Approval of Syllabus for the proposed opening of Department of Library & Information Science (LIS Department)

As per statute No. 15.6 of the Sikkim University, Department of Library & Information is one of the 36 approved departments of the university. This course leading to Bachelor in Library& Information (BLIS) was being run by Damber Singh College, Gangtok which was discontinued during the year 2014-15. Since there is no teaching department in the state, so the need was felt to open the department in the Sikkim University which already stands approved in University Statutes as well as by other administrative bodies. There are large numbers of departments in the country yet competent library professional are hardly produced who can effectively manage libraries of 21st Century. Therefore, it will be worthwhile if the department is opened with new curriculum to produce well trained skillful information professionals who could meet the needs of present and future libraries.

Objectives

1. Impart quality LIS education to equip the students with the principles, theories and practices of LIS to manage present and future web-enabled libraries, also keeping in view the employment prospects.
2. Make the students comfortable in applying IT applications in organization of knowledge and information wherever applicable.
3. The present curriculum should always be open for revision to reflect ever changing advances in theory and professional practicesfrom time to time.
4. The department is beingconceived on the analogy of Medical Education, combining theory and practice equally. (Students would be expected to workdailyin the library/IT Lab for almost equal number of hours as in theory classes).

Admission

Initially, in the beginning, only 10students would be admittedin view of the employment opportunities and available physical facilities in the absence of permanent campus. However, number of students may be increased as per availability of facilities and job opportunities. Admission criteria to MLISc (Master in Library & Information Science) will be as applicable to School of Professional Studies of the University.

Course Structure

This is four semester integrated programme. Each semester will have 5 papers of 100 marks each of 20 credits including practical. All papers would be compulsory in all four semesters.(However, in 3rd and 4th semesters, some papers could be introduced as open/elective/optional subject to the availability of teaching manpower in future).

Examinations

Department will follow the university pattern of examinations with all practical as external. Only 20 marks will be for assignments or tests. During the semester teacher may give three assignments or conduct tests out of which only highest obtained will be considered. If permissible under university rules & regulations, some theory papers also could be external. However, under present system of examinations, all papers except practical and dissertation are internally evaluated.

During 2nd semester, educational tour to visit some good libraries of the country would be compulsory. Students are expected to prepare tour diary of libraries visited with full description of the services being offered. During the course of study of paper LIS-PG-C203: Collection Development and Library Operations (House-keeping), students will prepare job diary of all operations of the library.

Special Features of the Course

The course is being designed to give equal emphasis to theory and practice. The objective is that the students get fully trained in handling all the operations of the library with confidence and ability to operate any operation of the library small or big. The department is expected to function on the analogy of medical education where teaching and practice has been combined together. The students will have theory classes in the morning. In the afternoon, students will work in the library under the supervision of the library staff for practical training. Those library staff who would be qualified for teaching from the position of Assistant Librarian onward could also be engaged in teaching. Since LIS curriculum is multi-disciplinary, so the collaboration of departments like Computer Applications, Management, Commerce and Economics is expected for quality education.

Draft Syllabus for Master of Library & Information Science
Sikkim University

Course No	Description	Marks	InternalAssessment/ assignments	Total Marks	Credit
		First Semester			
LIS-PG-C 101	Foundations of Library and Information Science	80	20	100	4
LIS-PG-C102	Organization of Knowledge (Classification Theory)	80	20	100	4
LIS-PG-C103	Information Technology (Theory-50, Practice-50)	40+40	20	100	4
LIS-PG-C104	Information Sources, Services and Use	60	20 + 20 viva	100	4
LIS-PG-C105-P	Organization of Knowledge (Classification Practice)	60	20 + 20 viva	100	4

Second Semester

LIS-PG-C201	Resource Description, Cataloguing and Metadata (Theory)	80	20	100	4
LIS-PG-C202	Digital Libraries	80	20	100	4
LIS-PG-C203	Collection Management and Library Operations (Theory-75, Job & Tour Diary-25)	100	-	100	4

LIS-PG-C204-P	Resource Description, Cataloguing and Metadata (Practice)	80	20	100	4
LIS-PG-C205-P	Practical LMSs	80	20 viva	100	4

Third Semester

LIS-PG-C 301	Bibliometrics and Scientometrics	80	20	100	4
LIS-PG-C 302	Information Representation and Retrieval	80	20	100	4
LIS-PG-C303	Web Designing and Content Management Systems	40+40	20	100	4
LIS-PG-C 304	Research Methods	80	20	100	4
LIS-PG-C305	Academic Writing, Publishing and Ethics	80	20	100	4

Fourth Semester

LIS-PG-O401	Library Management	80	20	100	4
LIS-PG-C 402	Data Curation and Data Repositories	80	20	100	4
LIS-PG-C 403	Knowledge Management and Information Systems	80	20	100	4
LIS-PG-C404	Dissertation	200	-	200	8

FIRST SEMISTER
Course Code: LIS-PG-C101
Foundations of Library and Information Science

Units	Description of Course
Unit I	Concept, definition role, functions and types of Libraries. Definition/attributes of information, knowledge, data and Information Science. Historical development of libraries in India.
Unit II	Library legislation and acts. Model Public Library Act, The Press and Registration of Books Act, RTI, Information Technology Act, Delivery of Books (Public Libraries Act) 1954 & Latest Amendments. Digital Millennium, Copyright Act,IPR, Committees and commission on libraries
Unit III	Philosophy of Librarianship and Five Laws of Library Science,National Knowledge Commission of India, National Mission on Libraries,UNESCO Public Library Manifesto, IFLA Public Library Guidelines. Features of Information and knowledge society, knowledge economy.

