

CENTRAL UNIVERSITY OF PUNJAB



Ph.D. (Library and Information Sciences)

Batch 2023

**Department of Library and Information
Sciences**

Graduate Attributes

Graduates shall have enhanced skills in varied aspects of conducting research in different cultural settings. Graduates shall be competent in analysing problems related to library and information science and finding gaps in the existing body of literature. Graduates shall have a scientific attitude in examining research problems and conducting research for their solutions at local and global level. Graduates shall contribute significantly in the knowledge economy of the nation.

Course Structure

Course Code	Course Title	Course Type	L	T	P	CR
LIS.706	Research Methodology	Core Course	4	0	0	4
LIS.708	Research Competencies (Practical)	Skill Based	0	0	4	2
LIS.709	E-Research Tools and Techniques (practical)	Skill Based	0	0	2	1
LIS.751	Research and Publication Ethics	Discipline	2	0	0	2
LIS.752	Teaching Assistantship	Core Course	0	0	2	2
UNI.753	Curriculum, Pedagogy and Evaluation	Core Course	1	0	0	1
LIS###	Choose one Elective from Course-list	Elective	-	-	-	4
	TOTAL	-	-	-	-	16

List of Electives (Scholars to choose a course from these electives)

LIS.701	R & Python programming for Data Science Applications in Research	Elective	3	0	2	4
LIS.702	Research Trends in Information Sources, Services and Systems		4	0	0	
LIS.703	Scholarly Communication and Research Evaluation		4	0	0	
LIS.704	Information Communication and Management of Library and Information Centres		4	0	0	
LIS.705	Knowledge Management		4	0	0	

Course Code: LIS.706
Course Title: Research Methodology
Course type: Core Course
Total Hours: 60

L	T	P	Credit
4	0	0	4

Course Learning outcomes (CLO):

After completion of the course the students will be able to
 CLO1: Develop a skill set to understand different approaches to research.
 CLO2: Understand practical aspects of research design.
 CLO3: Select appropriate sampling techniques in research.
 CLO4: Understand aspects of data analyses and IPR issues.

Units/Hours	Contents	Mapping with CLOs
I 16 Hours	<p>Research Approaches and Types Research approaches: Logical positivism, phenomenology, ethnography, and triangulation, quantitative, qualitative; types of research and their applications: according to purpose and method. Historical Research: Primary and secondary sources of information, external and internal criticism of the source. Descriptive Research: Assessment studies, evaluation studies, ex-post facto studies, replication and meta-analysis. Experimental research: Types of experimental research designs; designing and developing appropriate experimental designs for research problems. Applied Research in LIS: Applied research in Information Science and Knowledge Management.</p>	CLO1
	<p>Reflection: Scholars will learn various research approaches and its rationale.</p>	

II 14 Hours	Quantitative and Qualitative Research methods and Tools Quantitative research methods and tools: Selection, types and application. Qualitative research methods and tools: Selection, types and application. Mixed Method: Meaning and characteristics, designs and their application.	CLO2
	Reflection: Scholars will understand practical aspects of research design.	
III 14 Hours	Sampling Techniques Sampling design: Selecting appropriate probability and non-probability sampling techniques for qualitative and quantitative research problems	CLO3
	Reflection: Scholars will learn about selection of Sampling Techniques in research design according to needs and circumstances	
IV 16 Hours	Data Analysis and Intellectual Property Rights Data analysis in quantitative & qualitative research: Content analysis, inductive, logical, Intellectual Property, intellectual property protection (IPP) and intellectual property rights (IPR), WIPO (World Intellectual Property Organisation) Research Data Management Tools and Methods. IPR Policy of Central University of Punjab.	CLO4
	Reflection: Scholars will gain proficiency in Data Analysis and Intellectual Property Rights	

