO2: Examine the sources of information related to health sciences.
- CLO3: Ascertain the role of Health Science Information Institutions.
- CLO4: Illustrate the functions of various health science information systems and networks.

Unit/Hours	Content	Mapping with CLOs
Unit I/ 12 Hours	Health Science Information: Growth and development of Health Science. Types of Health Science libraries/information centres. Information Services: Current Awareness Service, SDI service, Indexing and abstracting service, Literature search. Users of Health Science information. Reflection: Students will learn the growth and development of different health science libraries.	CLO 1
Unit II/ 10 Hours	Health Science Information Sources: Sources of Information: Documentary: Printed and non-print. (List to be provided by the concerned teacher). Reflection: Students will learn the different sources of information in health science.	CLO 2
Unit III/ 13 Hours	Health Science Information Institutions: National Medical Library. WHO. ICMR. Department of Biotechnology. Council of Ayurveda and Siddha. Council of Homoeopathy. National Institute of Health and Family Welfare. CDRI. CFRI. CFTRI. NIN. NII. NIC. Reflection: Compare the services of different types of health science information institutions.	CLO 3

Unit/Hours	Content	Mapping with CLOs
Unit IV/ 10 Hours	Information Systems and Networks: HELLIS, MEDLARS, BIOSIS. Trends in Health Science Information System. Application of Hypertext, Hypermedia, Multimedia. Expert System and Artificial Intelligence. Reflection: Compare information systems and networks information services.	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Reading

1. Balgrosky, Jean A. (2015). *Essentials of health information systems and technology*. Jones & Bartlett.
2. Carmel, M. (Ed.). (1995): *Health care librarianship and Information work*. (22nd ed.). Library Assn Pub Limited.
3. Dixit, R.P. (1995). *Information management in Indian medical libraries*. New Delhi: New Concepts.
4. Dixon, Brian. (2016). *Health Information Exchange: Navigating and Managing a Network of Health Information Systems*. Academic Press.
5. Gupta, S.P. (1993). *Information technology and health science libraries*. New Delhi: MLAI SP. Pub.
6. Kushniruk, Andre W & Borycki Human, Elizabeth (2008). *Human, Social, and organizational aspects of health information systems*. Hershey
7. Magnuson, J., Fu, Jr., P. C. (2014). *Public health informatics and information systems*. Springer.
8. McGlynn, Elizabeth A ; Brook, Robert H & Kerr, Eve A .(1998).*Health Information Systems : Design Issues and Analytic Applications*.R and
9. Michelsen, Kai.(2015).*Promoting better integration of health information systems : best practices and challenges*. WHO
10. Rodrigues, Joel. (2010). *Health information systems: concepts, methodologies, tools, and applications*. Hershey
11. Siuly, S., Lee., et.al (2018). *Health information systems*. Springer.
12. Skurka, Margaret Flettre. (2017). *Health information management: principles and organization for health information services*. Wile

Course Code: LIS.585

Course Title: Information Analysis, Consolidation, and Repackaging

Total Hours: 45 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Conceptualization of Information Analysis, Consolidation and Repackaging.
- CLO2: Evaluate the nature and types of Information products.
- CLO3: Analyse the process of content analysis and abstracting
- CLO4: Assess the significance of Marketing Information products.

L	T	P	Cr
3	0	0	3

Unit/Hours	Content	Mapping with CLOs
Unit I/ 12 Hours	Information Analysis, Consolidation and Repackaging: Concept, need and process. Guiding Principles for arrangement and presentation of ideas in a helpful sequence. Information Consolidation Products: Concepts, types, design, development and methodology. Knowledge and skills required for information analysis and consolidation. Reflection: Understand the information consolidation products.	CLO 1
Unit II/ 10 Hours	Information Products: Nature, concept, types, design and development. Information News-letters, Hand Books, House Bulletins, In-house Communication, Trade Bulletin, Product Bulletin, State-of-the-Art Report, Trend Report, Technical Digests. Reflection: Compare different information products	CLO 2
Unit III/ 13 Hours	Content Analysis, Abstract and Abstracting: Content Analysis: Concept types and processes. Abstract: Definition and types, Characteristics and Qualities of good abstracts. Abstracting: need, process. Computers and Abstracting. Abstracting organisations and Services. Reflection: Students will understand the content analysis and abstracting concepts.	CLO 3

