




UNIVERSITY OF SARGODHA
OFFICE OF THE REGISTRAR
(ACAD BRANCH)

NOTIFICATION

On the recommendations of Academic Council made in its 16th (1/2023) meeting held on 02.01.2023, the Syndicate in its 61st (1/2023) meeting held on 27.01.2023 has approved the scheme of studies / curriculum of BS Information Management (5th Semester Intake) for implementation w.e.f. Spring 2023 & onward (Annex-'A').


27/2/23.
(Asif Mehmood)
Deputy Registrar (Acad)
27/02/2023

No. SU/Acad/170

Dated: 27.02.2023

Distribution:

- Chairman, Department of Information Management
- Controller of Examinations

C.C:

- Director Academics
- Director, QEC
- Deputy Registrar (Affiliation)
- Deputy Registrar (Registration)
- Secretary to the Vice-Chancellor
- PA to Registrar
- Notification File

BS INFORMATION MANAGEMENT (After Fourteen Years of Education)

(2 Years) PROGRAM

Program Title: BS Information Management

Department: Information Management

Faculty: Faculty of Arts & Humanities



1. Mission Statement

Our mission is to be a leading seat of learning and research in the field of Information Management.

2. Introduction

Men's cultural development was slow until he learned to make a more or less permanent record of his achievements. After he began to record his knowledge by various forms of writing, and eventually through printing, photographic and electronic media, his progress was greatly accelerated.

Today, in all countries there is no work of greater importance to progress in every sector of society than that of managing the availability and flow of knowledge. The accelerated expansion and creation of libraries and information agencies of all kinds, as well as development of new means of producing and recording knowledge have created new positions so rapidly that professional training agencies throughout the world have not been able to prepare individuals fast enough to meet the requirements of the communication and information service professions. Although there are today more students in more professional schools than ever before, the opportunities still exceed the supply. Especially it is true of students engaged in the study of library and information sciences.

The current rapid rate of development of new libraries and information service agencies is caused in part by the population explosion. More people are reading more books, more students in schools, colleges, and universities are using these libraries more extensively. Particularly, the impact of the computer is being felt in library operations and information handling and strongly reflected in the curricula of library schools today.

Information literates are not those who have information but are those who know how to use information. Alvin Toffler writes: The illiterates of 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn. These two


Chairman
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quotations indicate 21st century is the century of information, knowledge and wisdom.

Library plays an important role in providing information and as well as preserving the reading material for the coming generations. It is also considered the protector of knowledge in all its verity. The role of library could never be ignored in the past not it could be in the present time. In this era of information technology the concept of libraries has drastically changed and the discipline of library and information management has emerged with and altogether in order to meet the need of libraries the sound man power matching the need of the day is inevitable as it is the library staff which can make or mark the library. Our program and research contributions are well recognized throughout Pakistan and abroad. We offer unmatched scholarly environment and facilities. The department has produced thousands of professional serving in Pakistan and abroad.

3. Program Introduction

BS Library and Information Sciences is a conversion of our two years master program in the light of HEC recommendations. Our aim is to provide a student-centered, high quality teaching and learning environment that enriches intellectual, personal and professional development of students and prepare them as competent library science professionals; an asset for the society and their employers. The program will also be offered as replica in afternoon. The details follow as:

Morning

Open Merit Seats: 42

Reserved: 8

Total Seats: 50

Afternoon

Open Merit Seat: 48

Reserved: 2

Total Seats: 50

Note: Seats should be as per admissions' regulations, updated time to time.

4. Program Objectives

Our objective is to offer education and research programs with focused on preparing information professionals who are:

1. Competent enough to manage libraries, knowledge and information centers, archives, museums and records centers, and media houses in public and private sector and to design customized services for the clients in both print and digital environment.
2. Innovative and ethical leaders who understand the impact of information and technology upon a society and create value added services for their communities while promoting a culture of professional and ethical use of information.

3. Capable of offering high quality, customized information management solution in specialized fields such as social management and health sciences, pure and applied sciences, engineering and technology, arts and museums and so on.
4. Techno experts who can manage and design the information systems and services for their clients to access, acquire, organize and disseminate information and knowledge sources.
5. Capable of designing information literacy learning programs for their communities.
6. Well versed in using appropriate methods of research for problem solving and knowledge generation in the field.
7. Actively engage in matters of management. policy and preservation of cultural heritage.

5. **Market Need/ Rationale of the Program**

Basically, this program is conversion of the master program which is well established and well recognized in the job market.

- a) **Potential Students for the Program.** The students who have completed 14 years of education with any subjects from sciences and humanities will be the potential candidates for the program.
- b) **Potential Employers.** Potential employers of the graduates include libraries, museums, archives & records centers, media houses, knowledge and information centers and largely every organization that deals with information in public and private sectors. Current and future prospects of job market seem bright with emerging information society at local and global level.
- c) **Academic Projections.** Most of the universities of the Pakistan are going to initiate the said program (e.g. University of the Punjab).
- d) **Faculty.** The department currently has eight faculty members. Among them four faculty members are PhD in the field and publish regularly in well reputed national and international journals.
- e) **Physical Facilities (Required)**
 - Library
 - Computer Lab
 - Wi-Fi Connectivity across the department building
 - Seminar room
 - White boards and multimedia projectors in classrooms

24

5. Teaching

Most of the courses will be taught through lectures, supported by tutorials, practical work, workshops, presentations, assignments and seminars.

6. Admission Eligibility Criteria

- Fourteen years of education with at least second division and the general criteria set by the university
- Additional Credits:
 - Elective subject of library science in ADA: 5 Marks

Years of Study Completed: 14 years

Study Program/ Subject: Students from any subject area will be eligible to apply for the program.

Percentage/CGPA: At least 45% marks in ADA/ADS/ADC or equivalent.

Entry Test: Not required

7. Duration of the Program: 2 Years (4 semesters); Total number of credit hours: 66

8. Categorization of Courses as per HEC recommendation and difference

Semester	Courses	Core Courses	Basic Courses	Major	Electives	General Courses	Semester Load
1	6	1	4	1	-	-	18
2	5	1	2	2	-	-	15
3	5	1	-	3	1	-	15
4	6	1	-	4	1	-	18
SU	22	4	6	10	2	-	15-18
HEC Guidelines	66	4-6	5-10	9-13	2-2	0-8	15-18
Difference between HEC & SU	0	0	0	0	0	0	0

Summary of Categories

Categories	No. of courses	Credit Hours
Core Courses	4	12
General Courses	-	-
Basic Courses (Discipline Specific Foundation Courses)	6	18
Major Courses	10	30
Electives within the Major	2	6
Total	22	66

9. SCHEME OF STUDIES

Semester I

Code	Course Title	Course Type	Prerequisite	Credit Hours
INFM-6301	Foundation of Information Based Organizations (Core-I)	Core		3 (3+0)
INFM-6302	Management of Libraries and Information Centers (Basic-I)	Basic		3 (3+0)
INFM-6303	Organization of Information (Basic-II)	Basic		3 (3+0)
INFM-6304	Information Services and Sources (Basic-III)	Basic		3 (3+0)
INFM-6305	Managing Collections and Online Access (Basic-IV)	Basic		3 (3+0)
INFM-6306	Indexing and Abstracting (Major-I)	Major		3 (3+0)
Total Credit Hours				18+00

Semester II

Code	Course Title	Course Type	Prerequisite	Credit Hours
INFM-6307	Applied Classification (Major-II)	Major		3 (0+3)
INFM-6308	Quantitative Research Methods (Basic-V)	Basic		3 (3+0)
INFM-6309	Online Information Storage and Retrieval (Core-II)	Core		3 (3+0)
INFM-6310	Bibliography: Theory and Practice	Basic		3 (3+0)
INFM-6311	Advance Management & Leadership Skills (Major-III)	Major		3 (3+0)
Total Credit Hours				15

Semester III

Code	Course Title	Course Type	Prerequisite	Credit Hours
INFM-6312	Applied Cataloging (Major-IV)	Major		3 (0+3)
INFM-6313	Information Literacy Instruction (Major-V)	Major		3 (3+0)
INFM-6314	Qualitative Research Methods (Major-VI)	Major		3 (3+0)
INFM-6215	Library Automation Systems(Core-III)	Core		3 (1+2)
INFM-6321-6335	Elective-II (To be selected from the list of elective courses)	Electives		3 (3+0)
Total Credit Hours				15

Semester IV

Code	Course Title	Course Type	Prerequisite	Credit Hours
INFM-6316	Digital Libraries (Core-IV)	Core		3 (1+2)
INFM-6317	Knowledge Management (Major-VII)	Major		3 (3+0)
INFM-6318	Marketing of Library and Information Services (Major-VIII)	Major		3 (3+0)
INFM-6319	Application of Information Systems (Major-IX)	Major		3 (1+2)
INFM-6321-6335	Elective-IV (To be selected from the list of elective courses)	Electives		3 (3+0)
INFM-6320	Practicum (8 weeks internship) (Major-X)	Major		3 (3+0)
Total Credit Hours				18
Grand Total (Semester III & IV)				66

Research Thesis

Thesis (6 credits, in the lieu of two elective courses of semester III&IV)

List of Elective Courses:

INFM- 6321	Electronic Resources Management
INFM-6322	Advanced Cataloging and Classification (Prerequisite= INFM-6207& INFM-6211)
INFM-6323	Scientific and Technical Information Sources
INFM-6324	Humanities and Social Sciences Information Sources
INFM-6325	Personal Information and Knowledge Management
INFM-6326	Semantic Web and Linked Data Technologies
INFM-6327	School Library Media Center
INFM-6328	Media Information Management
INFM-6329	Research Data Management
INFM-6330	Information Usability Analysis and Assessment
INFM-6331	Scientometrics
INFM-6332	Information Visualization
INFM-6333	Informatics
INFM-6334	Data Science
INFM-6335	Information Ethics and Policy
INFM- 6336	Human Information Behaviour (Foundation-II)
INFM-6320	Project/Thesis (6 credits, in the lieu of two elective courses of semester-3&4)

10. Award of Degree

As per university rules

11. NOC from Professional Councils (Not applicable)**12. Faculty Strength**

Degree	Area/Specialization	Total
Ph. D	1. Reference and information services 2. Organization of information 3. Digital libraries 4. Information literacy 5. Research methods	4
M.Phil		4