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

Suggested Readings

1. Best J.W. (1999). *Research in Education*. New Delhi: Prentice Hall of India Pvt. Ltd.
2. Bogdon, R., & Biklen, S. K. (2008). *Qualitative Research for Education: An Introduction to Theories and Practice*. New Delhi: PHI learning
3. Borg, W.R., & Gall, M.D. (1983). *Educational Research – An Introduction*. New York: Longman, Inc.
4. Chandra, S. S., & Sharma, R.K. (2010). *Research in education*. New Delhi: Atlantic Publishers and Distributers (P) LTD.
5. Christensen, L. (2007). *Experimental Methodology*. Boston: Allyn & Bacon.
6. Creswell, J. W. (2015). *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research*. Boston: Pearson Publications.
7. Curtis, W., Murphy, M., & Shields, S. (2013). *Research and Education*. New York & London: Routledge
8. EfratEfron, S., & Ravid, R. (2013). *Action Research in Education: A Practical Guide*, New York: Routledge
9. Egbert, J., & Sanden, S. (2013). *Foundations of Education Research: Understanding Theoretical Components*. New York: Routledge.
10. Fraenkel, J.R., & Wallen, N.E. (1996). *How to Design and Evaluate Research in Education*. New York: McGraw Hill.
11. Gordon, P. (1996). *A Guide to Educational Research*. New York: Routledge
12. Kaul, L. (1984). *Methodology of Educational Research*. New Delhi: Vikas Publications.
13. Kilkpatrick, D.L. (2005). *Evaluating training Programmes: The four Levels*. San Francisco: Brrett-Kochler.
14. Kress, T. (2013). *Using Critical Research for Educational and Social Change*. New York & London: Routledge.
15. Lauren, B., Little, T. D., & Card, N. A. (2012). *Developmental Research Methods*. New York: The Guilford Press.
16. Martella, R. C., Nelson, J. R., Morgan, R. L., & Martella, N. E. (2013). *Understanding and Interpreting Educational Research*, New York: Routledge Guilford Press
17. Maykut, P., & Morehouse, R. (1994). *Beginning Qualitative Research- A Philosophic and Practical Guide*. London: The Falmer Press.
18. Miller, S. A. (2007). *Developmental Research Methods*. New Delhi: Sage Publications.
19. Opie, C. (2004). *Doing Educational Research: A Guide for First time researchers*. New Delhi: Vistar Publications.
20. Patton, M.Q. (2002). *Qualitative Research and Evaluation Methods*. C.A: Sage Publications.

21. Petscher, Y., Schatschneider, C., & Compton, D. L. (2013). Applied Quantitative Analysis in Education and the Social Sciences. New York & London: Routledge
22. Reason, P., & Bradbury, H. (Eds) (2006). Handbook of action research: Concise paperback edition. CA: Sage Publications.
23. Scott, D., & Usher, R. (1996). Understanding Educational Research. New York: Routledge.
24. Tolmie, A., McAteer, E., & Muijs, D. (2012). Quantitative Methods in Educational and Social Research Using SPSS. Maidenhead:Open University Press
25. Wellington, J. (2015). Educational Research. New Delhi: Bloomsbury Academic.
26. Weirisma. W., & Stephen G. (2009). Research methods in Education. New York: Pearson Education

Web-resources

<https://epgp.inflibnet.ac.in/>

BOS DLISC CUPB

Course Code: LIS.708

Course Title: Research Competencies (Practical)

Course type: Skill Based

Total Hours: 30

L	T	P	Credit
0	0	4	2

Course Learning outcomes (CLO):

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

CLO1: Develop skills set for identifying research gaps and articulating research problems.

CLO2: Understand practical aspects of research design.

CLO3: Select tools and methods in research design according to needs and circumstances.

CLO4: Design action and applied research.

Units/Hours	Contents	Mapping with CLOs
I 6 Hours	Methods of Literature review in Research Review of Literature: Concept and need, Methods, Structure of review of literature	CLO1
	Reflection: Scholars will learn identifying research gaps and articulating research problems.	
II 8 Hours	Practical aspects of Research Design Formulate research questions, objectives and hypotheses. Select appropriate approach and design for different research topics. Design a research proposal	CLO2
	Reflection: Scholars will understand practical aspects of research design.	
III 8 Hours	Selection of Tools and Method in Research Design Develop tools for research and standardise them. Ascertain the methods involved in data collection.	CLO3

	Reflection: Scholars will learn about selection of tools and methods in research design according to needs and circumstances.	
IV 8 Hours	Data Analysis Analyse quantitative and quantitative data using appropriate techniques Conduct action research	CLO4
	Reflection: Scholars will gain proficiency in design of Action and Applied Research.	