Unit IV	Library Associations and Information Centres: ILA, IASLIC, IFLA, ASLIB, RRRLF, CRL, INFLIBNET, DESIDOC, DRTC, NASSDOC, NISCAIR National Library of India, CILIP, NDL, Library of Congress, British Library.
Unit V	LIS profession: nature, scope, history, role and ethics.

Suggested Readings:

1. Baker, D. (2011). *Libraries and society*. Oxford: Chandos Publishing.
2. Bawden, D., & Robinson, L. (2013). *Introduction to information science*. Chicago: Neal Schuman.
3. Davies, D. L. (2013). *Library and information science*. New Delhi: Random Exports.
4. Feather, J. (2013). *Information society: A study of continuity and change*. London: Facet Publishing.
5. Gilchrist, A. (2009).*Information science in transition.*London: Facet Publishing.
6. Goulding, A. (2017). *Public libraries in the 21st century: Defining services and debating the Future*. London: Routledge.
7. Isaac, K. A. (2004).*Library legislation in India: A critical and comparative study of state library Acts*. New Delhi: EssEss Publications.
8. Koontz, C.& Gubbin, B. (2010). *IFLA public library service guidelines*(2nd rev ed.). Berlin: Walter de Gruyter & Co.
9. Mangla, P.B. (1981) (Ed). *Library and information science education in India*. New Delhi: Macmillan.
10. Ranganathan, S. R. (1957). *The five laws of library science*. Bombay: Asia Publishing House.
11. Rout, R. K. (1986).*Library legislation in India: Problems and prospects*. New Delhi: Reliance Publishing House.
12. Rubin, R. E. (2013). *Foundations of library and information science*(3rd ed.). New Delhi: DBS Imprints.
13. Smith, M. M.(1999). *Information ethics*. London: Bowker-Saur.
14. Tarango, J. (2017). *The role of information professionals in the knowledge economy*. Oxford: Chandos Publishing.
15. *The Facet LIS textbook collection*.(2019). London: Facet Publishing.

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Course Code: LIS-PG-C102
Organization of Knowledge (Classification Theory)

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Unit	Description of Course
Unit I	Modes of formation of subjects and knowledge. Simple Knowledge Organization System (SKOS), Mapping and division of knowledge in various schemes of Library Classification with special reference to DDC, UDC and Colon Classification.
Unit II	Theoretical foundation of Library Classification by W C Berwick Sayers, H E Bliss, S R Ranganathan. ISKO: Historical Perspectives. General Principles and devices of classifying documents.
Unit III	Postulational approach to classification,Principles ofhelpful sequence, Five Fundamental Categories and facet analysis& facet sequence.

Unit IV	Online Classification Systems, Web Dewey, Recent development and trends in classification research, Automatic classification.
Unit V	Notation, Book numbers, Class numbers, Call numbers.

Suggested Readings:

1. Chan, L. M. & Salaba, A. (2015). *Cataloguing and classification: An introduction*(4th ed.). Lanham, MD: Rowman & Littlefield Publishers.
2. Dhyani, P. (2000). *Theory of library classification*. Delhi: VishwaPrakashan.
3. Hunter, E. J. (2017). *Classification made simple: An introduction to knowledge organisation and information retrieval*. London: Routledge.
4. Kumar, K. (1993). *Theory of classification*. New Delhi: Vikas Publishing House.
5. Kumbhar, R. (2011). *Library classification trends in 21st century*. Oxford: Chandos Publishing.
6. Marcella, R., & Maltby, A. (2017). *The future of classification*. London: Routledge.
7. Ranganathan, S. R. (2006). *Prolegomena to library classification*(3rd ed.). New Delhi: EssEss Publications.
8. Ranganathan, S. R. (2006). *Philosophy of library classification*. Bangalore: EssEss Publications.
9. Satija, M. P. (2013). *The theory and practice of the Dewey Decimal classification system*. Philadelphia, PA: Chandos Publishing.
10. Satija, M. P. (2012). *Exercises in the 23rd edition of DDC*. New Delhi: Ess Ess Publications.
11. Sayers, W.C. (1958). *An introduction to library classification, theoretical, historical and practical: With readings, exercises and examination papers* (9th ed.). London: Grafton.