Student-Teacher Ratio in the Department: 50:1

SEMESTER I

Name of the Course	Foundation of Information Based Organizations
Course Code	INFM- 6301
Credit Hours	3
Pre-Requisite	Nil
Objectives	<ol style="list-style-type: none"> 1. To understand information environment in which LIS professionals work. 2. To know standardization in LIS profession. 3. To aware with the nature of LIS profession, education and ethics. 4. To know the role of libraries in the society. 5. To recognize the impact of ICT on the libraries.
Contents	<p>Unit-I Introduction to information/knowledge society</p> <ol style="list-style-type: none"> 1.1 The information/knowledge society 1.2 Information policy <p>Unit-II Libraries as organizations</p> <ol style="list-style-type: none"> 2.1 Information organization 2.2 Libraries as organizations <p>Unit-III Standards implementation in libraries</p> <ol style="list-style-type: none"> 3.1 Standardizations in libraries <p>Unit-IV Competencies of LIS professionals</p> <ol style="list-style-type: none"> 4.1 Information professions 4.2 Educating the LIS professionals <p>Unit-V Professional ethics in a knowledge society</p> <ol style="list-style-type: none"> 5.1 Impact of ICT on the libraries 5.2 Professional ethics
Teaching & Learning Strategies	A combination of lecture, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written Assignment (10 marks), Presentation (5 marks) and Quiz (10 marks)
Recommended Reading Material	<p>Al-Ansari, H., & Yousef, N. (2002). Coverage of competencies in the curriculum of information studies: An international perspective. <i>Education for Information</i>, 20(3-4), 199-215.</p> <p>Feather, J. (2013). <i>The information society: A study of continuity and change</i>. Facet publishing.</p> <p>Floridi, L. (2008). Information ethics: Its nature and scope. <i>Moral Philosophy and Information Technology</i>. 40-65.</p> <p>Hauptman, R. (2010). <i>Ethics and librarianship</i>. McFarland.</p> <p>Rubin, R. E. (2017). <i>Foundations of library and information science</i> (4th ed.). American Library Association.</p>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Project, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Management of Libraries and Information Centers
Course Code	INFM-6302
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To develop basic understanding of managerial concepts and its application in library & information centers. 2. To know the theories and principles of administration for effective management of public, academic, and special libraries. 3. To aware about the key management concepts, processes, aspects and the role of information professional in organizations.
Contents	<p>Unit-I Basic theories and principles of management 1.1 Theories and principles of administration</p> <p>Unit-II Pillars of management paradigm 2.1 Planning 2.2 Organizing 2.3 Controlling 2.4 Staffing</p> <p>Unit-III Management of libraries 3.1 Effective management of public libraries 3.2 Managing academic, special libraries and information centers</p> <p>Unit-IV Administering technical services in libraries 4.1 Administrative aspects of public and technical services 4.2 Facilities, planning, evaluation, public relations</p> <p>Unit-V Motivational factors among LIS professionals 5.1 Motivation of information professionals 5.2 Management of change in libraries and information centers</p>
Teaching & Learning Strategies	A combination of lecture, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading Material	<p>Bryson, J. (2017). <i>Effective library and information centre management</i>. Routledge.</p> <p>Dinesh, K. S., & Nikam, K. (2007). Strategies for effective library and information centre management. <i>SRELS Journal of Information Management</i>, 44(3), 237-248.</p> <p>Stueart, R. D., & Moran, B. (1999). Library and information centre management. <i>Library Management</i>, 20(8), 447-455.</p> <p>Walls, J., & Turban, E. F. R. A. I. M. (1991). Information centre management control measures: A survey and comparison. <i>IEEE transactions on engineering management</i>, 38(4), 336-343.</p> <p>Warraich, N. F., Ameen, K., & Malik, A. (2019). Recruitment and retention of information professionals: library leaders' perspectives in Pakistan. <i>Global Knowledge, Memory and Communication</i>, 68(8/9).</p> <p>Warraich N. F. & Ameen, K., (2017). Managing the personnel in university libraries: A developing country perspective. <i>International Information & Library Review</i>, 49(2), 139-144.</p>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Organization of Information
Pre-Requisite	Nil
Course Code	INFM-6303
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To understand the role of organization in human endeavors. 2. To become familiar with the basic principles of organization developed over the last several centuries. 3. To discuss the organizational concepts that affect how information must be retrieved. 4. To describe various approaches of organization in all types of environments. 5. To demonstrate the role of technical standards in organizing information.
Contents	<p>Unit-I Introduction to organization of information</p> <ol style="list-style-type: none"> 1.1 Information services in today's world 1.2 Organization of information: What and why? 1.3 Classification 1.4 Cataloguing <p>Unit-II Library approaches to organizing information</p> <ol style="list-style-type: none"> 2.1 Bibliographic classification 2.2 Catalogues and bibliographies 2.3 Subject heading lists <p>Unit-III Organization of recorded information in different contexts</p> <ol style="list-style-type: none"> 3.1 Libraries 3.2 Archives 3.3 Museums 3.4 The Internet <p>Unit-IV Cataloguing</p> <ol style="list-style-type: none"> 4.1 AACR2 and the process of cataloguing 4.2 Implications of basic cataloguing rules for OPACs 4.3 Cataloguing of Internet resources 4.4 Functional Requirements of Bibliographic Records (FRBR) <p>Unit-V Library classification</p> <ol style="list-style-type: none"> 5.1 Classification schemes 5.2 Types of bibliographic classification schemes 5.3 Major library classification schemes 5.4 Dewey Decimal Classification <p>Unit-VI Retrieval tools</p> <ol style="list-style-type: none"> 6.1 The need for retrieval tools 6.2 Bibliographies 6.3 Catalogs 6.4 Indexes

	6.5 Finding aids 6.6 Registers 6.7 Search engines and directories Unit-VII Systems for vocabulary control 7.1 Types of controlled vocabularies 7.2 Natural language approaches to subjects Unit-VIII Encoding, authority control 8.1 Encoding of records 8.2 MARC 8.3 MARC 21 8.4 UNIMARC 8.5 The future of MARC Unit-IX Issues and trends in organizing information 9.1 Cataloguing: FRBR and semantic catalogue networks 9.2 Classification in the digital age 9.3 Semantic web technologies and digital libraries
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Quiz (25 Marks)
Recommended Reading	Chan, L. M., & Salaba, A. (2015). <i>Cataloguing and classification: An introduction</i> . (4 th ed.). Lanham: Rowman & Littlefield Publishers. Chowdhury, G. G., & Chowdhary, S. (2007). <i>Organizing information: From the shelf to the web</i> . London: Facet Publishers. Joudrey, D. N., Taylor, A. G., & Miller, D. P. (2015). <i>Introduction to cataloging and classification</i> (11 th ed.). Santa Barbara, California: Libraries Unlimited. Joudrey, D. N., Taylor, A. G., & Wisser, K. M. (2017). <i>The organization of information</i> . (4 th ed.). Santa Barbara, California: Libraries Unlimited. Rowley, J. E., & Farrow, J. (2008). <i>Organizing knowledge: An introduction to managing access to information</i> (4 th ed.). Aldershot: Ashgate Publishing Limited.

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Information Services and Sources
Course Code	INFM-6304
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To develop the ability to understand reference queries through conducting effective reference interviews. 2. To be able to identify and use appropriate reference sources to find answers to reference questions. 3. To apply criteria to be used in evaluating reference sources. 4. To demonstrate knowledge of users' information needs, seeking, and information use.
Contents	<p>Unit-I Introduction to information services and sources</p> <ol style="list-style-type: none"> 1.1 Meaning & definition 1.2 Importance 1.3 Characteristics 1.4 Functions of reference service 1.5 Evolutions -both print and non-print <p>Unit-II History and varieties of reference and information services</p> <ol style="list-style-type: none"> 2.1 Samuel Green and the founding of reference service 2.2 Changes since 1876: Technology 2.3 Changes since 1876: Diversity 2.4 Styles of reference service 2.5 Types of reference service 2.6 Models of reference service 2.7 The future of reference <p>Unit-III Information work environment</p> <ol style="list-style-type: none"> 3.1 Technical aspects 3.2 Cultural aspects 3.3 Ethical aspects 3.4 Legal aspects <p>Unit-IV Reference service</p> <ol style="list-style-type: none"> 4.1 Traditional and virtual environments 4.2 Reference interview process 4.3 Search strategies <p>Unit-V Organizing and delivering reference and information services</p> <ol style="list-style-type: none"> 5.1 Reference as a place 5.2 Service models 5.3 Delivering virtual reference services 5.4 Keeping current, staying relevant <p>Unit-VI Selection and evaluation of reference sources</p> <ol style="list-style-type: none"> 6.1 Reference collection development and maintenance 6.2 Evaluation of sources 6.3 Virtual reference collection development 6.4 Selection aids 6.5 Sources, collections, and services in transition <p>Unit-VII Important information sources</p> <ol style="list-style-type: none"> 7.1 Directories 7.2 Almanacs and fact books

24

	<p>7.3 Encyclopedias 7.4 Dictionaries and thesauri 7.5 Biographical sources 7.6 Bibliographies and its types 7.7 Basic guides to reference materials 7.8 Library catalogs 7.9 Serials guides 7.10 Indexes and abstracts 7.11 Geographical sources-- Maps, atlases & gazetteers</p>
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Practical assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading Material	<p>Bopp, R. E., & Smith, L. C. (2011). <i>Reference and information services: An introduction</i>. Englewood, Colo: Libraries Unlimited.</p> <p>Cassell, K. A. & Hiremath. U. (2018). <i>Reference and information services in the 21st Century: An Introduction</i> (4th ed.). New York: Neal-Schuman.</p> <p>Hirsh, S (Ed.). (2018). <i>Information Services Today</i> (2nd ed.). Lanham, MD: Rowman & Littlefield.</p> <p>Janes. J. (2003). <i>Introduction to reference work in the digital age</i>. New York: Neal-Schuman.</p> <p>Katz, B. (Ed.). (2013). <i>Digital reference services</i>. New York: Routledge. Taylor & Francis Group.</p> <p>Ross, C. S., Nilsen, K., & Radford, M. (2009). <i>Conducting the reference interview: A how-to-do-It manual for libraries</i> (2nd ed.). Chicago: Neal-Schuman.</p> <p>Smith, L. C., Wong, M. A. (2016). <i>Reference and information services: An introduction</i> (5th ed.). Santa Barbara, California: Libraries Unlimited.</p>

Assessment and Examinations:

St.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Managing Collections and Online Access
Course Code	INFM-6305
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> To become familiar with the philosophy, principles and main elements of collection development and management (CDM). To develop insights and methods for dealing with issues pertaining to collection development and management including policies development, selection process, acquisition options, weeding, preservation and conservation strategies for print and electronic resources using relevant theories and practices. To identify the opportunities and challenges posed by electronic

	<p>materials in the information environment covering ownership versus leasing models, the differences in licensing options from the major publishers and aggregators.</p> <p>4. To gain valuable insight regarding the impact of e-material on the publishing industry, scholarly communication, and its integration into future technologies and social media.</p>
Contents	<p>Unit-I Collection development and management</p> <p>1.1 Defining concepts and terms 1.2 Collection development policies.</p> <p>Unit-II Selection and acquisitions procedures</p> <p>2.1 Selection tools and resources 2.2 Access vs. ownership 2.3 Licensing options 2.4 Digital rights management of e-resources 2.5 E-resources and technology issues</p> <p>Unit-III Access, ethics and intellectual freedom</p> <p>3.1 Censorship and intellectual freedom 3.2 Responding to complaints and challenges to materials</p> <p>Unit-IV Assessment and evaluation of collections</p> <p>4.1 Assessment and evaluation as a management tool 4.2 Historical overview of collection analysis 4.3 Approaches to collection analysis</p> <p>Unit-V Managing collection</p> <p>5.1 Weeding 5.2 Preservation and conservation strategies</p> <p>Unit-VI Collaborative collection development</p> <p>6.1 Overview 6.2 Resources sharing 6.3 Bibliographic access 6.4 Coordinated collection development and management</p>
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading Material	<p>Albitz, B., Avery, C., & Zabel, D. (Eds.). (2014). <i>Rethinking collection development and management</i>. London: Libraries Unlimited.</p> <p>Clayton, P., & Gorman, G. E. (2006). <i>Managing information resources in libraries: collection management in theory and practice</i>. London: Facet Publishing.</p> <p>Fieldhouse, M., & Marshall, A. (Eds.). (2011). <i>Collection development in the digital age</i>. London: Facet Publishing.</p> <p>Johnson, P. (2018). <i>Fundamentals of collection development and management</i> (4th ed.). London: Facet Publishing.</p> <p>Kaplan, R. (Ed.). (2012). <i>Building and managing e-book collections: A how-to-do-it manual for librarians</i>. Chicago: ALA Neal-Schuman.</p> <p>Saponaro, M. Z., & Evans, G. E. (2019). <i>Collection management basics</i> (7th</p>

ed.). London: Libraries Unlimited.
 Weir, R. O. (Ed.). (2012). *Managing electronic resources: A LITA guide*.
 Chicago: American Library Association.