Unit/Hours	Content	Mapping with CLOs
Unit IV/ 10 Hours	Planning, Management and Marketing of an Information Analysis & Consolidation Unit: Planning and Management of Information Analysis and Consolidation Units. Marketing of Information Concept, need and benefits; 5 Ps of Information Marketing; Marketing of profit and non-profit organisation; Trends in marketing of Information Services and Information Marketing in India. Reflection: Students will comprehend the planning, management and marketing of information products.	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Singh, Sewa (2014). *Information analysis, consolidation and repackaging*. Atlantic Publishers & Distributors Pvt Ltd
2. Cleveland, D. & Cleveland, A. (2013). *Introduction to indexing and Abstracting (4th ed)*. Englewood: Libraries Unlimited.
3. Megan (2015). *Digital content creation*. Rosen Young Adult
4. Gupta, B.M. (Ed.). (1988-2000). *Handbook of libraries, archives and information centres in India*. (Vols 16.) New Delhi South Asia Books.
5. Koltay, T. (2010). *Abstracts and abstracting: a genre and set of skills for the 21st century*. Oxford, Chandos
6. Saracevic, T. & Wood, J.S. (1981). *Consolidation of information: A handbook of evaluation, restructuring and repackaging of scientific and technical information*. Paris: UNESCO.
7. Seetharama, S. (1997). *Information consolidation and repackaging*. New Delhi: Ess Ess Pub.
8. Bhattacharya, G. & Gopinath, M.A.(Eds). (1981). *Information Analysis and Consolidation: Principles, procedures and products*. In DRTC Annual Seminar No. 18. Bangalore: DRTC.

Course Code: LIS.561

Course Title: Legal Information System

Total Hours: 45 Hours

Course Learning Outcomes

After the completion of the course, the students will be able to:

- CLO1: Conceptualise the nature and characteristics of legal information.
- CLO2: Determine the information sources and products related to legal studies.
- CLO3: Critically analyse the information systems in the legal domain and networks that disseminate legal information
- CLO4: Summarise the process for legal information for end-user support

L	T	P	Cr
3	0	0	3

Unit/Hours	Content	Mapping with CLOs
Unit I/ 12 Hours	Legal Information: Nature and characteristics: Its role, generation and utilisation. Legal information life cycle: stages, workflow, etc. Different types of information sources: Primary, secondary and tertiary. Users of legal information: Categories, role, functions, and need. Reflection: Learn about different sources of legal information.	CLO 1
Unit II/ 10 Hours	Legal Information Sources and Services: Sources of Information: Directories, Digests, Research Reports, Trade Literature, Case laws, Company Profiles, Patent, Design and TradeMarks, Standards, Gazettes, Databases. Information services: CAS, SDI, Technical Enquiry Service, other online services. Reflection: Compare different sources and services of legal information.	CLO 2
Unit III/ 13 Hours	Legal Information Institutions and Networks: Information Networks: an overview of legal Information Networks. Institutions generating legal information : Supreme Court of India, High Courts of India, Tribunals, District Courts, Lok Adalats, etc. International organisation in legal information dissemination: WorldLII, CommonLII, LIIofIndia. Reflection: Compare the services of legal information institutions and networks.	CLO 3

Unit/Hours	Content	Mapping with CLOs
Unit IV/ 10 Hours	Legal Information Management and evaluation: Database System: Online and Offline legal information databases. Legal Information System: Planning, designing, maintaining and updating; search operators, search strategies, etc. Legal information systems: LexisNexis, Westlaw, Indlaw, Manupatra, etc. Legal information literacy. Reflection: Compare the features of different legal information systems.	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion, Demonstration