Transaction Mode

Lecture, Hand-On Lab, Recorded Lectures, You-tube, Invited Lectures.

Evaluation criteria

Continuous Assessment: -50 Marks

- Attendance: 10
- Research Proposal: 15
- Skill Assessment (Review of Literature, Hypothesis, Data analysis skills.):25

End Term Assessment: -50 Marks

- Written Test: 30
- Viva Voce: 20

Evaluation will be done by course coordinator and two members from the department, nominated by HOD

Suggested Readings

1. Geoffrey, M. (2019). Essential of Research design and methodology.
2. Harris, D. (2019). *Literature review and research design: A guide to effective research practice*. Routledge.
3. Kayı-Aydar, H. (2019). *Positioning theory in applied linguistics: Research design and applications*. Cham, Switzerland: Palgrave Macmillan.
4. Lewis, S. (2015). Qualitative inquiry and research design: Choosing among five approaches. *Health promotion practice*, 16(4), 473-475.
5. De Vaus, D. (2001). *Research design in social research*. Sage.
6. Hedrick, T. E., Bickman, L., & Rog, D. J. (1993). *Applied research design: A practical guide*. Sage Publications.
7. Miller, D. C., & Salkind, N. J. (2002). *Handbook of research design and social measurement*. Sage.
8. Schwartz-Shea, P., & Yanow, D. (2013). *Interpretive research design: Concepts and processes*. Routledge.

9. Leavy, P. (2017). *Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches*. Guilford Publications.
10. Hedrick, T. E., Bickman, L., & Rog, D. J. (1993). *Applied research design: A practical guide*. Sage Publications.
11. Sovacool, B. K., Axsen, J., & Sorrell, S. (2018). Promoting novelty, rigor, and style in energy social science: Towards codes of practice for appropriate methods and research design. *Energy Research & Social Science*, 45, 12-42.

BOS DLISC CUPB

Course Code: LIS.709

**Course Title: E-Research Tools and Techniques
(practical)**

Course type: Skill Based

Total Hours: 30

L	T	P	Credit
0	0	2	1

Course Learning outcomes (CLO):

After completion of the course the students will be able to CLO1:

Develop skills set E-research and electronic resources.

CLO2: Utilise of various E-research tools.

CLO3: Understand various research metrics and its importance.

CLO4: Use Academic Social Networking Sites (SNSs) and Reference Management Systems.

Units/Hours	Contents	Mapping with CLOs
I 6 Hours	E-research and electronic resources E-research–concept, advantages, limitations Trends in E-research E-reference sources: Indexing and Abstracting databases, Shodganga, NDLTD, E-encyclopaedias, citation databases etc.	CLO1
	Reflection: Scholars will learn about various aspects of E-Research and Electronic resources.	
II 8 Hours	E-research Tools Online survey tools, Data Visualisation tools Search engines- Academic search engines, general search engines, metasearch engine Search strategies- search operators, alerting tools, RSS feeds etc.	CLO2
	Reflection: Scholars will understand practical aspects of E-tools for research.	
III 8 Hours	Metric Studies and Statistical Tools Calculation of Impact Factor for journals, h-index and g-index for authors and institutions, SCImago Journal Rank (SJR) indicator. Analysing parametric and non-parametric data using SPSS, Statistical Tests.	CLO3

	Reflection: Scholars will learn about various research metrics, statistical tests and its importance.	
IV 8 Hours	Academic SNSs and Reference Management Systems Creating Google Scholar Profile, ORCID ID, ResearchGate and Microsoft Academic Search. Creating citation styles using Mendeley and Zotero reference management systems.	CLO4
	Reflection: Scholars will gain proficiency in creating SNS profiles and using it for research.	