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Indexing and Abstracting Major-I
Course Code	INFM-6306
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To analyze the intellectual content of bibliographic materials and assign appropriate indexing terms that represent the conceptual content. 2. To know how thesauri are utilized in assigned indexing. 3. The basic theoretical concepts and literature that ground indexing and abstracting. 4. To write an indicative, informative, and structured abstract. 5. To describe the role of indexing and abstracting in subject access and information retrieval. 6. To evaluate documents for indexing purposes, select appropriate descriptors, and write clear and concise prose for abstracts. 7. To describe and apply the range of indexing and abstracting methods available for books, periodical literature, creative works, and online materials. 8. To describe and apply the concept of controlled vocabularies in indexing for information retrieval.
Contents	<p>Unit-I Introduction to indexing and abstracting</p> <ol style="list-style-type: none"> 1.1 Making an index 1.2 The need for indexes 1.3 A brief historical perspective <p>Unit-II Vocabulary control</p> <ol style="list-style-type: none"> 2.1 The purpose of controlled vocabulary 2.2 Authority lists 2.3 Generic vocabularies 2.4 The thesaurus <p>Unit-III Types of indexes and abstracts</p> <ol style="list-style-type: none"> 3.1 Types of indexes 3.2 Types of abstracts <p>Unit-IV The indexing process</p> <ol style="list-style-type: none"> 4.1 Aboutness 4.2 Steps in indexing 4.3 Depth of indexing <p>Unit-V The abstracting process</p> <ol style="list-style-type: none"> 5.1 The purpose of an abstract

	<p>5.2 Coverage 5.3 Steps in abstracting 5.4 Editing 5.5 Evaluation of abstracts</p> <p>Unit-VI Indexing and abstracting a document</p> <p>6.1 Abstracting the document 6.2 Indexing the document</p> <p>Unit-VII Evaluation of indexing</p> <p>8.1 Relevance 8.2 Recall and precision 8.3 Effects of exhaustivity and specificity 8.4 Index quality 8.5 Evaluating abstracts</p>
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading Material	<p>Cleveland, D. B., & Cleveland, A. D. (2013). <i>Introduction to indexing and abstracting</i>. Littleton, Colo: Libraries Unlimited.</p> <p>Lancaster, F. W. (2003). <i>Indexing and abstracting in theory and practice</i>. Champaign, Illinois: University of Illinois.</p> <p>Perlman, J. (2016). <i>Indexing tactics and tidbits: An A to Z guide</i>. Medford, NJ: Information Today, INC.</p>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

SEMESTER II

Name of the Course	Applied Classification (Major-II)
Course Code	INFM-6307
Prerequisite	INFM-6303
Credit Hours	4
Objectives	<ol style="list-style-type: none"> 1. To enable students classify library materials using Dewey Decimal Classification scheme. 2. To demonstrate the application of subject heading and understand the nature of subject heading lists.
Contents	<p>Unit-I Introduction to Dewey Decimal Classification scheme</p> <ol style="list-style-type: none"> 1.1 General principles of classification. 1.2 Use of Tables 1 to 6 1.3 Practice of building classification numbers in Dewey Decimal Classification classes (000-999) 1.4 Introduction to Web Dewey <p>Unit-II Subject analysis practical with Sear List of Subject Headings</p> <ol style="list-style-type: none"> 2.1 Methods used to determine aboutness 2.2 Conceptual analysis process 2.3 Practice of assigning subject headings using Sears List of Subject Headings
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Quiz (25 Marks)
Recommended Reading Material	<p>Bowman, J. H. (2005). <i>Essential Dewey</i>. London: Facet publishing.</p> <p>Joudrey, D. N., Taylor, A. G., & Miller, D. P. (2015). <i>Introduction to cataloging and classification</i> (11th ed.). London: Libraries Unlimited</p> <p>Dewey, M., Beall, J., Mitchell, J. S., & Martin, G. (2011). <i>Dewey decimal classification and Relative Index</i> (23rd ed.). Dublin, Ohio: OCLC.</p> <p>Farkas, L. (2015). <i>Learn Dewey Decimal Classification</i> (23rd ed.). Friendswood, TX: Total Recall Publications.</p> <p>Bristow, B. A., Hugger, M., Spires, K., & Fielder, C. (Eds.). (2018). <i>Sears List of Subject Heading</i> (22nd ed.) Armenia, New York: H. W. Wilson.</p> <p>Scott, Mona L. (2005). <i>Dewey decimal classification: A study manual and number building guide</i> (22nd ed.). London: Libraries Unlimited.</p>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

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Name of the Course	Quantitative Research Methods
Course Code	INFM-6308
Prerequisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To learn about the nature and application of quantitative research in social sciences research 2. To know and articulate the concept, philosophy and terminology of quantitative research 3. To identify and describe various methods for doing quantitative research 4. To practice the procedure of survey research from topic identification to report writing 5. To apply statistical tests on quantitative data with the help of SPSS software
Contents	<p>Unit-I Introduction to quantitative research</p> <p>1.1 Basic concepts and philosophy of quantitative research</p> <p>Unit-II Basic elements of research</p> <p>2.1 Selecting and defining a research topic</p> <p>2.2 Defining research problems</p> <p>2.3 Reviewing the literature</p> <p>2.4 Survey research</p> <p>2.5 Designing questionnaires</p> <p>Unit-III Application of statistics in research</p> <p>3.1 Selecting a sample</p> <p>3.2 Probability and sampling</p> <p>3.3 Research questions and logic of hypothesis testing</p> <p>3.4 Descriptive statistics</p> <p>3.5 Quantitative data analysis using SPSS software</p>
Teaching & Learning Strategies	A combination of lecture, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written Assignment (10 marks), Presentation (5 marks) and Quiz (10 marks)
Recommended Reading Material	<p>Adler, E. S., & Clark, R. (2011). <i>An invitation to social research: How it's done</i>. Belmont, CA: Wadsworth.</p> <p>Babbie, E. R. (2016). <i>The practice of social research</i>. Singapore: Cengage Learning.</p> <p>Creswell, J. W. (2014). <i>Research design: Qualitative, quantitative, and mixed methods approaches</i>. Sage.</p> <p>Gay, L. R., Mills, G. E., & Airasian, P. W. (2012). <i>Educational research: Competencies for analysis and applications</i>. Boston, MA: Pearson.</p> <p>Maxim, P. S. (1999). <i>Quantitative Research Methods in the Social Sciences</i>. Oxford: Oxford University Press.</p> <p>McCormick, K., Salcedo, J., & Poh, A. (2015). <i>SPSS statistics for dummies</i>. Hoboken, NJ: John Wiley.</p>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Project, presentation and quiz

24

3	Final Assessment	50%	Written test (at the end of the semester)
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Name of the Course	Online Information Storage and Retrieval
Course Code	INFM-6309
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To understand the environment of information retrieval. 2. To develop an understanding of the principal components of information retrieval systems, Web search engines and online databases. 3. To develop ability to improved retrieval effectiveness using Boolean logic, proximity searching, truncation and other tools. 4. To evaluate the emerging information retrieval practices in library services and on the Web.
Contents	<p>Theoretical</p> <p>Unit-I Introduction to information retrieval</p> <ol style="list-style-type: none"> 1.1 Definition and concepts 1.2 Major components/elements of information retrieval 1.3 Database, search mechanism, language, interface <p>Unit-II Language in information representation and retrieval</p> <ol style="list-style-type: none"> 2.1 Natural language 2.2 Controlled vocabulary-Thesauri, subject heading lists, classification schemes 2.3 Natural language vs-controlled vocabulary indexing <p>Unit-III Retrieval techniques and query representation</p> <ol style="list-style-type: none"> 3.1 Basic information searching techniques 3.2 Advanced information searching techniques <p>Unit-IV Information retrieval models</p> <ol style="list-style-type: none"> 4.1 Matching model 4.2 Boolean logic model 4.3 Vector space model 4.4 Probability model <p>Unit-V Information retrieval systems</p> <ol style="list-style-type: none"> 5.1 Online systems 5.2 CD-ROM systems 5.3 OPACs 5.4 Web search engines 5.5 Evaluation of information retrieval systems <p>Practical</p> <p>Searching techniques in different search engines and online databases (HEC National Digital Library). Indexing.</p>
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Practical Assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading Material	Brown, C. C., & Bell, S. S. (2018). <i>Librarian's guide to online searching: Cultivating database skills for research and instruction</i> (5 th ed.). Santa Barbra, California: Libraries Unlimited.

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<p>Chowdhry, G. G. (2010). <i>Introduction to modern information retrieval</i> (3rd ed.). Chicago: Neal Schuman Pub.</p> <p>Chu, H. (2010). <i>Information representation and retrieval in the digital age</i>. Medford, New Jersey: Information Today, Inc.</p> <p>Knott, C. (2016). <i>Find the information you need: Resources and techniques for making decisions, solving problems, and answering questions</i>. Lanham, Maryland: Littlefield Publishing Group, Inc.</p> <p>Losee, R. M. (2019). <i>Predicting information retrieval performance (Synthesis lectures on information concepts, retrieval, and services)</i>. San Rafael, CA: Morgan & Claypoll Publishers.</p> <p>Manning, C. D., Raghavan, P., & Schütze, H. (2008). <i>Introduction to information retrieval</i>. Cambridge: Cambridge University Press.</p>
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Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Bibliography: Theory & Practice
Course Code	INFM-6310
Pre-Requisite	Nil
Credit Hours	3
Objectives	To enable the students to meet their research.
Contents	Bibliography: Meaning definition and concept of bibliography; need and importance; historical development; types universal, national, subject, commercial, Bibliography inner form, enumerative, analytical or critical, historical, textual Bibliographical control at national level. Prerequisite national bibliographical control; preparation of bibliography: automated bibliographical control. UBC Bibliographic data base. Bibliometrics. Bibliographical Organization. Webliography.
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading Material	<p>Aziz, K. K. (2007). <i>A bibliography of Islamic art</i>. Lahore: Research Society.</p> <p>Davinson, Donald (1975). <i>Bibliographic control</i>. London: Clive Bingley.</p> <p>Devarajan, G. (Ed.) (1997). <i>Bibliometric studies</i>. New Delhi: EssEss Publications.</p>

	Foster, David William and Kelly, James R. (Eds.) (2003). Bibliography in literature, folklore, language, and linguistics: essays on the status of the field. Jefferson,
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Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Advance Management & Leadership Skills
Course Code	INFM-6311
Prerequisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To apply management principles to the creation, administration and promotion of information organizations by competing values approach. 2. To develop an increased understanding of management functions and managerial roles and techniques especially by creating and sustaining commitment and cohesion and using power ethically and effectively. 3. To understand leadership theories, styles and leadership qualities for future library leaders. 4. To know leadership issues, such as create vision, build team, allocate tasks, develop people, motivate and inspire staff/followers. 5. To explore the need of teamwork as required skill for their professional life. 6. To enhance their workplace communication skills.
Contents	<p>Unit-I Advance management techniques</p> <ol style="list-style-type: none"> 1.1 Introduction to competing values approach to management 1.2 Creating and sustaining commitment & cohesion <p>Unit-II Employing change & change management</p> <ol style="list-style-type: none"> 2.1 Promoting change & encouraging adaptability 2.2 History 2.3 Application <p>Unit-III Leadership theories & styles</p> <ol style="list-style-type: none"> 3.1 History and application 3.2 Merits of leadership theories 3.3 Leadership styles <p>Unit-IV Leadership skills among library professionals</p> <ol style="list-style-type: none"> 4.1 Leadership qualities for future library leaders 4.2 Laws of teamwork and integration 4.3 Workplace communication
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written Assignment (10 marks), Presentation (5 marks) and Quiz (10 marks)
Recommended	Allan, B. (2007). <i>Supervising and leading teams in LIS</i> . Facet Publishing.