Suggested Readings

- Armstrong, C. J., & Large, J. A. (Eds.). (2018). *Manual of online search strategies*. Routledge.
- Armstrong, C. J., and Laurence W. Bebbington (2004). *Staying Legal: A Guide to Issues and Practice Affecting the Library, Information, and Publishing Sectors*. London: Facet
- Sankaran, K. (Ed.). (2008). *Towards Legal Literacy: An Introduction to Law in India*. Oxford University Press.
- Pandurangan, K.(2009). *E-Justice: Practical Guide for the Bench and Bar*. Delhi: Universal Law Publishing
- Pester, David. *Finding Legal Information: A Guide to Print and Electronic Sources*. Oxford, UK ; Rollinsford, NH: Chandos, 2003. Print.
- Tucker, Virginia, and Marc Lampson. *Finding the Answers to Legal Questions: A How-to-do-it Manual*. New York: Neal-Schuman, 2011. Print.
- Dane, J., & Thomas, P. A. (1987). *How to use a law library*. London: Sweet & Maxwell.

Course Code: LIS.556

Course Title: Engineering and Technology Library and Information System

Total Hours: 45 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Summarise the roles of libraries in technical institutions.
- CLO2: Critically examine the collections procured by the libraries in technical institutions.
- CLO3: Analyse the organisational structure and the services offered by the libraries in technical institutions.
- CLO4: Ascertain the financial and human resource management practices adopted by libraries in technical institutions.

L	T	P	Cr
3	0	0	3

Unit/Hours	Content	Mapping with CLOs
Unit I/ 12 Hours	Engineering and Technological Libraries and their Development: Objectives and Functions. History and Development of Libraries with Special Reference to India. Role of Engineering and Technological Libraries. Role of Agencies in the Growth and Development of Engineering and Technological Libraries in India. Reflection: Understand the objectives of engineering and technological libraries.	CLO 1
Unit II/ 13 Hours	Collection Development and Management: Periodicals, Conference Literature, Grey Literature, Patents, Standards, Specifications and Government Publications. Non-Book Materials: Electronic Resources and Online Databases. Reflection: Discuss the collection development and management in engineering and technological libraries.	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 10 Hours	<p>Library Organisation and Administration and Information Services: Organisational Structure Staff Manual, Library Surveys, Statistics and Standards, etc. CAS, SDI, Abstracting and Indexing Services Library Bulletin. Newspaper Clipping Services Computerised Services. Resource Sharing and Networking. Information Literacy Programmes</p> <p>Reflection: Compare popular alerting services in engineering and technology libraries.</p>	CLO 3
Unit IV/ 10 Hours	<p>Financial and Human Resource Management Determination of Finance, Sources of Finance, Types of Budget. Nature, Size, Selection, Recruitment, Qualification and Training Responsibilities and Duties. Competency Development.</p> <p>Reflection: Compare different types of budgeting techniques in engineering and technology libraries.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Bhatt, R. K. (1995). *History and development of libraries in India*. Mittal Publications.
2. Johnson, Peggy.(2018) *Fundamentals of collection development and management*. American Library Association.
3. Edwards, E. G. (2005). *Developing Library & Information Centre Collections*. Westport: Libraries Unlimited.
4. Krishan, Kumar. (1997). *Library organisation*. New Delhi: South Asia Books .
5. Gurdev, Singh. (2013).*Information Sources, Services and Systems*. Prentice Hall India Learning Private Limited.
6. Association of College and Research Libraries (ACRL). (2018). *Information Literacy*.
7. Roberts, Stephen. (2013). *Financial and cost management for libraries and information services*. Walter de Gruyter.
8. Ian, B & Holden, Len. (1997). *Human Resource Management: A*

contemporary perspectives. Financial Times/ Prentice Hall.