Transaction Mode: Lecture, Hand-On Lab, Recorded Lectures, Youtube, Discussion following GitHub & Stackoverflow, Invited Lectures.

Evaluation criteria

Continuous Assessment: -50 Marks

- Attendance: 10
- Research Proposal: 15
- Skill Assessment (Review of Literature, Hypothesis, Data analysis skills.):25

End Term Assessment: -50 Marks

- Written Test: 30
- Viva Voce: 20

Suggested Readings

1. Anandarajan, M. (Ed.). (2010). E-research collaboration: Theory, techniques and challenges. Springer Science & Business Media.
2. Anderson, T. & Kanuka, H. (2003). E-research: methods, strategies, and issues, Allyn and Bacon
3. Jankowski, N. W. (Ed.). (2010). E-Research: Transformation in scholarly practice. Routledge.
4. Bryman, A. (2018). Social Research Methods. Oxford Publication, London
5. Glänzel, W., Moed, H. F., Schmoch, U., & Thelwall, M. (Eds.). (2019). Springer Handbook of Science and Technology Indicators. Springer Nature.
6. Neuman, W.L. (2010). Social Research Methods: Qualitative and Quantitative Approaches. 7. Pears, R., & Shields, G. J. (2019). Cite them right: the essential referencing guide. Macmillan International Higher Education.

Course Code: LIS.711

Course Title: Research and Publication Ethics

Course type: Discipline

Total Hours: 30

L	T	P	Credit
2	0	0	2

Course Learning outcomes (CLO):

After completion of the course the students will be able to CLO1:

Demonstrate Intellectual honesty and research integrity.

CLO2: Judge publication ethics, authorship and contributorship.

CLO3: Identify thrust areas of global research and Open access publications and initiatives.

CLO4: Analyse Research Metrics from an ethical point of view.

Units/Hours	Contents	Mapping with CLOs
I 8 Hours	Philosophy and Ethics alongwith Scientific Conduct Introduction to Philosophy : definition, nature and scope, content, branches Ethics : definition, moral philosophy, nature of moral judgements and reactions Ethics with respect to science and research Intellectual honesty and research integrity Scientific misconducts : Falsification, Fabrication, and Plagiarism (FFP) Redundant publications : duplicate and overlapping publications, salami slicing Selective reporting and misrepresentation of data	CLO1
	Reflection: Demonstration of Intellectual honesty and research integrity.	
II 7 Hours	Publication ethics Publication ethics : definition, introduction and importance Best practices/ standards setting initiatives and guidelines: COPE, WAME, etc. Conflicts of interest	CLO2

	<p>Publication misconduct : definition, concept, problems that lead to unethical behaviour and vice versa, types</p> <p>Violation of publication ethics, authorship and contributorship</p> <p>Identification of publication misconduct, complaints and appeals, Predatory publishers and journals</p>	
	<p>Reflection: Scholars will understand practical aspects of E-tools for research.</p>	
<p>III</p> <p>8 Hours</p>	<p>Open Access Publishing & Publication Misconduct</p> <p>Open access publications and initiatives</p> <p>SHERPA/RoMEO online resource to check publisher copyright & self-archiving policies</p> <p>Software tool to identify predatory publication developed by SPPU</p> <p>Journal finder/journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc.</p> <p>Group Discussions: Subject specific ethical issues, FFP, authorship; conflicts of interest; complaints and appeals: examples and fraud from India and abroad</p> <p>Software tools: Use of plagiarism software like Turnitin Urkund and other open source software tools</p>	<p>CLO3</p>
	<p>Reflection: Ability to identify thrust areas of global research and Open access publications and initiatives along with misconduct.</p>	
<p>IV 7 Hours</p>	<p>Databases and Research Metrics</p> <p>Databases: Indexing databases; Citation database: Web of Science, Scopus etc.</p> <p>Research Metrics: Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score; Metrics: h-index, g-index, i10 index, altmetrics</p>	<p>CLO4</p>

	Reflection: Scholars will be able to analyse various research Databases' metrics from an ethical point of view.	
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Transaction Mode

Lecture, Hand-On Lab, Recorded Lectures, Youtube, Discussion following Online Forums or Communities, Invited Lectures.