Reading Material	<p>Halaychik, C. S. (2016). <i>Lessons in Library Leadership: A Primer for Library Managers and Unit Leaders</i>. Cambridge: Chandos Publishing.</p> <p>Marcum, D. B. (2016). Library leadership for the digital age <i>Information Services & Use</i>, 36(1-2), 105-111.</p> <p>Maxwell, J. C. (2013). <i>The 17 indisputable laws of teamwork: Embrace them and empower your team</i>. Thomas Nelson Inc.</p> <p>Quinn, R. E., Bright, D., Faerman, S. R., Thompson, M. P., & McGrath, M. R. (2014). <i>Becoming a master manager: A competing values approach</i>. New York: John Wiley & Sons.</p>
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Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Elective I (INFM-6321 to INFM-6335)

SEMESTER III

Name of the Course	Applied Cataloging (Major-IV)
Course Code	INFM-631a
Prerequisite	INFM-6303
Credit Hours	4
Objectives	<ol style="list-style-type: none"> 1. To demonstrate understanding about effectiveness of organization of information. 2. To learn basic principles and rules of cataloging procedure according to AACR2. 3. To do cataloging practice of print, non-print material, serials and electronic material. 4. To develop basic understanding about English and Urdu choice of access points. 5. To learn and practice different cataloging formats, standards and frameworks (MARC, Metadata, FRBR, RDA, BIBFRAME).
Contents	<p>Unit-I Introduction to descriptive cataloging</p> <ol style="list-style-type: none"> 1.1 Need of descriptive cataloging 1.2 Definitions and application <p>Unit-II Introduction to AACR2 cataloging</p> <ol style="list-style-type: none"> 2.1 International standard bibliographic description 2.2 Principles and rules <p>Unit-III Choice of access points</p> <ol style="list-style-type: none"> 3.1 Statement of responsibility rules 3.2 Unknown authorship 3.3 Audio/video material 3.4 Serial publications <p>Unit-IV Practical cataloging</p> <ol style="list-style-type: none"> 4.1 Print material 4.2 Audio-video material 4.3 Electronic and serials material <p>Unit-V MARC (Machine Readable Catalogue)</p> <ol style="list-style-type: none"> 5.1 Introduction 5.2 Structure <p>Unit-VI Metadata</p> <p>Introduction Types</p> <p>Unit-VII Other cataloging standards</p> <ol style="list-style-type: none"> 7.1 FRBR (Functional Requirements for Bibliographic Records) 7.2 RDA (Resource Description Access) 7.3 BIBFRAME
Teaching & Learning Strategies	A combination of lecturing, practical work, and discussions will be used to conduct the course. Students will be expected to practice extensively ahead of each class session and actively participate in discussions.
Assignments	Cataloging practical assignment (10 marks) and quiz (15 marks)
Recommended Reading Material	<p>Fritz, D. A. (2009). <i>Cataloging with AACR2R & MARC21: For books, computer files, serials, sound recordings, video recordings</i>. New Dehli: Pentagon Press.</p> <p>Furrie, B. (2003). <i>Understanding MARC bibliographic: Machine-readable cataloging</i>. Washington: Cataloging Distribution Service in</p>

collaboration with Follett Software Company.

Gorman, M. (2004). *The concise ACCR2*. Chicago: American Library Association.

Hsieh-Yee, I. (2006). *Organizing audiovisual and electronic resources for access: A cataloging guide*. Englewood: Libraries Unlimited.

Jones, W., Ahronheim, J. R., & Crawford, J. (2002). *Cataloging the web: Metadata, AACR, and MARC 21*. Lanham, Md: Scarecrow Press.

Library of Congress. (1993). *Descriptive cataloging manual. Z1, name and series authority records*. Washington: Cataloging Distribution Service.

Library of Congress. (2003). *Understanding MARC authority records: Machine-readable cataloging*. Washington: Cataloging Distribution Service.

Library of Congress. (2012). *Bibliographic framework as a web of data: Linked data model and supporting services*. Retrieved from <https://www.loc.gov/bibframe/pdf/marclid-report-11-21-2012.pdf>

Library of Congress. (2019). *Description of the category view of the BIBFRAME vocabulary*. Retrieved from <https://www.loc.gov/bibframe/docs/vocab-category.html>

Maxwell, R. (2013). *Maxwell's handbook for RDA: Resource description & access: Explaining and Illustrating RDA: Resource description and access using MARC21*. Chicago: ALA Editions.

Olson, N.B. (2008). *Cataloging of audiovisual materials and other special materials*. London: Libraries Unlimited.

Smiraglia, R. (2005). *Metadata: A cataloguer's primer*. New York: Routledge.

Tillett, B. B. (2004). *What is FRBR? A conceptual model for the bibliographic universe*. Washington: Cataloging Distribution Service.

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Information Literacy Instruction
Course Code	INFM-6313
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To enable students to define information need and access variety of information sources. 2. To develop students to apply searching strategies to filter large amount of information sources. 3. To learn how to avoid plagiarism and give appropriate credit to knowledge creators. 4. To develop understanding about incorporating ideas from sources by learning critical thinking skills. 5. To learn effective use of computer in academics and apply latest

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	information & communication technologies.
Contents	<p>Unit-I Introduction to information literacy</p> <p>1.1 Introduction of the concept & background</p> <p>1.2 Models/frameworks</p> <p>Unit-II Information literacy process</p> <p>2.1 Defining, accessing & searching for information</p> <p>2.2 Identification of types of information sources</p> <p>2.3 Best information & reference sources</p> <p>2.4 Basic and advance searching strategies</p> <p>2.5 Evaluating, filtering and managing information</p> <p>2.6 References and avoiding Plagiarism</p> <p>2.7 Disseminating & communicating information</p> <p>Unit-III History and introduction to computers</p> <p>3.1 Learning about input devices</p> <p>3.2 Software/hardware</p> <p>3.3 Working with application software</p> <p>3.4 Operating system & productivity applications</p> <p>3.5 Software installation</p> <p>Unit-IV Internet basics</p> <p>4.1 Introduction to websites</p> <p>4.2 Website usability</p> <p>4.3 Information security & privacy</p> <p>4.4 Communication through Internet (Email) etc.</p> <p>Unit-V Instruction methods</p> <p>5.1 Types</p> <p>5.2 Functions</p> <p>5.3 Application</p> <p>Unit-VI Assessment Methods</p> <p>1.1 Types</p> <p>1.2 Functions</p> <p>1.3 Application</p>
Teaching & Learning Strategies	A combination of lecturing, presentations, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions and practical work.
Assignments	Presentation and Written Assignment (10 marks) and quiz (15 marks)
Recommended Reading Material	<p>Alewine, M. C., & Canada, M. (2017). <i>Introduction to information literacy for students</i>. Chichester: J. Wiley and Sons.</p> <p>Badke, W. (2017). <i>Research strategies</i> (6th ed.). Bloomington: iUniverse.</p> <p>Burkhardt, J. M. (2016). <i>Teaching information literacy reframed: 50+ framework-based exercises for creating information-literate learners</i>. Chicago: Neal-Schuman.</p> <p>Miller, M (2015). <i>Computer basics absolute beginner's guide, windows 10 edition (includes content update program)</i> (8th ed.). Indianapolis: Que Publishing.</p> <p>Wempen, F. (2015). <i>Digital literacy for dummies</i>. Hoboken: John Wiley & Sons.</p>

Name of the Course	Qualitative Research Methods
Course Code	INFM-6314
Pre-Requisite	Nil
Prerequisite	
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To learn basic qualitative researcher's skills and techniques. 2. To get understanding about qualitative research design. 3. To get overview of the basic qualitative research methods. 4. To identify basic qualitative data collection techniques. 5. To get basic understanding about analyzing qualitative data. 6. To learn how to do qualitative research report writings.
Contents	<p>Unit-I Introduction to qualitative research</p> <ol style="list-style-type: none"> 1.1 Introduction 1.2 Difference between qualitative and quantitative research 1.3 Research process 1.4 Philosophical positioning of qualitative research <p>Unit-II Basic qualitative research methods</p> <ol style="list-style-type: none"> 2.1 Case study 2.2 Grounded theory 2.3 Phenomenography 2.4 Ethnography <p>Unit-III Identifying qualitative inquiry</p> <ol style="list-style-type: none"> 3.1 Approaches 3.2 Scope and determinants <p>Unit-IV Sampling in qualitative research</p> <ol style="list-style-type: none"> 4.1 Approach 4.1 Types <p>Unit-V Data collection techniques</p> <ol style="list-style-type: none"> 5.1 Techniques 5.2 Advantages and disadvantages <p>Unit-VI Qualitative data analysis</p> <ol style="list-style-type: none"> 6.1 Methods 6.2 Application <p>Unit-VII Ethical approaches in qualitative research</p> <ol style="list-style-type: none"> 7.1 Approaches 7.2 Considerations <p>Unit-VIII Writing qualitative research report</p> <ol style="list-style-type: none"> 8.1 Writing styles 8.2 Research reporting
Teaching & Learning Strategies	A combination of lecturing, presentations, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions and practical work.
Assignments	Research project based on qualitative research (15) and Presentation (10 marks)
Recommended Reading Material	<p>Creswell, J. W. (2015). <i>30 essential skills for the qualitative researcher</i>. London: Sage Publications.</p> <p>Creswell, J. W., & Poth, C. N. (2017). <i>Qualitative inquiry and research design: Choosing among five approaches</i>. London: Sage Publications</p>

27

Limited.
 Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). *The Sage handbook of qualitative research*. London: Sage Publications Limited.
 Flick, U. (Ed.). (2009). *The sage qualitative research kit: Collection*. London: Sage Publications Limited.
 Gorman, G. E., Clayton, P. R., Shep, S. J., & Clayton, A. (2005). *Qualitative research for the information professional: A practical handbook*. London: Facet Publishing.
 Holloway, I., & Brown, L. (2016). *Essentials of a qualitative doctorate*. London: Routledge
 Mayan, M. J. (2016). *Essentials of qualitative inquiry*. Walnut Creek: Taylor & Francis

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Library Automation Systems
Course Code	INFM-6315
Pre-Requisite	Nil
Credit Hours	3
Objectives	1. To enhance the knowledge of the students about library automation concepts, trends, developments, systems,
Contents	<p>Unit-I Library automation</p> <p>1.1 Definition 1.2 History 1.3 Need for library automation 1.4 Advantages and disadvantages</p> <p>Unit-II Systems analysis for library automation</p> <p>2.1 Need analysis 2.2 Hardware and software 2.3 Relevant technical standards</p> <p>Unit-III Planning and acquisition of automation systems</p> <p>3.1 Bespoke, off the shelf, and open source systems 3.2 Technology plan 3.3 Selection and evaluation 3.4 Contract negotiation 3.5 Retrospective conversion 3.6 Post analysis</p> <p>Unit-IV Overview of the major library automation subsystems</p> <p>4.1 Circulation 4.2 inter-library loan 4.3 acquisitions and collections management 4.4 serials 4.5 cataloguing 4.6 OPAC services</p> <p>Unit-V Next-Generation library systems</p> <p>1.1 Trends</p>

1.2 Advance features	
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading Material	<p>Bilal, D. (2014). <i>Library automation: Concepts and practical systems analysis</i> (3rd ed.). Santa Barbra, CA: Libraries Unlimited.</p> <p>Breeding, M. (2014). <i>Library Systems Report 2014</i>. American Libraries.</p> <p>Burke, J. J. (2013). <i>The Neal-Schuman library technology companion</i> (4th ed.). ALA Neal-Schuman.</p> <p>Breeding, M. & Yelton, A. (2011). Librarians' assessments of automation systems: survey results, 2007-2010. <i>Library Technology Reports</i>, 47(4).</p> <p>Blowers, H. (2012). Determining if open source is right for you. <i>Computers in Libraries</i>, 32(3). 27-29.</p> <p>Nagy, A. (2011). Analyzing the next-generation catalog. <i>Library Technology Reports</i>, 47(7).</p> <p>Engard, N. C., & Gordon, R. S. (2012). <i>The Accidental systems librarian</i>. Medford, New Jersey: Information Today, Inc.</p> <p>Cibbarelli, P. R. (2010). Helping you buy ils: guide to ILS vendors & products (PDF). <i>Computers in Libraries</i>, 30(1).</p> <p>Rafiq, M. & Ameen, K. (2009). Issues and lessons learned in open source software adoption in Pakistani libraries. <i>The Electronic Library</i>, 27(4), 601-610.</p> <p>Rafiq, M. (2008). Radio Frequency Identification (RFID): Its usage and libraries. In Ramchandran, S. (Ed.), <i>Radio frequency identification in libraries: Concepts and cases</i>. Hyderabad, India: ICFAI University Press. pp. 3-17</p>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Elective I (INFM- 6321 to 6335)