School Board, SCIS, CUPB

Course Code: LIS.573

Course Title: Academic and Special Library Systems

Total Hours: 45 Hours

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Analyse the collection development of libraries in academic institutions.
- CLO2: Develop knowledge and skills for financial and human resource management in academic libraries.
- CLO3: Understand the functioning of special libraries.
- CLO4: Summarise the overall organisation and administration of special libraries.

L	T	P	Cr
3	0	0	3

Unit/Hours	Content	Mapping with CLOs
Unit I/ 12 Hours	Academic Library and Collection Development Academic Libraries: Definition, Aims, Objectives and Roles. Role of UGC in the development of academic libraries in India. Library Collection: Types and Character. Collection Development Policy: Concept, Significance and Elements, Patron-Driven Acquisition (PDA). Marketing of Academic Library Services and Products. Reflection: Analysis of different functions and collection development policies of academic libraries.	CLO 1
Unit II/ 13 Hours	Financial Management and HRM in Academic Library: Financial Management: Concept and Sources of finance. Library Expenditure: Principles and Classification of Library Expenditure. Methods of Financial Estimation. Budgetary Standards and Norms. Preparation of Library Budget: Calculation of Expenditure, Contents of a Budget Document, Principles of Budget-making. Auditing: Concept, Types of Audits (Pre and Post Audit). Human Resource Management (HRM) in Academic Libraries. Reflection: Discuss financial management and related concepts.	CLO 2

Unit/Hours	Content	Mapping with CLOs
Unit III/ 10 Hours	<p>Special Libraries: Special Libraries Concept, role, characteristics, and functions. Development of special libraries in India. Role of IASLIC. Library and Information Policy at National Level in India.</p> <p>Reflection: Discuss the practical and social implications of concepts.</p>	CLO 3
Unit IV/ 10 Hours	<p>Special Library Organisation and Administration: Collection Development of and Management of Government documents, maps, manuscripts, newspaper clippings, serials, specifications (patents and Standards) technical reports, theses. Financial Management auditing: Sources of finance, budgeting techniques. Accounting and Auditing. Manpower development and recruitment: Qualifications, Job Description, Staff Manual. Library Building: Principles, planning and features. Resource Sharing: Concept, Areas, Factors of Development.</p> <p>Reflection: Discuss the library organisation and administration in the current context.</p>	CLO 4

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings

1. Cowley, John. (1982). *Personal Management in Libraries*. Clive Bingley.
2. Dale, Penny; Beard, Jill & Holland, Matt (2017). *University Libraries and Digital Learning Environment*. Ashgate.
3. Evans, G E.(1983). *Management Techniques for Librarians*. Academic Press.
4. Felicia Etim (2016). *Quality Services in Academic Libraries*. Authorhouse
5. Galvin, TJ. (1979). *The Structure and Governance of Library Networks*. New York: Marcel Dekker.
6. Gurdev Singh. (2015). *Academic Library System and Services*. ESS ESS.
7. Hingwe, K S. (1982). *Management of University Libraries in India*. The World Press. Kent, A &
8. Khan Rajib Hossain (2015). *University Library Systems and Services*. LAP Lambert Academic Publishing

9. Krishan Kumar. (1987). *Library Administration and Management*. Vikas.
10. Kylie Bailin, Benjamin Jahre, Sarah Morris (2018). *Planning Academic Library Orientations: Case Studies from Around the World*. Chandos Publishing, Cambridge
11. Matarazzo , James M .(2013). *Toby Pearlstein Special Libraries: A Survival Guide*. Libraries Unlimited.
12. Mishra R. K. (2013). *Special Library System and Information Services*. Anmol.
13. Mittal, R L. (2007). *Library Administration: Theory and Practice*. Ess Ess.
14. Mount, Ellis, & Renée Massoud. (1999). *Special Libraries and Information Centers: An Introductory Text*. Washington, DC: SLA Publishing,
15. Nasirudheen T. (2018). *Library Movement and Development in India: A State Wise Scan*. Ess Ess Publications.
16. R.S. Aswal (2003). *Information Networks in India*. Ess Ess Publications.
17. Ranganathan, S R. (1989). *Library Book Selection*. Sarada Ranganathan Endowment for Library Science.
18. Semertzaki, Eva (2011). *Special Libraries as Knowledge Management Centres*, Chandos Publishing.
19. Shumaker, David. (2011). *Special Libraries*. In Encyclopedia of Library and Information Sciences, New York: Taylor and Francis.