Course Code:LIS-PG-C103
Information Technology

Unit	Description of Course
Unit I	Linux Operating System: Advantages; Directory Structure; Absolute and Relative Path Names; Redirection; Environment Variables; Some Important Linux commands Privacy, Security, Proxies, Firewalls. LAN & Internet IP addresses, subnet masking, RFC-1918, DNS, Gateway, SSH, SFTP, Teamviewer.
Unit II	Search Engines: Advanced search features of Google; Clusty search engine, Gsuite, Advanced features of Browsers
Unit III	Character Encoding: ASCII and UNICODE, Multimedia Files Formats.
Unit IV	Hypertext, HTML, XHTML, XML, XSLT, CSS, JSON. Database Management Systems: MySQL or PostgreSQL.

Unit V	System Software: Compilers, Interpretors, Overview of Programming Languages Application Software: Office Suites. Open Source Software, github, sourceforge

Suggested Readings:

1. Bharihoke, D. (2012). *Fundamentals of information technology* (4th ed.). New Delhi: Excel Books.
2. Phadke, D. N. (2017). *Library information technology*. Pune: Universal Publications.
3. Rajaraman, V. & Adabala, N. (2014). *Fundamentals of computers*(6th ed.). New Delhi: Prentice-Hall.
4. Tanenbaum, A. S. & Wetherall, D. J. (2013). *Computer networks*(5th ed.). New Delhi: Prentice Hall.

Course Code:LIS-PG-C104
Information Sources, Services and Use

Unit	Description of Course
Unit I	Types of information sources: Primary, secondary, tertiary. Fact finding sources such as Dictionaries, encyclopedias, year books, directories, gazetteers, biographical dictionaries (Who's who), Abstracts and Indexing. Evaluation criteria of reference sources.
Unit II	Web resourcesDOAJ and DOAR, their discovery (Humanities, social sciences and sciences - bibliographical and with full text) with special reference to Web of Science, SCOPUS, J-gate, JSTOR, Science direct, etc.
Unit III	Information needs, and methods of user study. Types of users and their needs.Information Seeking Behavior (ISB); Theory and models. Measuring Usage.
Unit IV	User and Reference services-Print and electronic Services: Augmented reality (AR), Library apps, SMS alert, RSS Feed. Library networks. Social Networking.
Unit V	Information literacy: Role, scope, methods, standards, models. E-learning: theories, principles, standard, services and initiatives. Health Literary and Role of Libraries.

Suggested Readings:

1. Bailin, K. (2018). *Planning academic library orientations.Case studies from around the world*.Cambridge: Chandos Publishing.
2. Benson, R. (2010).*Online learning and assessment in higher education*.Cambridge: Chandos Publishing.
3. Bopp, R. E. (2011). *Reference and information services: An introduction*(4th ed.). Santa Barbara, Calif.: Libraries Unlimited.
4. Cassell, K. A. (2012). *Reference and information services: An introduction*(3rd ed.). Chicago: Neal-Schuman.
5. Choudhury, G. G. (2001). *Information sources and searching on the World Wide Web*. London: Facet Publishing.
6. Crump, M. J. (2012). *Meeting the needs of student users in academic libraries*.Oxford: Chandos Publishing.
7. Elguindi, A. (2012). *Electronic resource management*. Oxford: Chandos Publishing.
8. Foskett. A.C. (1958). *Information services in libraries*. London: C. Lockwood.

9. Halaychik, C. S. (2018). *Licensing electronic resources in academic libraries*. Oxford: Chandos Publishing.
10. Katz, W. (2001).*Introduction to reference work* (8th ed.).Boston: McGraw-Hill Education.
11. Lokse, M. (2017). *Teaching information literacy in higher education*.Oxford: Chandos Publishing.
12. Mackey, T. P. (2015). *Metaliteracy: Reinventing information literacy to empower learners*. London: Facet Publishing.
13. McAvinia, C. (2016). *Online learning and its users*. Oxford: Chandos Publishing.
14. Ruthven, I. & Kelly, D. (2011). *Interactive information seeking behaviour and retrieval*. London: Facet Publishing.
15. Seetharama, S. (1997). *Information consolidation and repackaging framework, methodology, planning*. New Delhi: Ess Ess Publications.
16. Singh, G. (2013). *Information sources, services, and systems*. New Delhi: PHI Learning
17. Smith, L. C., & Wong, M. A. (2016). *Reference and information services: An introduction*. Santa Barbara, California: Libraries Unlimited.
18. Stachokas, G. (2019). *The role of the electronic resources librarian*. Oxford: Chandos Publishing.
19. Stebbins, L.F. (2006). *Student guide to research in the digital age: How to locate and evaluate information sources*. Westport, Conn.: Libraries Unlimited.
20. Walford, A. J. (1968-70). *Guide to reference materials* (3 vols.). London: Library Association.

Course Code: LIS-PG-C105-P
Organization of Knowledge (Classification Practice)

Unit	Course Description
Unit I	Classification of Documents of simple subjects by UDC and Colon Classification.
UnitII	Classification of documents of complex subjects by DDClatest printed edition available. with the application of tables and devices.
Unit III	Copy classification (Use of already worked out class number of books). Construction of book number and call numbers.