Handwritten mark

SEMESTER IV

Name of the Course	Digital Libraries
Course Code	INFM-6316
Prerequisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To enhance the theoretical knowledge of students about digital libraries' key concepts, challenges, associated issues, design and architecture, DLMS. etc. 2. To enhance the skills of students to do digitization and implement digital library management systems
Contents	<p>Unit-I Introduction</p> <ol style="list-style-type: none"> 1.1 Concepts and key themes 1.2 Historical development 1.3 Collection development <p>Unit-II Digitization</p> <ol style="list-style-type: none"> 2.1 Definition and rationale 2.2 Digitization process 2.3 Technical factors <p>Unit-III Metadata</p> <ol style="list-style-type: none"> 3.1 Introduction, definition, history 3.2 Major types 3.3 Major metadata schemas <p>Unit-IV Digital library management systems</p> <ol style="list-style-type: none"> 4.1 Introduction 4.2 Design and architecture 4.3 Current landscape <p>Unit-V Digital preservation</p> <ol style="list-style-type: none"> 5.1 Definition 5.2 Challenges 5.3 Strategies 5.4 Standards <p>Unit-VI New Developments, issues and challenge</p>
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading Material	<p>Xie, I, & Matusiak, K. K. (2016). <i>Discover digital libraries: Theory and practices</i>. Amsterdam: Elsevier.</p> <p>Calhoun, K. (2014). <i>Exploring digital libraries: Foundations, practice, prospects</i>. London: Facet.</p> <p>Corrado, E. M., & Moulaison, H. L. (2014). <i>Digital preservation for libraries, archives, and museums</i>. Rowman & Littlefield Publishers.</p> <p>Leggett, E. R. (2014). <i>Digitization and digital archiving: A practical guide for librarians</i>. Rowman & Littlefield Publishers.</p> <p>Keathley, E. (2014). <i>Digital asset management: Content architectures, project management, and creating order out of media chaos</i>. Apress.</p> <p>Miller, S. J. (2011). <i>Metadata for digital collections (how-to-do-it manual)</i>. Neal-Schuman Publishers.</p> <p>Rafiq, M. & Ameen, K. (2014). <i>Towards a digitization framework: Pakistani</i></p>

	<p>perspective. <i>Pakistan Journal of Information Management & Libraries</i>, 15(1). 22-29.</p> <p>Ameen, K., & Rafiq, M. (2009). Development of digital libraries in Pakistan. In Y.-L. Theng, S. Foo, D. Goh & J.-C. Na (Eds.), <i>Handbook of research on digital libraries: Design, development, and impact</i> (pp. 482-491). New York: Information Science Reference.</p>
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Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Knowledge Management
Pre-Requisite	Nil
Course Code	INFM-6317
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To understand theory, practice, tools/ techniques of knowledge management. 2. To learn and apply methods of analysis and evaluation of KM solutions 3. To understand the role of KM in organizations and employees in their development of a successful career. 4. To apply appropriate tool for information and knowledge visualization, representation and structuring.
Contents	<p>Unit-I Introduction to Knowledge</p> <ol style="list-style-type: none"> 1.1 Knowledge – opinions and definitions 1.2 Sources; Influence; Intuition 1.3 Knowledge and action <p>Unit-II Knowledge Management Systems</p> <ol style="list-style-type: none"> 2.1 Knowledge management (KM) – definition, motivation, importance 2.2 Knowledge management systems 2.3 Data, Information and knowledge 2.4 Types of knowledge and examples 2.5 Knowledge locations – people, artefacts and organizational entities 2.6 Characteristics of knowledge <p>Unit-III Factors and assessment of KM in organizational setup</p> <ol style="list-style-type: none"> 3.1 Knowledge and innovation 3.2 Knowledge management solutions 3.3 Factors influencing KM 3.4 Assessment of KM in organization
Teaching & Learning Strategies	A combination of lecture, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written Assignment (10 marks), Presentation (5 marks) and Quiz (10 marks)
Recommended Reading Material	<p>Becerra - Fernandez, I.; Gonzales, A.; Sabherwal, R. (2004). <i>Knowledge management: Challenges, solutions, and technologies</i>. Prentice Hall,</p> <p>Becerra - Fernandez, I. Sabherwal, R. (2010.). <i>Knowledge management: Systems and processes</i>. M.E. Sharpe Inc.</p>

Cross, J. (2007). *Informal learning: Rediscovering the natural pathways that inspire innovation and performance*. Pfeiffer.

Malhotra, Y. (2001). *Knowledge management and business model innovation*, Idea Group Publishing.

Malhotra, Y. (2000). *Knowledge management and virtual organization*. Idea Group Publishing.

Schwartz, D.G., (2006) (Ed.). *Encyclopaedia of knowledge management*. Idea Group Inc.

Sheridan, W.P. (2008). *How to think like a knowledge worker: A guide to the mind-set needed to perform competent knowledge work*. Retrieved from:
<http://unpan1.un.org/intradoc/groups/public/documents/unpan/unpan031277.pdf>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Marketing of Library and Information Services
Course Code	INFM-6318
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To understand theoretical and practical aspects of marketing concepts to libraries. 2. To identify specific audiences and target strategies to meet the information needs of the customers. 3. To analyze, select, and position products and services to appeal to specific market segments. 4. To design effective marketing strategies that reflect market segmentation. 5. To apply technology tools and techniques to meet specific communication needs. 6. To describe how public relations activities can be used to build long-term positive relationships between users and libraries.
Contents	<p>Unit-I Understanding the marketing concept</p> <ol style="list-style-type: none"> 1.1 Definition 1.2 Understanding the marketplace and customer needs 1.3 Designing a customer-driven marketing strategy 1.4 Marketing management orientations 1.5 Preparing integrated marketing plan 1.6 Building customer relationships <p>Unit-II Services marketing</p> <ol style="list-style-type: none"> 2.1 Evolution of marketing concept in libraries 2.2 Role of marketing in the 21st-century libraries 2.3 Services marketing mix 2.4 Marketing strategy and market segmentation <p>Unit-III Product and service identification</p>

	<p>3.1 Information as a product 3.2 Planning information products and services for libraries</p> <p>Unit-IV Marketing communication</p> <p>4.1 Advertising 4.2 Sales promotion 4.3 Events and experiences 4.4 Public relations and publicity 4.5 Direct marketing 4.6 Personal selling 4.7 AIDA model of communication</p> <p>Unit-V Environmental scan</p> <p>5.1 Swot analysis 5.2 PESTEL analysis 5.3 Preparing the market plan</p> <p>Unit-VI Marketing audit</p> <p>1.1 Macro environment audit 1.2 Task environment audit 1.3 Marketing productivity audit 1.4 Marketing function audit</p>
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Project (15 marks), presentation (5 marks) and quiz (5 marks)
Recommended Reading Material	<p>Ameen, K. (2006). Marketing of library and information services in Pakistan: A profile. In D. K. Gupta, C. Koontz, A. Massisimo, & R. Savard (Eds.), <i>Marketing library and information services: International perspectives</i> (pp. 111-119). Germany: K. G. Saur Munchen.</p> <p>Ameen, K., & Warraich, N. F. (2007). Role of marketing in the 21st century libraries in Pakistan. <i>Pakistan Journal of Library & Information Science</i>, 38(4), 2-14.</p> <p>Bhatt, R. K. (2011). Relevance of Ranganathan's laws of library science in library marketing. <i>Library Philosophy and Practice</i>. Retrieved from http://unllib.unl.edu/LPP/</p> <p>De Saez, E. E. (2019). <i>Marketing concepts for libraries and information services</i> (3rd ed.). London: Facet Publishing.</p> <p>Gupta, D. K. (2006). Broadening the concept of LIS marketing. In D. K. Gupta, C. Koontz, A. Massisimo, & R. Savard (Eds.), <i>Marketing library and information services: International perspectives</i> (pp. 5-20). Germany: K. G. Saur Munchen.</p> <p>Kotler, P. & Keller, K. L. (2016). <i>A framework for marketing management</i>. Boston: Pearson Education Limited.</p> <p>Kotler, P., & Levy, S. J. (1969). Broadening the concept of marketing. <i>Journal of Marketing</i>, 1: 10-15.</p> <p>Mathews, B. (2009). <i>Marketing today's academic library</i>. Chicago: American Library Association.</p> <p>Rowley, J. (2006). <i>Information marketing</i> (2nd ed.). England: Ashgate Publishing Company.</p> <p>Soroya, S. H., and Ameen, K. (2013). LIS Marketing Approach in</p>

	<p>Libraries: A selected Literature Review. <i>Pakistan Journal of Library and Information Science</i>, 44 (4): 4-17.</p> <p>Weingand, D. E. (1998). <i>Future-driven library marketing</i>. Chicago: American Library Association.</p> <p>Weingand, D. E. (1999). <i>Marketing/planning library and information services</i> (2nd ed.). Englewood, Col.: Libraries Unlimited.</p>
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Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Project, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Application of Information Systems
Course Code	INFM-6319
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To enhance the theoretical knowledge of students about information systems particularly currently used in library and information settings 2. To inculcate the practical skills of students to implement library automation systems and digital library management systems
Contents	<p>Unit-I Introduction to information system</p> <ol style="list-style-type: none"> 1.1 Definition 1.2 Types 1.3 Components <p>Unit-II Organizational IT infrastructure</p> <ol style="list-style-type: none"> 2.1 Components 2.3 Hardware Platform Trends 2.4 Software Platform Trends <p>Unit-III Open source vs. proprietary software</p> <p>Unit-IV Integrated library automation systems</p> <ol style="list-style-type: none"> 4.1 Definition 4.2 Components 4.3 Choices <p>Unit-V Digital Content Management Systems</p> <ol style="list-style-type: none"> 5.1 Definition 5.2 Components 5.3 Choices <p>Unit-VI Information system implementation in knowledge based organization</p> <ol style="list-style-type: none"> 6.1 Institutional repositories 6.2 Digital libraries 6.3 Open archives <p>Unit 7 – Hands-on practice and training</p> <p>Students will implement the systems (LIMS/Koha/Evergreen: DSpace/GSDL; OJS, etc.) and develop prototypes for evaluation by instructor.</p>
Teaching & Learning	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of

Strategies	each class session and actively participate in discussions.
Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading Material	<p>Evans, A., Martin, K., & Poatsy. (2014). <i>Technology in Action</i> (11th ed.). Prentice Hall.</p> <p>Valacich, J. & Schneider, C. (2013). <i>Information systems today: Managing in the digital world</i> (6th ed.). Prentice Hall.</p> <p>Pearlson, K. E., Saunders, C. S. (2012). <i>Managing and using information system</i> (5th ed.). Wiley.</p> <p>Hagg, S., & Cummings, M. (2012). <i>Management information systems for the information</i> (9th ed.). McGraw-Hill/Irwin.</p>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Elective II (INFM- 6321-6335)

23

Practicum: INFM-6320

Name of the Course	Electronic Resources Management
Course Code	INFM-6321
Prerequisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To articulate the particular role that e-resources management plays in the work of the library or information center as a whole. 2. To demonstrate theoretical and practical knowledge of the structures, hardware, and software underlying the provision of access to e-resources, and their interrelatedness. 3. To discuss issues relevant to e-resources management, know where to look in the literature and in other information resources (e.g. websites, discussion lists) to understand them. 4. To summarize and explain each stage of the life cycle of e-resources. 5. To communicate effectively, promptly, and consistently, verbally and in writing, with a broad range of audiences by tailoring the message(s) to the circumstances and to the audience as needed. 6. To demonstrate the evolving relationships among publishers, vendors, Information organizations, and users.
Contents	<p>Unit-I Emergence and entrenchment of electronic resources in libraries</p> <ol style="list-style-type: none"> 1.1 competencies for the electronic resource librarian 1.2 Advantages and disadvantages of electronic resources to librarians and library customers <p>Unit-II The information environment</p> <ol style="list-style-type: none"> 2.1 Digital content providers 2.2 Digital content supply chain <p>Unit-III Identifying and selecting electronic resources</p> <ol style="list-style-type: none"> 3.1 Development of digital formats 3.2 Identifying resources 3.3 Selecting electronic resources 3.4 Trialing the resource <p>Unit-IV Acquiring and licensing electronic resources</p> <ol style="list-style-type: none"> 4.1 Contract basics 4.2 Licensing best practices 4.3 Digital content license provisions <p>Unit-V Providing access to electronic resources</p> <ol style="list-style-type: none"> 5.1 Administrative Module Management 5.2 Customizing services and references 5.3 Proxy servers and authentication <p>Unit-VI Managing access and discovery</p> <ol style="list-style-type: none"> 6.1 Systems 6.2 Standards 6.3 Discovery <p>Unit-VII Preserving electronic resources</p> <ol style="list-style-type: none"> 7.1 Preservation issues 7.2 Preservation initiatives <p>Unit-VIII Scholarly communication</p>

	8.1 Major players in scholarly communication 8.2 Major influences on scholarly communication
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading Material	Jacobs, M. (2008). <i>Electronic resources librarianship and management of digital information: Emerging professional roles</i> . New York: Routledge. Ross, S.V.T., & Sutton, S.W. (2016). <i>Guide to electronic resource management</i> . Santa Barbara, California: Libraries Unlimited. Talboot, H., & Zmau, A. (2018). <i>Electronic resources librarianship: A practical guide for librarians</i> . Lanham: Rowman and Littlefield. Verminski, A., & Blanchat, K. M. (2017). <i>Fundamentals of electronic resource management</i> . Chicago: Neal-Schuman Publishers. Wikoff, K. (2012). <i>Electronics resources management in the academic library: A professional guide</i> . Santa Barbara, California: Libraries Unlimited.