Suggested Readings

1. Best J.W. (1999). Research in Education. New Delhi: Prentice Hall of India Pvt. Ltd.
2. Bogdon, R., & Biklen, S. K. (2008). Qualitative Research for Education: An Introduction to Theories and Practice. New Delhi: PHI learning
3. Borg, W.R., & Gall, M.D. (1983). Educational Research – An Introduction. New York: Longman, Inc.
4. Chandra, S. S., & Sharma, R.K. (2010). Research in education. New Delhi: Atlantic Publishers and Distributors (P) LTD..
5. Creswell, J. W. (2015). Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research. Boston: Pearson Publications.
6. Curtis, W., Murphy, M., N Shields, S. (2013). Research and Education. New York & London: Routledge
7. Gordon, P. (1996). A Guide to Educational Research. New York: Routledge
8. Kaul, L. (1984). Methodology of Educational Research. New Delhi: Vikas Publications.
9. Kilpatrick, D.L. (2005). Evaluating training Programmes: The four Levels. San Francisco: Brrett-Kochler.
10. Kress, T. (2013). Using Critical Research for Educational and Social Change. New York & London: Routledge.
11. Lauren, B., Little, T. D., & Card, N. A. (2012). Developmental Research Methods. New York: The Guilford Press.
12. Martella, R. C., Nelson, J. R., Morgan, R. L., & Martella, N. E. (2013). Understanding
13. Patton, M.Q. (2002). Qualitative Research and Evaluation Methods. C.A: Sage Publications.
14. Tolmie, A., McAteer, E., Muijs, D. (2012). Quantitative Methods in Educational and Social Research Using SPSS. Maidenhead:Open University Press
15. Wellington, J. (2015). Educational Research. New Delhi: Bloomsbury Academic.
16. Weirsmas, W., & Stephen G. (2009). Research methods in Education. New York: Pearson Education

PhD ELECTIVES

Course Code: LIS.701

Course Title: R & Python programming for Data Science Applications in Research

Course type: Elective

Total Hours: 75

Course Learning outcomes (CLO):

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

CLO1: Learn the Various Concepts of Computer Programming

CLO2: Understand the Use of various Programming Languages and Its Syntaxes

CLO3: Learn about Various R and Python Packages for Data Science Applications in Research

CLO4: Writing Programs for Data Science Applications in Research

L	T	P	Credit
3	0	2	4

Units/Hours	Contents	Mapping with CLOs
I 15 Hours	Introduction to Programming Languages and Its Use Programming Languages: R, Python, C#, Kotlin etc. Applications of Programming Languages: Backend of SPSS. Programming Languages for Mobile, Web App Development.	CLO1
	Reflection: Scholars will learn various Concepts of Computer Programming.	
II 25 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.	CLO2

	Reflection: Scholars will understand practical aspects of E-tools for research.	
III 20 Hours	Data Science Applications in Various Disciplines Arts & Humanities: Exploring Various Libraries, Packages & Projects, Research Papers, Case Studies. Sciences: Exploring Various Libraries, Packages & Projects, Research Papers, Case Studies. Social Sciences: Exploring Various Libraries, Packages & Projects, Research Papers, Case Studies. Data Visualisation: Exploring Various Libraries, Packages & Projects, Research Papers, Case Studies.	CLO3
	Reflection: Scholars will learn about Various R and Python Packages for Data Science Applications in research.	
IV 15 Hours	Developing Programs for Data Analysis in Research Version Control and IDEs Program Development for Research Data Analysis Developing R-Packages as Research Outcome Developing Python Projects in Research	CLO4
	Reflection: Scholars will gain proficiency in developing programs/packages for Data Science Applications in research.	

Transaction Mode

Lecture, Hand-On Lab, Recorded Lectures, Youtube, Discussion following GitHub & Stackoverflow, 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 be a 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 the 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>

Course Code: LIS.702

Course Title: Research Trends in Information Sources, Services and Systems

Course type: Elective

Total Hours: 60

L	T	P	Credit
4	0	0	4

Learning Outcomes:

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

CLO1: Learn about various types of information sources and its Management in the New Age.