Course Code: LIS-PG-C201
Resource Description, Cataloguing and Metadata (Theory)

Unit	Description of Course
Unit I	Catalogue its types and functions, Document description according to AACR-2, Cataloguing of various types of information resources (printed, non-printed and electronic),Introduction to CCC.
Unit II	RDA, Standards for Machine Readable Bibliographic Records – ISO 2709/Z39.2/Z39.50 and the MARC family of Formats, XML,role of Law of Osmosis&Retro conversion, Standards for Bibliographic Organization, ISBDs, FRBR.Dublin core.ISSN, ISBN.
Unit III	Subject cataloguing and content analysis. Latest editions of Library of Congress Subject Headings List (LCSHL), Sears List of Subject Headings (SLSH), Chain Indexing, Thesaurus, Thesaurofacet.
Unit IV	Preparation of bibliographic records, Use of ISBN, ISSN, Copy cataloguing from Library of Congress, Columbia University catalogue, British Library, OCLC and other national &international Catalogues, Indexing and abstracting.
Unit V	Web OPAC and its functions, BIBFRAME, Centralized and Cooperative Cataloguing: OCLC, WorldCat, IndCat, Shodhganga, ShodhSindhu.

Suggested Readings:

1. Westby, B. M. (1977). *Sears List of Subject Headings*. New York: HW Wilson.
2. Byrne, D. J. (1998). *MARC manual: Understanding and using MARC record*. Englewood: Libraries Unlimited.
3. Cole, T. & Han, M-J K. (2013). *XML for catalogers and metadata librarians*. Santa Barbara, California: Libraries Unlimited.
4. Fritz, D. A. (1998).*Cataloguing with AACR2 and US-MARC Records*. Chicago: ACA.
5. Hart, A. (2014). *RDA made simple: A practical guide of the new cataloguing rules*. Santa Barbara, California: Libraries Unlimited.
6. Joudrey, D. N. & Taylor, A. G. (2015). *Introduction to cataloguing and classification*(11th ed.). Santa Barbara, California: Libraries Unlimited.
7. Lubas, R. (2013). *The metadata manual: A practical workbook.* Oxford: Chandos Publishing.
8. Maxwell, R. & Maxwell, M. F. (1997).*Maxwell's handbook of AACR2R: Explaining and illustrating the Anglo American Cataloguing Rules and the 1993 amendments*. Chicago, IL: American Library Association.
9. Mering, M. (2014). *The RDA workbook: learning basics of resource description and access*. Santa Barbara, California: Libraries Unlimited.
10. Ranganathan, S. R. & Bhattacharyya, G. (1975). *Cataloguing practice*(2nd ed.). Bombay: Asia Publishing House.

Unit	Description of Course
Unit I	Digital Libraries: Historical Development, Open Access to Information, OA Declarations, Institutional Repositories; Open Access Journals; Sherpa – Romeo and Juliet.
Unit II	Digital Library Features & Workflow: Open Archival Information System(OAIS) model, Archival Information Package(AIP), Submission Information Package(SIP), Dissemination Information Package(DIP); Digital Curation(DCC), Search Facilities: Lucene Search Engine ; Usage Statistics.
Unit III	Open Standards: OAI-PMH, OAI-ORE, REST, SWORD, PDF-A, JPEG, MPEG Metadata Standards: Dublin Core, Qualified Dublin Core etc. Preservation Metadata: PREMIS.
Unit IV	DOI, CNRI Handles, ORCID, Unique Ids for Organisations, IDs Iprojects etc. Registry of Digital Repositories – OpenDOAR, DOAJ; Copyright Issues, Creative Commons, DRM, IPR. Digitisation: Best Practices, Scanners, OCR Software.
Unit V	Practical: Digital Library Software: DSpace, Greenstone, Islandora, EPrints.

Suggested Readings:

1. Chowdhury, G.G. (2003). *Introduction to digital libraries*. London: Facet Publishing.
2. Clobridge, A. (2010). *Building a digital repository program with limited resources*. Oxford: Chandos Publishing.
3. Carpenter, L., Shaw, S.&Prescott, A. (1998). *Towards the digital library: The British Library's initiative for access programme*. London: British Library.
4. Cohn, J. M., Kelsey, A. L.& Fiels, K. M. (1998). *Planning for library automation: A practical handbook*. London: Library Association.
5. Lovecy, I. (1984). *Automating library procedures: A survivor's handbook*. London: Library Association.
6. Pedley. P. (2001). *The invisible web: Searching the hidden parts of the internet*. London: Aslib.
7. Simons, N. (2013). *New content in digital repositories*. Oxford: Chandos Publishing.

Course Code: LIS-PG-C203
Collection Management and Library Operations
(Theory=75, Job & Tour Diary=25)

Unit	Description of Course
Unit I	Principles and theories of collection development. Patron Driven Acquisition Module. Selection tools and techniques of print and e-resources.Finance, budgeting and accounting
Unit II	Selection of book suppliers and their empanelment. Pricing policies and discount. Agreements with product suppliers and terms and conditions of supply. Licensing and pricing models of supply of online resources.
Unit III	Ordering, receiving and technical processing of books and other information products. Maintenance: shelf reading & rectification. Stock verification, library statistics, annual report.
Unit IV	Electronic Serial management: Selection, ordering, recording, maintenance. E-Journal/resource management (ERM) using library software.
Unit V	Circulation Control: Registration, issue, return, online renewal, reservation. Furniture and equipment. Binding.