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Advance Cataloguing and Classification
Course Code	INFM-6322
Prerequisite	INFM-6307 & INFM-6311
Credit Hours	3
Objectives	<ol style="list-style-type: none"> To understand the nature of works, expressions, manifestations, and items in the FRBR conceptual model. To demonstrate organization of information in terms of Internet, the web and digital libraries. To describe tools and techniques and advantages and disadvantages of various approaches to organizing information.
Contents	Unit-I Metadata: Description 1.1 Bibliographic and general metadata schemes 1.2 Domain specific metadata schemes Unit-II Metadata: Access and authority control 2.1 Models and standards for authority control 2.2 Standards for archives 2.3 Standards for art and museums Unit-III Systems for categorization 3.1 Theory of categorization 3.2 Bibliographic classification 3.3 Classification concepts 3.4 System for categorization and the Internet

	<p>Unit-IV Organization of internet information resources 4.1 Classification of non-print and electronic resources 4.2 New tools and standards for managing internet information</p> <p>Unit- V Subject Analysis 5.1 Challenges in subject analysis 5.2 Conceptual analysis process 5.3 Stages in aboutness determination</p> <p>Unit-VI Subject heading lists and thesauri in information organization 6.1 Vocabulary control tools 6.2 Subject heading lists and thesauri</p>
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Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
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Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
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Recommended Reading Material	<p>American Library Association. (2005). <i>Anglo-American cataloguing rules</i>. Chicago: ALA.</p> <p>Chan, L. M. (2005). <i>Library of Congress subject headings: Principles and application</i>. Westport, Conn.: Libraries Unlimited</p> <p>Fritz, D. A. (2006). <i>Cataloging with AACR2R & USMARC: For books, computer files, serials, sound recordings, video recordings</i>. Chicago: American Library Association.</p> <p>Hider, P. (2012). <i>Information resource description: Creating and managing metadata</i>. London: Facet Publishing.</p> <p>Maxwell, R. (2013). <i>Maxwell's handbook for RDA, resource description & access: Explaining and illustrating RDA: resource description and access using MARC21</i>. Chicago: ALA Editions.</p> <p>Mitchell, Anne M.. & Surratt, B. E. (2005). <i>Cataloging and organizing digital resources</i>. London: Facet Publishing.</p>
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Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Scientific and Technical Information Sources
Course Code	INFM-6323
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> To identify the basic form of sources in science and technology To describe the basic form of communication and scholarship in science & technology. To know the basic information needs and information seeking behaviour of scientists & IT professionals. To learn the selection criteria, quality indicators and evaluation of science and technology information sources. To learn the overall management of science & technology information sources and services.
Contents	Unit-I Science and technology

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	<p>1.1 Understanding of the discipline 1.2 Characteristics 1.3 Applications</p> <p>Unit-II Scholarship in science & technology 2.1 Publication process 2.2 Types</p> <p>Unit-III Information seeking 3.1 Assessing information needs 3.2 Information seeking of scientists 3.3 Information seeking of IT professionals</p> <p>Unit-IV Collection management 4.1 Selection tools 4.2 Selection criteria 4.3 Evaluation</p> <p>Unit-V Information resources and services 5.1 Types and tools 5.2 Specific services 5.2 Marketing and promotion</p> <p>Unit-VI SciTech librarian 6.1 Competencies 6.2 Roles</p>
Teaching & Learning Strategies	A combination of lecturing, presentations, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions and practical work.
Assignments	Written assignment about resources (10 marks) and quiz (15 marks)
Recommended Reading Material	<p>Besnoy, A. (Ed.). (2018). <i>Emerging practices in science and technology librarianship</i>. London: Routledge.</p> <p>Bobick, J. E., & Berard, G. L. (2011). <i>Science and technology resources: A guide for information professionals and researchers</i>. Santa Barbara: Libraries Unlimited.</p> <p>Haines, L. L., Light, J., O'Malley, D., & Delwiche, F. A. (2010). Information seeking behavior of basic science researchers: Implications for library services. <i>Journal of the Medical Library Association (JMLA)</i>, 98(1), 1-9.</p> <p>Hurt, C. D. (1988). <i>Information sources in science and technology</i>. Englewood: Libraries Unlimited.</p> <p>Lankes, R. D. (2016). <i>The new librarianship field guide</i>. Cambridge: MIT Press.</p> <p>Mitchell, V. S. (2004). <i>The top ten things a new sci/tech librarian should know: Developing competencies</i>. Retrieved from: http://www.istl.org/04-winter/conf1.html</p> <p>Mount, E., & Kovacs, B. (1991). <i>Using science and technology information sources</i>. Phoenix: Oryx Press.</p> <p>Steinke, C. A. (1990). <i>Electronic information systems in sci-tech libraries</i>. New York: Haworth Press.</p> <p>Steinke, C. A. (1993). <i>Instruction for information access in sci-tech libraries</i>. New York: Haworth Press.</p> <p>Steinke, C. A. (2013). <i>Information seeking and communicating behavior of scientists and engineers</i>. New York: Haworth Press.</p> <p>Subramanyam, K., & Subramanyam, K. (1981). <i>Scientific and technical</i></p>

information resources. New York: M. Dekker.
Tucci, V. (2011). Assessing information-seeking behavior of computer science and engineering faculty. *Issues in Science and Technology Librarianship (e-journal)*, 1-18.

Name of the Course	Humanities and Social Sciences Information Sources
Course Code	INFM-6324
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To identify the basic form of sources in humanities and social sciences. 2. To describe the basic form of communication and scholarship in humanities and social sciences. 3. To know the basic information needs and information seeking behaviour of humanist and social scientists. 4. To learn the selection criteria, quality indicators and evaluation of humanities and social sciences information sources. 5. To learn the overall management of humanities and social sciences information sources and services.
Contents	<p>Unit-I Humanities and social sciences</p> <ol style="list-style-type: none"> 1.1 Understanding of the discipline 1.2 Characteristics 1.3 Applications <p>Unit-II Scholarship in humanities and social sciences</p> <ol style="list-style-type: none"> 2.1 Publication process 2.2 Types <p>Unit-III Information seeking</p> <ol style="list-style-type: none"> 3.1 Assessing information needs 3.2 Information seeking of humanists 3.3 Information seeking of social scientists <p>Unit-IV Collection management</p> <ol style="list-style-type: none"> 4.1 Selection tools 4.2 Selection criteria 4.3 Evaluation <p>Unit-V Information resources and services</p> <ol style="list-style-type: none"> 5.1 Types and tools 5.2 Specific services 5.2 Marketing and promotion <p>Unit-VI Humanist and social science librarian</p> <ol style="list-style-type: none"> 6.1 Competencies 6.2 Roles
Teaching & Learning Strategies	A combination of lecturing, presentations, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written assignment of resources (10 marks) and quiz (15 marks)
Recommended Reading Material	Agrawal, S. (1991). Appropriation of national social science information resources in developing countries. <i>INSPEL</i> , 25(4), 246-252. Line, M.B., Brittain, J. M., & Cranme, F.A. (1971). <i>Investigation into</i>

information requirements of the social sciences. Bath: Bath University Library.

Luo, R. (2008). Constructing humanistic library and harmonious campus. *International Education Studies*, 1(2), 89-91.

Millson-Martula, C., & Gunn, K. B. (Eds.). (2018). *The digital humanities: Implications for librarians, libraries, and librarianship*. London: Routledge.

Witt, S. W., & Rudasill, L. M. (Eds.). (2010). *Social science libraries: Interdisciplinary collections, services, networks*. New York: Walter de Gruyter.

Woolwine, D. (2014). Collection development in the humanities and social sciences in a transitional age: Deaccession of print items. *Library Philosophy and Practice (e-journal)*, 1-40.

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Personal Information and Knowledge Management
Course Code	INFM-6325
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To discuss concepts of personal information and knowledge management. 2. To describe tools and strategies used for personal information management. 3. To demonstrate the value of knowledge management in the knowledge society.
Contents	<p>Unit I Understanding personal information management</p> <ol style="list-style-type: none"> 1.1 The information item and its form 1.2 Personal information collections 1.3 Definitions of personal information management 1.4 The meta-level and the mapping between needs and information <p>Unit II Finding personal information behavior</p> <ol style="list-style-type: none"> 2.1 Factors affecting finding information 2.2 Factors affecting re-finding information <p>Unit-III People keeping and organizing personal information</p> <ol style="list-style-type: none"> 3.1 Key points about keeping and organizing 3.2 Importance of keeping and organizing <p>Unit-IV Search everything</p> <ol style="list-style-type: none"> 4.1 Importance of searching 4.2 Basic issues, problems and challenges 4.3 The giant shift in search interfaces 4.4 Two approaches to personal search: Scoping and broadening <p>Unit-V Everything through E-mail</p> <ol style="list-style-type: none"> 5.1 Email activities and their relation to finding, management and keeping aspects of PIM

	5.2 Understanding email tasks 5.3 Organizing messages into folders 5.4 Techniques to support PIM in email
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading	Hawkins, D. T. (Ed.). (2013). <i>Personal archiving: Preserving our digital heritage</i> . Medford, NJ: Information Today, Incorporated. Jones, W. (2007). <i>Keeping found things found: The study and practice of personal information management</i> . San Francisco, CA: Morgan Kaufmann. Jones, W., & Teevan, J. (Eds.). (2007). <i>Personal Information Management</i> . Seattle, WA: The University of Washington Press. Jones, W. (2012). <i>The future of personal information management: Part I: Our Information, always and forever</i> . San Rafael, California: Morgan & Claypool Publishers. Jones, W. (2013). <i>Transforming technologies to manage our information: The future of personal information management, part 2</i> . San Rafael, California: Morgan & Claypool Publishers. Jones, W., Wenning, A., & Bruce, H. (2014). <i>How do people re-find files, emails and web pages?</i> Retrieved from: https://www.ideals.illinois.edu/handle/2142/47300 Pauleen, D. M., & Gorman, G. (Eds.). (2011). <i>Personal knowledge management: Individual, organizational and social perspectives</i> . Surrey: Gower.