CLO2: Conceptualise reference service, referral service and reference interview.

CLO3: Examine the different information services and products along with their recent trends and Challenges.

CLO4: Explore and Identify Problems and Research Question related to Information Sources, Services and Systems

Units/Hours	Contents	Mapping with CLOs
I 14 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.	CLO1
	Reflection: Compare different types of information sources.	

II 16 Hours	<p>Reference Services Reference Service: Concept, types, theories and trends. Referral Service: Concept, types 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.</p>	CLO2
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	<p>Reflection: Compare the different types of information needs of users.</p>	
III 14 Hours	<p>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, Inter Library Loan, document delivery and translation services.</p>	CLO3
	<p>Reflection: Discuss the practical aspects of different information services.</p>	
IV 16 Hours	<p>Information Systems and Services Study and explore National Information Systems. Study and explore International Information Systems. Study and explore Commercial Information Systems and Services. Current Issues with various Information Systems' Services and products.</p>	CLO4
	<p>Reflection: Students will explore current Research trends, methods applied for building and assessing new/old services of Special Libraries, Information & Knowledge Resource centres.</p>	

Transaction Mode: Lectures, PPT, Collective thinking, YouTube, ¹
Discussion

Suggested Readings

- Garson, G. D. (Ed.). (1999). *Information technology and computer applications in public administration: issues and trends*. IGI Global.
- Sweetland, J. H., & Cheney, F. N. (2001). *Fundamental reference sources*. American Library Association.
- Crawford, J. (2010). *Evaluation of library and information services*. Routledge.
- Farmer, L. (Ed.). (2007). *The human side of reference and information services in academic libraries: adding value in the digital world*. Elsevier.
- Foskett, D. J. (1967). *Information service in libraries*. Archon Book Hamden, Connecticut.
- 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.
- Singh, G. (2013). *Information sources, services and systems*. PHI Learning Pvt. Ltd..
- Katz, W. A. (2002). *Introduction to Reference Work: Reference services and reference practices*. McGraw Hill.
- Krishan, K. (2009). *Reference service*. Vikas Publishing House.
- Ranganathan, S. R. (1990). *Reference service*. Sarada Ranganathan Endowment for Library Science, Bangalore.
- Walford, A.J. (1996). *Guide to reference books*. Library Association, London.
- Woodsworth, A., & Williams II, J. F. (2018). *Managing the economics of owning, leasing and contracting out information services*. Routledge.

Course Code: LIS.703

Course Title: Scholarly Communication and Research

Evaluation

Course type: Elective

Total Hours: 60

L	T	P	Credit
4	0	0	4

Course Learning outcomes (CLO):

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

CLO1: Understand the concept of peer-review and scholarly communication.

CLO2: Understand the concept of Informetrics and related metrics.

CLO3: Understand and apply the Classical Laws of Bibliometrics.

CLO4: Understand the foundations of research evaluation.

Units/Hours	Contents	Mapping with CLOs
I 15 Hours	Scholarly Communication Concept of peer review process, Migration of peer reviewed journals from print to Web-based. Digital publishing -- different models. Creative Commons. Open Access Publishing and its impact.	CLO1
	Reflection: Discuss publishing models and impact of open access publishing.	
II 15 Hours	Informetrics and Scientometrics Informetrics: Genesis, Scope and Definition. Bibliometrics: Tools and Techniques. Concept of Cybermetrics and Webometrics. Librametry: Introduction, Scope and Definition.	CLO2
	Reflection: Compare the different types of information needs of users.	
III 15 Hours	Classical Laws of Bibliometrics Price's Theory: Genesis and concept. Zipf's Law: Theory and Applications. Lotka's Law: Theory and Applications. Bradford's Law of Scattering and its applications.	CLO3
	Reflection: Application of Classical Laws of Bibliometrics.	