Suggested Readings:

1. Agee, J. (2007). *Acquisitions go global: An introduction to library collection management in the 21st Century*. Oxford: ChandosPublishing.
2. Bryson, Jo. (2018). *Effective library and information centre management*(2nd new ed.). London: Routledge.
3. Clayton, P. R. & Gorman, G.E. (2006). *Managing information resources in libraries: Collection management in theory and practice*. London: Facet Publishing.
4. Costello, L. (2016). *Evaluating demand-driven acquisitions*. Oxford: ChandosPublishing.
5. Drucker, P. (2012). *Management challenges for the 21st century*. London: Routledge.
6. Evans, G. E., & Saponaro, M. Z. (2012). *Collection management basics*. Santa Barbara, California: Libraries Unlimited (an imprint of ABC-CLIO).
7. Wilkinson, F. C.& Lewis, L. K. (2015).*The complete guide to acquisitions management*. Santa Barbara, California: Libraries Unlimited (an imprint of ABC-CLIO).
8. Gregory, V. L. (2011). *Collection development and management for 21st century library collections: An introduction*. New York: Neal-Schuman.
9. Holder, S. (2018). *Managing the multigenerational librarian workforce*. Oxford: Chandos Publishing.
10. Johnson, P. (2014). *Fundamentals of collection development and management*. Chicago: American Library Association.
11. Patra, N. (2017). *Digital disruption and electronic resource management in libraries*. Oxford: Chandos Publishing.
12. Matthews, J. (2005).*Strategic planning and management for library managers*. Santa Barbara, California: Libraries Unlimited.
13. Stueart, R. D. & Moran, B.B. (2007). *Library and information center management*. London: Libraries Unlimited.

Course Code: LIS-PG-C204-P
Resource Description, Cataloguing and Metadata (Practice)

Unit I	Identification of descriptive elements of different types of information resources. AACR2/RDA
Unit II	Preparation of Bibliographic Records using LMS. Customization of data structure.
Unit III	Assigning subject headings according to standard tools like LCSHL & SLSH (Latest editions).

Course Code: LIS-PG-C205-P
Practical (LMSs)

Unit I	Library Automation & Management Software
Unit II	Word Processing: MS-Word, MS-EXCEL, Preparation of presentations using PP. Introduction to desktop publishing: Corel Ventura/ Microsoft Publisher.

THIRD SEMESTER
Course Code: LIS-PG-C301
Bibliometrics and Scientometrics

Unit	Description of Course
Unit I	Introduction and need of metric studies in scholarly communication. Evolution of metric studies (From Librametrics to Knowledgometry); Types of metrics eg: Bibliometrics, Scientometrics, Webometrics, Altmetrics. Concept, need and types of scientific collaboration.
Unit II	Law of scattering (Bradford's law).Zipf's law, Lotka's law,Generalised bibliometrics distributions and Fitting of Informetrics models: Bradford's curve, Leimkuhler's distribution, etc.80-20 rules, Price's law relating to scientific productivity,Aspects of concentration measures; Circulation Statistics.
Unit III	Citation Analysis, Citation indexing, Impact Factor, H and G Indexes calculation, Standard Citation Indicators(MOCR, FECR and MECR) Relative citation Indicators(NMCR and RCR); bibliographic coupling and co-citation analysis. Citation Databases: Scopus, Web of Knowledge, PubMed, Medline, Google Scholar. Infographics.
Unit IV	Growth and obsolescence of literature: Various growth models; the half-life analogy, Determinations of aging factor and half-life: real vs apparent; synchronous vs diachronous.
Unit V	Mapping and Science Indicators, Mapping of science, Science indicators.

Suggested Readings:

1. Babbar, P., Jain, P.K., & Lamirel, J-C. (2017). *Trends in bibliometrics and scientometrics studies*. London: Athena Academic.
2. Ball, R. (2017). *An introduction to bibliometrics*. Oxford: Chandos Publishing.
3. Bellis, N. D.(2009). *Bibliometrics and citation analysis: from the science citation index to cybermetrics*. Lanham, Md.: Scarecrow Press.
4. Devaranjan, G. (1997). Bibliometric studies. New Delhi: Ess Ess Publications.

5. Egghe, L. & Rousseau, R. (1990). *Introduction to informetrics: Quantitative methods in library, documentation and information science*. Amsterdam: Elsevier Science.
6. Eom, S. B. (2008). *Author cocitation analysis: Quantitative methods for mapping intellectual structure of an academic discipline*. Hersey, PA: IGI Global.
7. Gingras, Y. (2016). *Bibliometrics and research evaluation: Uses and abuses*. Cambridge, Massachusetts: MIT Press.
8. Todeschini, R., &Baccini, A. (2016). *Handbook of bibliometric indicators: Quantitative tools for studying and evaluating research*. Weinheim: Wiley Pub.