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Semantic Web and Linked Data Technologies
Course Code	INFM-6326
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> To develop basic understanding of linked data technologies in libraries and information centre perspective To understand the processes to apply LD and semantic web technologies To recognize the challenges and benefits of LD technology applications in libraries
Contents	Unit-I Introducing linked data 1.1 Introduction to linked data Unit-II Linked data technologies and principles 2.1 Linked data technologies and principles 2.2 Web of document to web of data 2.3 Resource Description Framework (RDF) and RDF triples Unit-III Building blocks of linked open data in libraries



	<p>3.1 Building blocks of linked open data in libraries</p> <p>3.2 W3C library linked data incubator group</p> <p>Unit-IV Application of linked data in different environments</p> <p>3.1 Linked data initiatives and application in cultural heritage institutes</p> <p>3.2 Future of bibliographic standards in linked data environment</p> <p>Unit-V Benefits and issues of LD technology applications</p> <p>5.1 Challenges and benefits of LD technology applications</p> <p>5.2 Issues and opportunities</p> <p>5.3 Trends in metadata</p>
Teaching & Learning Strategies	A combination of lecture, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written Assignment (10 marks), Presentation (5 marks) and Quiz (10 marks)
Recommended Reading Material	<p>Alemu, G., Stevens, B., Ross, P., & Chandler, J. (2012). Linked Data for libraries: Benefits of a conceptual shift from library-specific record structures to RDF-based data models. <i>New library world</i>, 113(11/12), 549-570.</p> <p>Ali, I., & Warraich, N. F. (2018). Linked data initiatives in libraries and information centres: a systematic review. <i>The Electronic Library</i>, 36(5), 925-937.</p> <p>Bauer, F., & Kaltenböck, M. (2011). <i>Linked open data: The essentials</i>. mono/monochrom. Vienna, Austria.</p> <p>Bizer, C., Heath, T., & Berners-Lee, T. (2011). Linked data: The story so far. In <i>Semantic services, interoperability and web applications: emerging concepts</i> (pp. 205-227). IGI Global.</p> <p>Bowen, J. B. (2010, September). Moving library metadata toward linked data: Opportunities provided by the eXtensible catalog. In <i>International Conference on Dublin and Metadata Applications</i> (pp. 44-59).</p> <p>Godby, C. J., Wang, S., & Mixer, J. K. (2015). Library linked data in the cloud: OCLC's experiments with new models of resource description. <i>Synthesis Lectures on the Semantic Web: Theory and Technology</i>, 5(2), 1-154.</p> <p>Cole, T. W., & M.-J. Han, et al. (2013). Library Marc Records into Linked Open Data: Challenges and Opportunities. <i>Journal of Library Metadata</i>, 13(2-3): 163-196.</p> <p>Van Hooland, S., & Verborgh, R. (2014). <i>Linked Data for Libraries, Archives and Museums: How to clean, link and publish your metadata</i>. Facet publishing.</p> <p>Mitchell, E. T. (2013). <i>Library linked data: Research and adoption</i> (Vol. 49). American Library Association.</p> <p>Warraich, N. F., & Rorissa, A. (2018). Adoption of linked data technologies among university librarians in Pakistan: Challenges and prospects. <i>Malaysian Journal of Library & Information Science</i>, 23(3), 1-13.</p>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

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Name of the Course	School Library Media Center
Course Code	INFM-6327
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To identify basic role of school media information professionals 2. To get basic understanding about school library media center role 3. To know about different school media library information sources 4. To learn best practices to organize & manage school library media centers 5. To learn to run school media library information literacy programs
Contents	<p>Unit-I School library media center</p> <ol style="list-style-type: none"> 1.4 Concept and objectives 1.5 Role of school library media centre in education 1.6 Services <p>Unit-II Assessing users' needs</p> <ol style="list-style-type: none"> 2.1 Students 2.2 Teachers 2.3 Parents <p>Unit-III Information literacy instruction</p> <ol style="list-style-type: none"> 3.1 Techniques 3.2 Assessments <p>Unit-IV Media center librarian</p> <ol style="list-style-type: none"> 4.1 Roles and responsibilities 4.2 Role of a teacher librarian 4.3 Mediating role <p>Unit-V Resources and services</p> <ol style="list-style-type: none"> 5.1 Types and tools 5.2 Marketing and promotion <p>Unit-VI Managing a school library and its program</p> <ol style="list-style-type: none"> 6.1 Planning, organizing, staffing, budgeting, implementing, and evaluating schools library-media programs 6.2 Creating an inviting space for students 6.3 Successfully running information literacy programs
Teaching & Learning Strategies	A combination of lecturing, presentations, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions and practical work.
Assignments	School library presentation (10 marks) and quiz (15 marks)
Recommended Reading Material	<p>American Association of School Librarians. (2009). <i>Empowering learners: Guidelines for school library media programs</i>. Chicago: American Association of School Librarians.</p> <p>Erikson. R., &Markuson. C. B. (2007). <i>Designing a school library media center for the future</i>. Chicago: ALA.</p> <p>Moorefield-Lang. H. (Ed.). (2018). <i>School library makerspaces in action</i>. Santa Barbara: Libraries Unlimited.</p> <p>Tilke, A. (2002). <i>Managing your school library and information service: A practical handbook</i>. London: Facet Publishing.</p> <p>Weisburg, H. K., &Toor, R. (2014). <i>New on the job: A school librarian's guide to success</i>. Chicago: American Library Association.</p>

	Woolls, B., &Coatney. S. (2017). <i>The school library manager: Surviving and thriving</i> . Santa Barbara: Libraries Unlimited.
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Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Media Information Management
Course Code	INFM-6328
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To Identify the components of a strategic media. electronic media and social media and information sources. 2. To manage and organize (classify) media content effectively and efficiently. 3. To get basic understanding about getting authentic media content. 4. To practically learn how to preserve and archive media information for fast retrieval. 5. To learn new technologies to manage & organize media information
Contents	<p>Unit-I Introduction</p> <ol style="list-style-type: none"> 1.1 Introduction to media 1.2 Introduction to types of media <p>Unit-II The evolution of traditional to new media</p> <ol style="list-style-type: none"> 2.1 Traditional media 2.2 New media <p>Unit-III Media literacy</p> <ol style="list-style-type: none"> 3.1 Introduction 3.2 Tools & functions <p>Unit-IV Media librarianship</p> <ol style="list-style-type: none"> 4.1 Roles 4.2 Collection management 4.3 Software application 4.4 Range of media information resources 4.5 Bibliographic description & organization 4.6 Retrieval, storage 4.7 Copyright 4.8 User services <p>Unit-V News databases and archives</p> <ol style="list-style-type: none"> 5.1 Introduction 5.2 Legal issues 5.3 Services and marketing 5.4 Use of ICTs to manage media information content
Teaching & Learning Strategies	A combination of lecturing, presentations, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions and practical work.
Assignments	Practical work and Presentation (10 marks) and quiz (15 marks)
Recommended	Bilal, D. (2002). <i>Automating media centers and small libraries: A</i>

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Reading Material	<p><i>microcomputer-based approach</i>. Colorado: Libraries Unlimited.</p> <p>Leaning, M. (2017). <i>Media and information literacy: An integrated approach for the 21st century</i>. Cambridge: Chandos Publishing.</p> <p>Reese, T., & Banerjee, K. (2008). <i>Building digital libraries: a how-to-do-it manual</i>. Chicago: Neal-Schuman Publishers.</p> <p>Schopflin, K. (Ed.). (2008). <i>A handbook for media librarians</i>. London: Facet.</p> <p>Semonche, B. P. (Ed.). (1993). <i>News media libraries: A management handbook</i>. London: Greenwood Pub Group.</p> <p>Smith, D. (2018). <i>Growing your library career with social media</i>. Cambridge: Chandos Publishing.</p> <p>Teague, S. J. (2013). <i>Microform, video and electronic media librarianship</i>. Kent: Elsevier.</p> <p>Urs, S. R., Na, J. C., & Buchanan, G. (Ed.). (2013). <i>Digital libraries: Social media and community networks</i>. Cham: Springer.</p>
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Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Research Data Management
Course Code	INFM-6329
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> To enhance the theoretical knowledge of students about RDM's key concepts, components, models, and best practices. To enhance the skills of students to manage RDM initiatives and services.
Contents	<p>Unit-I Research data management</p> <ol style="list-style-type: none"> Data Why manage data? Data policy compliance <p>Unit-II Research data life cycle</p> <ol style="list-style-type: none"> Introduction to different models of research data life cycles DCC research data life cycle <p>Unit-III Research data management: Planning and implementation</p> <ol style="list-style-type: none"> Policies Principles Requirements Trends Storing Moving <p>Unit-IV Publishing and sharing data</p> <ol style="list-style-type: none"> Publishing Sharing Data repositories <p>Unit-V Roles and responsibilities: Institutions, libraries, and librarians</p> <ol style="list-style-type: none"> Models of RDM Role of institutions

	5.3 Role of information professionals 5.4 Role of information centers
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading Material	Corti, L., Van den Eynden, V., Bishop, L., & Woollard, M. (2019). <i>Managing and sharing research data: A guide to good practice</i> . SAGE Publications Limited. Pryor, G., Jones, S., & Whyte, A. (Eds.). (2013). <i>Delivering research data management services: Fundamentals of good practice</i> . Facet Publishing. Pryor, G. (Ed.). (2012). <i>Managing research data</i> . Facet Publishing. Strasser, C., Cook, R., Michener, W., & Budden, A. (n.d.). <i>Primer on Data Management: What you always wanted to know</i> . Retrieved from: www.dataone.org Corti, L., Eynden, V. Van den, Bishop, L., & Woollard, M. (2014). <i>Managing and sharing research data: A guide to good practice</i> . Retrieved from http://www.sagepub.com/sites/default/files/upm-binaries/61019 Corti Managing and sharing research data.pdf

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Information Usability Analysis and Assessment
Course Code	INFM-6330
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> To describe the usability, usefulness, and acceptability of interactive information systems. To demonstrate diverse evaluation methods for specific goals and types of systems.
Contents	<p>Unit-I Introduction to information users and usability</p> <ol style="list-style-type: none"> Information users Users in the web environment User studies Human information behaviour <p>Unit-II Information needs and user studies</p> <ol style="list-style-type: none"> Analysis of information needs Factors affecting information needs User study methods <p>Unit-III Human information behavior studies and models</p> <ol style="list-style-type: none"> Information seeking and retrieval Models in human information behavior and information seeking and retrieval Information seeking on the web <p>Unit-IV Usability study basics</p>

	<p>4.1 Introduction of usability 4.2 How to conduct a usability</p> <p>Unit-V Usability study participants 5.1 Selection of study participants 5.2 Challenges when selecting study participants</p> <p>Unit-VI Web usability 6.1 User-centered design and accessibility issues 6.2 Web usability and accessibility</p> <p>Unit-VII The usability of digital libraries 7.1 Approaches to digital library usability studies 7.2 Usability factors in digital libraries</p> <p>Unit-VIII Issues and trends in usability research 8.1 Usability methods and techniques 8.2 External factors affecting usability</p>
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended Reading Material	<p>Albert. W., &Tullis. T. (2013). <i>Measuring the user experience: Collecting, Analyzing, and presenting usability metrics (Interactive Technologies)</i> (2nd ed.). San Francisco: Morgan Kaufmann.</p> <p>Chowdhury, G. G., & Chowdhury, S. (2011). <i>Information users and usability in the digital age</i>. London: Facet Publishing.</p> <p>Goodman, E., Kuniavsky, M., &Moed, A. (2012). <i>Observing the User Experience: A Practitioner's Guide to User Research</i> (2nd ed.). San Francisco: Morgan Kaufmann.</p> <p>Rubin, J. &Chisnell, D. (2008). <i>Handbook of usability testing: How to plan, design, and conduct effective tests</i> (2nd ed.). Indianapolis: Wiley.</p>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Scientometrics
Course Code	INFM-6331
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> To understand the role and procedure of analysis of informational dimensions of science. To explore cooperative and social relationships in science. To learn evaluating scientific performance. To develop an understanding of scientific impact of publications.
Contents	<p>Unit-I Introduction to Scientometrics</p> <p>1.1 Context 1.2 Evolution of the concept 1.3 Definition 1.4 Scope</p>

24

	<p>Unit-II Scientometrics indices: Types</p> <p>2.1 Quantitative 2.2 Qualitative 2.3 Quantitative-qualitative indices</p> <p>Unit-III Scientometrics indices</p> <p>3.1 Scientific productivity 3.2 Citations 3.3 Immediacy index 3.4 Cited half life 3.5 Highly cited 3.6 Citation per paper 3.7 H-Index 3.8 M-Index 3.9 G-Index 3.10 Journal Impact Factor 3.11 Journal Citation Reports 3.12 Cites. 3.13 SNIP 3.14 SJR</p> <p>Unit-IV Scientometrics tools</p> <p>4.1 Authormap 4.2 Bibcouple 4.3 Citespace 4.4 Fulltext 4.5 HitCite 4.6 VOSviewer</p> <p>Unit-V Citation databases</p> <p>5.1 ISI Web of Knowledge 5.2 Scopus 5.3 Google Scholar</p> <p>Unit-VI Citation analysis & Scientometrics reports</p> <p>6.1 SciVal 6.2 FWCI 6.3 Altmetrics</p> <p>Unit-VII Researcher profiles services</p> <p>7.1 ORCID 7.2 Scopus Author ID 7.3 ResearcherID 7.4 Google Citation Service</p> <p>Unit-VIII Related concepts</p> <p>8.1 Crown indicators 8.2 Common Scientometrics indexes</p>
Teaching & Learning Strategies	A combination of lecturing, presentations, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions and practical work.
Assignments	Project and Presentation (15 marks) and quiz (10 marks)
Recommended Reading Material	Cairo, A. (2012). <i>The functional art: An introduction to information graphics and visualization</i> . Berkeley: New Riders. Few, S. (2009). <i>Now you see it: Simple visualization techniques for</i>

quantitative analysis. Oakland: Analytics Press.