IV 15 Hours	Research Evaluation Foundation of Research evaluation: Concept and Methods. Journal Level Metrics and Author Level Metrics. Citation Analysis World University Rankings: Introduction and Concept.	CLO4
	Reflection: Contemplate upon research evaluation and the use of various metrics.	

Transaction Mode

Lectures, PPT, Collective thinking, YouTube, Discussion

Evaluation criteria

There shall be an end term evaluation of the course for 50 marks for a duration of 2 hours. The course coordinator shall conduct the evaluation.

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-organisation 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/researchindicators/snip-and-sjr>
- NIRF Website (n.d.). <https://www.nirfindia.org/Home>

BOS DLISc CUPB

Course Code: LIS.704

Course Title: Information Communication and Management of Library and Information Centres

Course type: Elective

Total Hours: 60

L	T	P	Credit
4	0	0	4

Course Learning outcomes (CLO):

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

CLO1: Understand the concept of information communication.

CLO2: Understand the process of information transfer

CLO3: Apply various library management approaches

CLO4: Understand the role of human resources management in libraries and information centres

Units/Hours	Contents	Mapping with CLOs
I 15 Hours	Information Communication Information: Concept and Generation. Information Media and Diffusion. Communication: Concept and Process. Communication Cycle, Types and Models of Communication.	CLO1
	Reflection: Compare the models of information communication.	
II 15 Hours	Transfer of Information and Information seeking behaviour Information Transfer: Concept and Models; Impact on Library and Information Science Professionals/Users; Information Seeking Behaviour: Concept and Methods Models and Methods of Evaluation.	CLO2
	Reflection: Discuss the modalities in information transfer.	
III 15 Hours	Foundations of Library Management Management: Concept Approaches in Library and Information Centres- Classical, Scientific, Behavioural, Modern Systems Approach; Marketing of Library and Information Products and Services	CLO3

	Reflection: Compare various approaches in library management.	
IV 15 Hours	Human Resources Management in Libraries Human Resource Management in Libraries in Information Centres- Concepts, and Application, Interpersonal Relationship, Leadership and Personality Development	CLO4
	Reflection: Application of HRM in various aspects of library management.	

Transaction Mode

Lectures, PPT, Collective thinking, YouTube, Discussion

Evaluation criteria

There shall be an end term evaluation of the course for 50 marks for a duration of 2 hours. The course coordinator shall conduct the evaluation.

Course Code: LIS.704
Course Title: Knowledge Management
Total Hours: 60 Hours
Course Learning Outcomes

L	T	P	Cr
4	0	0	4

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/ 15 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/ 15 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/ 15 Hours	Knowledge Management System and Tools: Knowledge management tools, Data mining. Managing knowledge workers. Reflection: Understand the tools of knowledge management.	CLO 3
Unit IV/ 15 Hours	Knowledge Management Portals: Knowledge Management in Library and Information Centres. Knowledge creation and knowledge architecture – Nonaka’s model, KM Systems Reflection: Understand the application of knowledge management in libraries and information centres.	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 Press.
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.

Course Code: LIS.752

Course Title: TEACHING ASSISTANTSHIP

Course type: Core Course

Total Hours: 30

L	T	P	Credit
0	0	2	1

Course Learning Outcome (CLO):

At the end of this skill development course, the scholars shall be able to

- (1) familiarise themselves with the pedagogical practices of effective classroom delivery and knowledge evaluation system
- (2) manage large and small classes using appropriate pedagogical techniques for different types of content

Activities and Evaluation:

- The scholars shall attend Master degree classes of his/her supervisor to observe the various transaction modes that the supervisor follows in the classroom delivery or transaction process one period per week.
- The scholars shall be assigned one period per week under the direct supervision of his/her supervisor to teach the Master degree students adopting appropriate teaching strategy(s).
- The scholars shall be involved in the examination and evaluation system of the Master degree students such as preparation of questions, conduct of examination and preparation of results under the direction of the supervisor.
- At the end of the semester, the supervisor shall conduct an examination of teaching skills learned by the scholar as per the following **evaluation criteria:**
- The scholars shall be given a topic relevant to the Master degree course of the current semester as his/her specialization to prepare lessons and deliver in the classroom before the master degree students for one hour (45 minutes teaching + 15 minutes interaction).
- The scholars shall be evaluated for a total of 50 marks comprising *content knowledge* (10 marks), *explanation and demonstration skills* (10 marks), *communication skills* (10 marks), *teaching techniques employed* (10 marks), and classroom interactions (10).