Course Code:LIS-PG-C302
Information Representation and Retrieval

Unit	Description of Course
Unit I	Information retrieval system: Concept, definition and components. Content analysis and representation, Contribution of Cutter, Kaiser, Ranganathan and E J Coates. Text retrieval models.
Unit II	Indexing and abstracting systems: Introduction to Subject Indexing Language. Pre-coordinate and post-coordinate indexing, Citation indexing, KWIC, KWOC, Free text search.
Unit III	Vocabulary control: Thesaurus and Thesaurofacet-Definition, purpose and construction
Unit IV	Searching and Retrieval: Search strategy and formulation, Truncation, Filtration, Boolean logic, Federated search, Web based retrieval.
Unit V	Evaluation of retrieval systems such as Precision, Recall, etc. Search engines.

Suggested Readings:

1. Aitchison, J., Gilchrist, A. & Bawden, D. (2004). *Thesaurus construction and use: A practical manual* (4th ed.). London: Europa Publications.
2. Becker, J. & Robert, M. H. (1967). *Information storage and retrieval tools: Elements & theories*. NewYork: John Wiley.
3. Büttcher, S., Clarke, C. L., & Cormack, G. V. (2016). *Information retrieval: Implementing and evaluating search engines*. Cambridge, Massachusetts: MIT Press.
4. Chowdhury, G.G. (2010). *Introduction to modern retrieval system*(3rd ed.). London: Facet Publishing.
5. Cleveland, D. B and Cleveland, A. D. (2001).*Introduction to indexing and abstracting*. Colorado: Libraries Unlimited.
6. Convey, J. (1992).*Online information retrieval: An introductory manual to principles and practice*(4th ed.). London: Library Association.
7. Elis, D. (1996). *Progress and problems in information retrieval*. London: Library Association.
8. Foskett, A.C. (1996).*Subject approach to information.* (5th ed.). London: Library Association.
9. Fugmann, R. (1993). *Subject indexing and analysis theoretical foundations & practical advice*. Frankfurt: Index Verlag.
10. Grolier, E. D. (1962). *A Study of general categories applicable to classification and coding in documentation*.Paris: UNESCO.
11. Koltay, T. (2010). *Abstracts and abstracting*.Oxford: Chandos Publishing.
12. Korfhage, R. R. (1997). *Information storage and retrieval*. New York: John Wiley.

13. Kraft, D. H., Colvin, E., Bordogna, G., & Pasi, G. (2015). Fuzzy information retrieval systems: A historical perspective. In D. E. Tamir, N. D. Rishe & A. Kandel (Eds.), *Fifty Years of Fuzzy Logic and its Applications*. Springer.
14. Lancaster, F. W. (2003). *Indexing and abstracting in theory and practice* (3rd ed.). Urbana: University of Illinois.
15. Lancaster, F. W. (2003). *Vocabulary control for information retrieval* (2nd ed.). Arlington: Information Resource Press.
16. Losee, R. M. (1998). *Text retrieval and filtering: Analytical models of performance*. London: Kluwer.
17. Raieli, R. (2013). *Multimedia information retrieval*. Oxford: Chandos Publishing.
18. Soergel, D. (1974). *Indexing languages and thesauri: Construction and maintenance*. New York: John Wiley and Sons.
19. Soergel, D. (1985). *Organizing information: Principles of database & retrieval systems*. Orlando: Academic Press.

Course Code: LIS-PG-C303
Web Designing and Content Management Systems

Unit	Description of Course
Unit I	Introduction to CMS, principles of CMS, CMS Architecture and features.
Unit II	CMS Technology components such as: HTML5, XML, DHTML, XHTM, XML DTD, XML Schema, XSLT, XQUERY, CSS3, PHP, PHP+MySQL Connection, Javascript, JSON
Unit III	Website design. Portals. Subject Gateways. Tools for developing Websites. Such as DRUPAL.
Unit IV	Subject gateways, blogs using tools such as Wordpress.
Unit V	CMS Applications in Libraries and information centers, Community Information Systems. Integration of Library services using CMS.

Suggested Readings:

1. Beaird, J. & George, J. (2015). *The principles of beautiful web design: Designing great web sites is not rocket science* (3rd ed.). [S.l.]: SitePoint Pub.
2. Cope, B. (2011). *Towards a semantic web*. Oxford: Chandos Publishing.
3. Gopalan, N. P. & Akilandeswari, J. (2014). *Web technology: A developer's perspective*. Delhi: PHI Learning.
4. Lemay, L. (2016). *Mastering HTML, CSS and Javascript web publishing*. [S.l.]: BPB Publications.
5. Orduna-Malea, E. (2017). *Cybermetric techniques to evaluate organizations using web-based data*. Oxford: Chandos Publishing.
6. Powell, J. (2015). *A librarian's guide to graphs, data and the semantic web*. Oxford: Chandos Publishing.

Course Code: LIS-PG-C304
Research Methods

Unit	Description
Unit I	Basics of Research: Meanings, objectives, types and significance, Research Problem: Identification and Selection. Ethics in Conducting Research.
Unit II	Research Design: Basic principles of Research Design.Hypotheses Formulation, Types of Research Design and Sampling Techniques.
Unit III	Methods of data collection: Questionnaire, Interview, Observation and Case Study. Data Representation: Tabulation, Analysis and Inferencing.
Unit IV	Basics of Statistics. Descriptive and inferential statistics,Measures of Central Tendency, Standard Deviation,T-test, Chi square, ANOVA,Correlation and Regression Analysis.
Unit V	Use of statistical software such as SPSS, Statistica, R, etc. for analysis.