Course Code: LIS.581

Course Title: Social Science Information Sources and System

Total Hours: 45 Hours

Course Learning Outcomes

After Completion of the course, the students will be able to:

- CLO1: Examine the Structure and Development of Social Sciences.
- CLO2: Critically analyse the various information sources related to social sciences.
- CLO3: Assess the functions of social science information institutions
- CLO4: Evaluate the information systems associated with social science.

L	T	P	Cr
3	0	0	3

Unit/Hours	Content	Mapping with CLOs
Unit I/ 13 Hours	Structure and Development of Social Sciences: Social Sciences: Definition, scope, landmarks and research trends in the disciplines of Political Science, Economics, Sociology, Psychology, History. Reflection: Discuss the research trends in social sciences.	CLO 1
Unit II/ 12 Hours	Social Science Information Sources: Evaluation of the following Information sources: Print and non-print, electronic and Web-based British Humanities Index. Current Sociology. Historical Abstracts. International Bibliography of the Social Sciences. Political Science Abstracts. Population Index. Social Science Citation Index. Sociological Abstracts. UN Demographic Yearbook. Business Periodicals Index. New Palgrave Dictionary of Economics. Social Science Index. Gazetteer of India. PAIS International. Wealth of India. EBSCO. ECONLIT, PsychINFO, RePEC. Reflection: Evaluate the different information sources in social science.	CLO 2

<p>Unit III/ 10 Hours</p>	<p>Social Science Information Institutions: Study of the following Social Science Institutions engaged in information generation and dissemination: Centre for Policy Research. ICSSR. ICWA. Institute for Defence Studies and Analysis. Indian Institute of Public Administration National Council for Applied Economic Research. National Institute of Public Finance and Policy. Tata Institute of Social Sciences. UNESCO. Indian Council of Historical Research. Institute of Economic Growth.</p> <p>Reflection: Discuss the information services of various social science information institutions.</p>	<p>CLO 3</p>
<p>Unit IV/ 10 Hours</p>	<p>Social Science Information System: Concept and evaluation. Evaluation of existing information. Associations, Systems and Networks in Social Sciences at national and international level. International Political Science Association. International Sociological Association. Socio Site. Merger of International Social Science Council (ISSC) with International Council for Science. International Committee for Social Science Information and Documentation (ICSSD). Social Science Research Network (SSRN).</p> <p>Reflection: Evaluate the information associations, systems and networks in social sciences.</p>	<p>CLO 4</p>

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, Discussion

Suggested Readings:

1. Agrawal, S.P. (1987). *Social science information and documentation: search for relevance in India*. New Delhi: Concept Pub.
2. Agrawal, S.P. (1989). *Development of library services in India: social science information*. New Delhi: Concept.
3. Association of Librarians and Information Professionals in the Social Sciences. (2010). *Innovations in social sciences information and research support*. London: Association of Librarians and Information Professionals in the Social Sciences.
4. Binwal, J.C. (Ed.). (1990). *Social science information: problems and prospects*. New Delhi: Vikas Pub.
5. Birdsall, W. F. (1994). *Myth of electronic library: librarianship and social change in America*. Westport: Greenwood.
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SEMESTER – IV

Note: The students would be required to take either **LIS.591** or **LIS.601** as per the decision of the AAC of the Department.