Course Code: UNI.753

Course Title: Curriculum, Pedagogy and Evaluation

Course type: Core Course

Total Hours: 15

L	T	P	Credit
1	0	0	1

Course Learning outcomes (CLO):

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

CLO1: analyse the principles and bases of curriculum design and development

CLO2: examine the processes involved in curriculum development

CLO3: develop the skills of adopting innovative pedagogies and conducting students' assessment

CLO4: develop curriculum of a specific course/programme

Units/Hours	Contents	Mapping with CLOs
I 4 Hours	Bases and Principles of Curriculum Curriculum: Concept and Principles of curriculum development, Foundations of Curriculum Development. Types of Curriculum Designs- Subject centred, learner centred, experience centred and core curriculum. Designing local, national, regional and global specific curriculum. Choice Based Credit System and its implementation.	CLO1
II 4 Hours	Curriculum Development Conceptual understanding of Pedagogy. Pedagogies: Peeragogy, Cybergogy and Heutagogy with special emphasis on Blended learning, flipped learning, Dialogue, cooperative and collaborative learning Three e- techniques: Moodle, Edmodo, Google classroom	CLO2
III 3 Hours	Curriculum and Pedagogy Assessment Preparation: Concept, purpose, and principles of preparing objective and subjective questions.	CLO3

	<p>Conducting Assessment: Modes of conducting assessment – offline and online; use of ICT in conducting assessments.</p> <p>Evaluation: Formative and Summative assessments, Outcome based assessment, and scoring criteria.</p>	
IV 4 Hours	<p>Learners' Assessment</p> <p>Assessment Preparation: Concept, purpose, and principles of preparing objective and subjective questions.</p> <p>Conducting Assessment: Modes of conducting assessment – offline and online; use of ICT in conducting assessments.</p> <p>Evaluation: Formative and Summative assessments, Outcome based assessment, and scoring criteria.</p>	CLO4

Transaction Mode

Lecture, dialogue, peer group discussion, workshop

Evaluation criteria

There shall be an end term evaluation of the course for 50 marks for a duration of 2 hours. The course coordinator shall conduct the evaluation.

Suggested Readings

- Allyn, B., Beane, J. A., Conrad, E. P., & Samuel J. A., (1986). *Curriculum Planning and Development*. Boston: Allyn & Bacon.
- Brady, L. (1995). *Curriculum Development*. Prentice Hall: Delhi. National Council of Educational Research and Training.
- Deng, Z. (2007). Knowing the subject matter of science curriculum, *Journal of Curriculum Studies*, 39(5), 503-535. <https://doi.org/10.1080/00220270701305362>
- Gronlund, N. E. & Linn, R. L. (2003). *Measurement and Assessment in teaching*. Singapore: Pearson Education
- McNeil, J. D. (1990). *Curriculum: A Comprehensive Introduction*, London: Scott, Foreman/Little
- Nehru, R. S. S. (2015). *Principles of Curriculum*. New Delhi: APH Publishing Corporation.
- Oliva, P. F. (2001). *Developing the curriculum* (Fifth Ed.). New York, NY: Longman
- Stein, J. and Graham, C. (2014). *Essentials for Blended Learning: A Standards-Based Guide*. New York, NY: Routledge.

Web Resources

- https://www.westernsydney.edu.au/__data/assets/pdf_file/0004/467095/Fundamentals_of_Blended_Learning.pdf
- <https://www.uhd.edu/academics/university-college/centersoffices/teaching-learning-excellence/Pages/Principles-of-a-FlippedClassroom.aspx>
- <http://leerwegdialoog.nl/wp-content/uploads/2018/06/180621-Article-The-Basic-Principles-of-Dialogue-by-Renate-van-der-Veen-andOlga-Plokhooij.pdf>

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