Suggested Readings:

1. Andres, A. (2010). *Measuring academic research*. Oxford: Chandos Publishing.
2. Busha, C. H. & Harter, S. (1980). *Research methods in librarianship: Techniques and interpretation*. London: Academic Press.
3. Downs, R. B. & Down, E. (1966). *How to do library research*. Urbana: University of Illinois Press.
4. Goodman, V. D. (2011). *Qualitative research and the modern library*.Oxford: Chandos Publishing.
5. Kothari, C.R. (1990). *Research methodology*. New Delhi: Wishwa.
6. Kumar, K. (1992). *Research methods in library in social science*. New Delhi: Vikas.
7. Lawal, I. (2009). *Library and information science research in the 21st Century*. Oxford: Chandos Publishing.
8. Line, M. B. (1982). *Library surveys: An introduction to the use, planning procedure and presentation of survey*(2nd ed.). London: Clive Bingley.
9. Rao, I. K. R. (1988). *Quantitative methods in library and information science*. New Delhi: Wiley Eastern.
10. Showers, B. (2015). *Library analytics and metrices: Using data to drive decisions and services*. London: Facet Publishing.

Course Code: LIS-PG-C305
Academic Writing, Publishing and Ethics

Unit	Description
Unit I	Basics elements of academic writings: Parts of scientific paper and their descriptive element. Preparation of manuscript for publication. Referencing Styles and Citations. Review and editing process. Elements of project reportwriting.
Unit II	Academic and publication ethics: Definition, introduction and importance. Publication misconduct. COPE and WAME.
Unit III	Selection of Research Publishing Platforms: Open Access, Journal ranking (JCR), Journal Finders, JANE, How journals are ranked? Impact factor of journals and their calculation, Calculation of H-Index for author and Institutions. g-index, i10 index. SNIP, SJR,IPP. Conferences.

Unit IV	Plagiarism and Plagiarism Detection Software - URKUND, TURNITIN an iThenticate: their features and evaluation, uploading of file and data analysis.
Unit V	Introduction to major publishers and their publication policies.

Suggested Readings:

1. Burgess, J.W., Knox, E. & Hauptman, R. (2019). *Foundations of information ethics*. London: Facet Publishing.
2. Day, R. A. & Gastel, B. (2006). *How to write and publish a scientific paper*. Cambridge: Cambridge University Press.
3. Eisenberg, A. (1992). *Guide to technical editing: discussion, dictionary and exercises*. New York: Oxford University Press.
4. Jelusic, S. (2011). *A librarian's guide on how to publish*. Oxford: Chandos Publishing.
5. *MLA handbook* (8th ed.)(2016). New York: Publications of the Modern Language Association of America.
6. Simpson, P. (2014). *Stylistics: A resource book for students*. London: Routledge.
7. Smith-Worthington, D. & Jefferson, S. (2018). *Technical writing for success*. Australia: Cengage Learning.
8. Strunk, W. (2000). *The elements of style*. New York: Longman.

FOURTH SEMESTER
Course Code: LIS-PG- C401
Library Management

Unit	Description
Unit I	Introduction to Management: Principles and practices.MBO, SWOT Analysis. Personnel Management: Manpower Planning: Job Analysis, Job Description, Job Specification, Performance Evaluation, Leadership and Motivation.
Unit II	Library Budget and Finance: Planning, Standards and Allocations.
Unit III	Management of Library and Information Centres: Principles of organizational structure of Library and Information Centres, Management issues of libraries of 21st century, Capacity Building. Infrastructure: Space Management.
Unit IV	Project Management: PERT/CPM. Quality management and certification. Risk management, Disaster management and Change management.
Unit V	Library Building: Design, Planning and Furniture. Functional/Modular Library Building. Green Library Building.

Suggested Readings:

1. Appleton, L. (2017). *Libraries and key performance indicators*. Oxford: Chandos Publishing.
2. Balagué, N. (2011). *Managing your library and its quality*. Oxford: Chandos Publishing.
3. Beard, W. I. & Holden, L. (1996). *Human resource management: A contemporary perspectives*. London: Longman.
4. Bryson, J. (1996). *Effective library and information management.* New Delhi: Jaico Publishing House.
5. Chatterjee, A. (2016). *Elements of information organization and dissemination*. Oxford: Chandos Publishing.
6. Dale, E. (1978). *Management: Theory and practice*. London: Mc Graw-Hill.