Heer, J., Card, S. K., & Landay, J. A. (2005). *Prefuse: A toolkit for interactive information visualization*. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 421-430). ACM.

Herman, I., Melancon, G., & Marshall, M. S. (2000). *Graph visualisation in information visualisation. A survey*. In *Proceedings of Eurographics* (pp. 24-44). IEEE Transactions on Visualization and Computer Graphics.

Kerren, A., Stasko, J., Fekete, J. D., & North, C. (Eds.). (2008). *Information visualization: Human-centered issues and perspectives*. New York: Springer.

Spence, R. (2001). *Information visualization*. New York: Addison-Wesley.

Tufte, E. R. (2001). *The visual display of quantitative information*. Cheshire, CT: Graphics Press.

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Information Visualization
Course Code	INFM-6332
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To present information in an understandable, efficient, effective, and aesthetic manner. 2. To learn best design practices for information visualization. 3. To get basic understanding about information visualization steps including data selection, presentation, representation and interaction. 4. To practically implement data visualization application on different data sets. 5. To learn new technologies to handle big data.
Contents	<p>Unit-I Information visualization</p> <ol style="list-style-type: none"> 1.1 Introduction & definition 1.2 Functions and benefits <p>Unit-II Data abstraction</p> <ol style="list-style-type: none"> 2.1 Methods & techniques 2.2 Critical visualization <p>Unit-III Designing visualization</p> <ol style="list-style-type: none"> 3.1 Application 3.2 Methods 3.3 Arranging tables & spatial data 3.4 Arranging networks and tress

	<p>Unit-IV Handling big data 4.1 Techniques & methods 4.2 Effective ways</p> <p>Unit-V Text and document visualization 5.1 Introduction 5.2 Techniques & methods 5.3 Narrative visualization 5.4 Small/large displays</p> <p>Unit-VI Visualization software 6.1 Introduction 6.2 Types 6.3 Application</p> <p>Unit-VII Multidimensional data and graphical perception 7.1 Introduction 7.2 Handling 7.3 Functions</p>
Teaching & Learning Strategies	A combination of lecturing, presentations, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions and practical work.
Assignments	Project and Presentation (15 marks) and quiz (10 marks)
Recommended Reading Material	<p>Cairo, A. (2012). <i>The functional art: An introduction to information graphics and visualization</i>. Berkeley: New Riders.</p> <p>Few, S. (2009). <i>Now you see it: Simple visualization techniques for quantitative analysis</i>. Oakland: Analytics Press.</p> <p>Heer, J., Card, S. K., & Landay, J. A. (2005). <i>Prefuse: A toolkit for interactive information visualization</i>. In <i>Proceedings of the SIGCHI Conference on Human Factors in Computing Systems</i> (pp. 421-430). ACM.</p> <p>Herman, I., Melancon, G., & Marshall, M. S. (2000). <i>Graph visualisation in information visualization. A survey</i>. In <i>Proceedings of Eurographics</i> (pp. 24-44). IEEE Transactions on Visualization and Computer Graphics.</p> <p>Kerren, A., Stasko, J., Fekete, J. D., & North, C. (Eds.). (2008). <i>Information visualization: Human-centered issues and perspectives</i>. New York: Springer.</p> <p>Spence, R. (2001). <i>Information visualization</i>. New York: Addison-Wesley.</p> <p>Tufte, E. R. (2001). <i>The visual display of quantitative information</i>. Cheshire, CT: Graphics Press.</p>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Informatics
Course Code	INFM-6333
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. Analyse and find alternative solutions to problems 2. Identify measures of system performance 3. Develop the ability to combine pieces of information and to formulate general rules while keeping one step ahead with new trends in the field
Contents	<p>Unit-I Evolution of informatics</p> <ol style="list-style-type: none"> 1.1 The nature of information, from information to informatics 1.2 What is information? 1.3 What is technology and information technology <p>Unit-II Managing human technology interactions</p> <ol style="list-style-type: none"> 2.1 How information contours decisions and experiences? 2.2 How to design information technology to provide equitable access to information 2.3 Human computer interaction <p>Unit-III Application of informatics in different fields</p> <ol style="list-style-type: none"> 3.1 Informatics application in other fields 3.2 Health informatics 3.3 Biological informatics 3.4 Environmental informatics 3.5 Social informatics 3.6 Community informatics
Teaching & Learning Strategies	A combination of lecture, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written Assignment (10 marks), Presentation (5 marks) and Quiz (10 marks)
Recommended Reading Material	<p>Berleur, J., Nurminen, M. I., & Impagliazzo, J. (2006). Social informatics: An information society for all. <i>Remembrance of Rob Kling</i>, 223, 4962.</p> <p>Beynon-Davies, P. (2002). <i>Information systems: An introduction to informatics in organisations</i>. Palgrave Macmillan.</p> <p>Cervone, H. F. (2016). Informatics and data science: an overview for the information professional. <i>Digital Library Perspectives</i>, 32(1), 7-10.</p> <p>Coiera, E. (2015). <i>Guide to health informatics</i>. CRC press.</p> <p>Vijayakumaran Nair K. & Vinod Chandra S.S (2014). <i>Informatics</i>, PHI</p> <p>Yatsko, A., & Suslow, W. (2015). <i>Insight into theoretical and applied informatics: Introduction to information technologies and computer science</i>. Walter de Gruyter GmbH & Co KG.</p> <p>Yatsko, V. A. (2018). Informatics, information science, and computer science. <i>Scientific and Technical Information Processing</i>, 45(4), 235-240.</p>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Data Science
Course Code	INFM-6334
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To understand the field of data science 2. To know the basic principles and tools of data science. 3. To become familiar with the process of data science including different stages of the work. 4. To introduce some of the programming languages being used in data science process
Contents	<p>Unit-I Introduction to data science</p> <ol style="list-style-type: none"> 1.1 Introduction to data science 1.2 Process of data science <p>Unit-II Processes of data science</p> <ol style="list-style-type: none"> 2.1 Covering framing problem 2.2 Data wrangling 2.3 Exploratory analysis 2.4 Data Modelling 2.5 Communicating results 2.6 Operationalize results <p>Unit-II Programming languages used in data science</p> <ol style="list-style-type: none"> 2.1 Programing languages 2.2 Types of languages used <p>Unit-III Ethical framework for data science</p> <ol style="list-style-type: none"> 3.1 Data Science and ethical issues (privacy, security and ethics) 3.2 Data Science applications and job trends
Teaching & Learning Strategies	A combination of lecture, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written Assignment (10 marks), Presentation (5 marks) and Quiz (10 marks)
Recommended Reading Material	<p>Cady, F. (2017). <i>The data science handbook</i>. New Jersey: Wiley and Sons.</p> <p>Janssens, Jeroen. (2015). <i>Data science at the command line</i>. Beijing: O'Really.</p> <p>Jeffrey S. S., & Jeffrey, M. S. (2017). <i>An introduction to data science</i>. SAGE Publications</p> <p>Saltz, J. S., & Stanton, J. M. (2017). <i>An introduction to data science</i>. SAGE Publications.</p> <p>Irizarry, R. A. (2019). <i>Introduction to data science: Data analysis and prediction algorithms with R</i>. CRC Press.</p> <p>Schutt, R., & O'Neil, C. (2013). <i>Doing data science: Straight talk from the frontline</i>. O'Reilly Media, Inc.</p>

Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)

Name of the Course	Human Information Behavior
Course Code	INFM-6335
Pre-Requisite	Nil
Credit Hours	3
Objectives	<ol style="list-style-type: none"> 1. To demonstrate an understanding of the theoretical foundations of human information behavior. 2. To understand human information behavior in a variety of contexts. 3. To be able to think critically and reflectively about human information behavior. 4. To demonstrate the ability to work collaboratively. 5. To apply concepts and research findings from human information behavior to a variety of library and information service settings, as well as to other aspects of life.
Contents	<p>Unit-I Introduction to information behavior</p> <ol style="list-style-type: none"> 1.1 Nature of information and knowledge 1.2 Components of information behavior 1.3 Types and characteristics of information use and users <p>Unit-II Models and theories of information behavior</p> <ol style="list-style-type: none"> 2.1 Wilson's model of information behavior 2.2 Kuhlthau's Information search process 2.3 Anomalous state of knowledge 2.4 Sensemaking theory 2.5 Information encountering 2.6 Ellis's model of information seeking behavior <p>Unit-III Contexts of information seeking</p> <ol style="list-style-type: none"> 3.1 Academic context 3.2 Socio-cultural context 3.3 Digital context <p>Unit-IV Factors influencing information behavior</p> <ol style="list-style-type: none"> 4.1 Internal factors 4.2 External factors 4.3 Relationship between internal and external factors <p>Unit-V Collaborative information behavior</p> <ol style="list-style-type: none"> 5.1 Definition 5.2 Characteristics 5.3 Challenges <p>Unit-VI Related concepts</p> <ol style="list-style-type: none"> 6.1 Information access, dissemination and use 6.2 Browsing, scanning, and serendipity 6.3 Relevance in information retrieval 6.4 Avoiding information 6.5 Information technology and information behavior
Teaching & Learning Strategies	A combination of lecturing, class participation, and discussions will be used to conduct the course. Students will be expected to read extensively ahead of each class session and actively participate in discussions.
Assignments	Written assignment (10 marks), presentation (5 marks) and quiz (10 marks)
Recommended	Al-Suqri, M. N. (2015). <i>Information seeking behavior and technology</i>

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Reading Material	<p><i>adoption: Theories and trends</i>. Hershey: Information Science Reference.</p> <p>Case, D. O. & Given, L. M. (2016). <i>Looking for information: A survey of research on information seeking, needs, and behavior</i> (4th ed.). San Diego: Emerald Group Publishing Limited.</p> <p>Chelton, M. K., & Cool, C. (2006). <i>Youth information-seeking behavior II: Context, theories, models, and issues Volume 2</i>. Lanham, MD: Scarecrow Press.</p> <p>Fidel, R. (2012). <i>Human information interaction: An ecological approach to information behavior</i>. England: The MIT Press.</p> <p>Fisher, K. E., Erdelez, S., & McKechnie, L. (2005). <i>Theories of information behavior</i>. Medford, NJ: Information Today.</p> <p>Ford, N. (2015). <i>Introduction to information behavior</i>. London: Facet Publishing</p> <p>Hansen, P. & Jarvelin, K (2005). Collaborative information retrieval in an information-intensive domain. <i>Information Processing and Management</i>, 41:1101-1119.</p> <p>Pettigrew, K. E., Fidel, R., & Bruce, H. (2002). Conceptual models in information behavior research. In M. Williams (Ed.), <i>Annual Review of Information Science and Technology</i> (Vol. 55, pp. 249-270). Medford, NJ: Information Today.</p>
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Assessment and Examinations:

Sr.#	Elements	Weightage	Details
1	Midterm Assessment	30%	Written test (at the mid-point of the semester)
2	Formative Assessment	20%	Assignment, presentation and quiz
3	Final Assessment	50%	Written test (at the end of the semester)


Chairman
 Department of information management
 University of Sargodha