Course Code: LIS.591
Course Title: Internship
Total Hours: 480 Hours

L	T	P	Cr
0	0	32	16

Course Learning Outcomes

After the Completion of course, the students will be able to:

- CLO1: Critically analyse the in-house operations of the libraries and information centres.
- CLO2: Discover the functions of the library in different settings.
- CLO3: Examine the duties carried out by library personnel.
- CLO4: Practice the technologies used for managing routine operations of the library and also for rendering services to the users.

Note: - Each student shall have to undergo an Internship Programme at a library in the beginning of 4th semester selected by the Department for a period of 16 -18 weeks (40hrs/week as per NCrf guidelines).

- **Students can also select the library/special project/publishing house/Non-Governmental Organisation (NGO) for internship.**
- **However, student(s) must prepare the proposal in advance to do so with the consent/approval of Internship Coordinator and HOD.**

Evaluation Criteria

The following is the evaluation criteria of internship

- ❖ 50% weightage for continuous evaluation by the supervisor which includes regularity in work, mid-term evaluation, report, presentation, and final viva-voce;
- ❖ 50% weightage based on average assessment scores by an external expert, HoD and senior-most faculty of the department.
- ❖ Distribution of marks will be based on report of internship (30%), presentation (10%), and final viva-voce (10%). The final viva-voce will be through offline or online mode.
- ❖ Internship Coordinator/ supervisor will award 50% marks and external co-supervisor, HoD and senior-most faculty will award 50% marks.

Course Code: LIS.601

Course Title: – Dissertation

Total Hours: 480 Contact Hours

Course Learning Outcomes

L	T	P	Cr
-	-	32	16

After the completion of course the students will be able to:

- CL01: Conduct research independently on library and information sciences.
- CLO2: Develop analytical and logical thinking in the process of conducting research.
- CLO3: Apply the implications of library science research in generating new knowledge

The work for dissertation shall start in the beginning of the third semester by writing the research proposal for which each student will be allotted a topic. Dissertation will be submitted at the end of fourth semester on the date to be decided by the Department.

Group dissertation/project may be opted, with a group consisting of a maximum of four students. These students may work using a single approach or multidisciplinary approach. Research projects can be taken up in collaboration with industry or in a group from within the discipline or across the discipline.

Evaluation Criteria: Total Marks 100

Dissertation (Fourth Semester)		
	Marks	Evaluation
Supervisor	50	Continuous assessment (regularity in work, mid-term evaluation) dissertation report, presentation, final viva-voce
External expert, HoD and senior-most faculty of the department	50	Dissertation report (30), presentation (10), final viva-voce (10)

The evaluation of dissertation proposals in the third semester will carry 50% weightage by supervisor and 50% by HoD and senior-most faculty of the department.

The evaluation of dissertation in the fourth semester will be as follows: 50% weightage for the following:

- Continuous evaluation by the supervisor which includes regularity in work;
- Mid-term evaluation
- Report of dissertation, presentation, and
- Final viva-voce; 50% (weightage based on average assessment scores by an external expert, HoD and senior-most faculty of the department).

Distribution of marks will be based on the following:

- Report of dissertation (30%)
- Presentation (10%)
- Final viva-você (10%).

The final viva-voce will be through offline or online mode.

Similar evaluation pattern will be used for internships where supervisors will award 50% marks and external co-supervisor, HoD and senior-most faculty will award 50% marks. A panel of 10-15 external experts will be proposed by the department based on their specialisations.

The external experts will be of the rank of Professor and Associate Professor. The proportion of Associate Professors or equivalent rank should not exceed 30%.

Dean In-charge Academics will nominate external experts from the approved panel.

The above examination pattern and the panel shall be approved in the Board of Studies, School Board, Academic Council and Executive Council.

Note: The workload of one contact hour per student will be calculated for dissertation in fourth semester

Note: The students would be required to take either LIS.591 or LIS.601 as per the decision of the AAC of the Department.