7. Hagar, C. (2012). *Crisis information management*. Oxford: Chandos Publishing.
8. Harvey, P. (1993). *Preservation in libraries: A reader*. London: R. R. Bowker.
9. Jenkins, C. & Morley, M. (1996). *Collection management in academic libraries*. Aldershot: Gowar.
10. Koontz, H. & Weihrich, H. (2015). *Essentials of management*(10th ed.). Chennai: McGraw Hill Inc.
11. Kumar, K. (2007). *Library management in electronics environment*. New Delhi: Har -Anand Publications.
12. Narayana, G. J. (1991). *Library and information management*. New Delhi: Prentice Hall of India.
13. Oliver, G. (2011). *Organisational culture for information managers*. Oxford: Chandos Publishing.
14. Sinha, S. C. (2004). *Library building and furniture: Design and planning*. New Delhi: Ess Ess Publication.

Course Code: LIS-PG-C402
Data Curation and Data Repositories

Unit	Description
Unit I	Introduction to Data Science and Big Data;Data Types, Data Models, Characteristics of Data; Sources of Data, Open Data, Five Star Data, Organizations involved dealing with Data related issues such as WDS, ICSU/CODATA, RDA etc.; FAIR Principles
Unit II	Metadata for Data, Domain Specific Metadata of Data; Ontologies related Data; Data Citation, Linked Open Data (LOD)
Unit III	Research Data Management, (RDM), Data Management Cycle; Data Management Plan (DMP), Government Data
Unit IV	Data Curation and its workflow. Publishing Data, Data Repositories, Licenses related to Data
Unit V	Practical: Bad Data, Software for Cleaning Messy Data – OpenRefine Extract, Transform, Load (ETL) software – Talend Software for Data Repositories: CKAN, dataVerse

Suggested Readings:

1. Angermann, H. & Ramzan, N. (2019). *Taxonomy matching using background knowledge: Linked data, semantic web and heterogenous repositories*. [S.l.]: Springer.
2. Blokdyk, G. (2019). *Data curation: A complete guide* (2020 ed.). [S.l.]: 5Starcooks.
3. Gartner, R. (2016). *Metadata: Shaping knowledge from antiquity to the semantic web*. Switzerland: [S.l.]: Springer.
4. Gils, B. V. (2020). *Data management: A gentle introduction*. [S.l.]: Van Haren Publishing.
5. Han, J. & Kamber, M. (2011). *Data mining: Concepts and techniques*(3rd ed.).Waltham MA: Morgan Kaufmann.
6. Inmon, W. H. & Linstedt, D. (2019). *Data architecture: A primer for data scientist*(2nd ed.).London: Academic Press.
7. Kitchin, R. (2014). *The data revolution: Big data, open data, data infrastructures and their consequences*. Los Angeles: SAGE Pub. Ltd.

8. Kumar, U. D. (2017). *Business analytics: The science of data-driven decision making*. New Delhi: Wiley Pub.
9. Loukides, M. K. (2012). *What is data science*. Sebastopol, Calif.: O'Reilly Media.
10. Marco, D. (2000).*Building and managing the meta data repository: A full lifecycle guide*. New York: John Wiley & Sons.
11. Monino, J-L & Sedkaoui, S. (2016). *Big data, open data and data development*. London: ISTE Ltd.
12. Oliver, G. & Harvey, R. (2016). *Digital curation*. London: Facet Publishing.
13. Pomerantz, J. (2015). *Metadata*. Cambridge, Massachusetts: MIT Press.
14. Soo, K. (2017). *Numsense! Data science for layman: No math added*. Singapore: Annalyn Ng & Kenneth Soo.
15. Woz, R. J. (2017).*Data analytics for beginners: A beginner's guide to learn and master data analytics*. [S.l.]: Robert J. Woz.

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Course Code: LIS-PG-C403
Knowledge Management and Information Systems

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Unit	Description of Course
Unit I	Knowledge Management – Definition, types, role, principles, tools, components and architecture.
Unit II	Library Networks such as INFLIBNET, DELNET.
Unit III	National and International Information Systems such asNISCAIR, NISSAT, ENVIS, INIS, INSPEL, MEDLARS, AGRIS, ERIC, Patent Information System, Biotechnology Information System (BIS), ARIC (Agriculture Research Information System).
Unit IV	System analysis and design. Data and information management systems.
Unit V	Information consortium: National Knowledge Resource Consortium (NKRC), ERMED, CeRA (consortium on e-resource in agriculture), DeLCON, e-ShodhSindhu, N-List.

Suggested Readings:

1. Bikowitz, W. R. (2000).*Knowledge management*. Delhi: PHI Learning.
2. Bwalya, K. J. (2014). *Concepts and advances in information knowledge management*. Oxford: Chandos Publishing.
3. Chakrabarti, B. & Mahapatra, P. K. (2000). *Knowledge management in libraries*. New Delhi: Ess Ess Publications.
4. Evans, W. (2016). *Knowledge management in libraries*. Oxford: Chandos Publishing.
5. Quinn, J. B. (1992). *Intelligent enterprise: a knowledge and service based paradigm for industry*. New York: Free Press.

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Course Code: LIS-PG-C404

Dissertation Total Marks 200 Credit 4

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The topic of the dissertation will be allocated in the 3ʳᵈ Semester and it will be continued through the 4ᵗʰ Semester. The evaluation will be done in the forth semester with external examiner. Evaluation pattern: 50 marks Viva-voce and 150 is Mark for dissertation evaluation.