DSE 4b

Print and Electronic Sources and Literature in Natural Sciences

60 Hours
(45hrs Lect. + 15hrs Tut.)

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-Requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE 4b: Print and Electronic Sources and Literature in Natural Sciences	4	3	1	0	**BLISc**	**-**

Course Objectives

This course explores the historical evolution and scholarly communication landscape of the natural sciences. Students will analyze the specialized information-seeking behaviors of scientists, evaluate the credibility of primary and technical resources, and master the use of global databases, subject gateways, and consortia to support research in the physical and biological sciences.

Learning Outcomes

After completing this course, students will be able to:

- ☞ Understand the historical development, scope, and trends of research in natural sciences.
- ☞ Analyze the information needs and information-seeking behaviour of users in natural sciences.
- ☞ Evaluate and utilize print, electronic, and tertiary sources for research and study in natural sciences.
- ☞ Identify and access relevant databases, consortia, and internet resources; recognize contributions of institutions and eminent scientists.

UNIT I: Historical Development and Scope 12 Hours

- Historical Development of Natural Sciences Literature
- Scope of the Discipline: Physical Sciences and Biological Sciences
- Research Trends and Emerging Areas in Natural Sciences
- Evolution of Scientific Communication and Publications

UNIT II: User Studies and Information-Seeking Behaviour 12 Hours

- Understanding Information Needs of Researchers and Students
- Information-Seeking Behaviour in Natural Sciences
- Importance, Objectives, and Types of User Studies
- Planning and Conducting User Surveys
- Methods and Strategies for Effective User Services

UNIT III: Information Sources and Evaluation 11 Hours

- Primary, Secondary, and Tertiary Sources of Information in Natural Sciences
- Evaluation of Secondary Sources: Print vs Electronic Resources
- Scientific Journals, Monographs, Conference Proceedings, Technical Reports
- Use of Bibliographies, Indexes, Abstracts, and Review Literature
- Criteria for Evaluating Quality, Relevance, and Credibility

UNIT IV: Databases, Internet Services and Institutional Contributions 10 Hours

- Networked and Distributed Databases in Natural Sciences
- Consortia, Subject Gateways, and Federated Search
- Internet Resources, E-Journals, and Digital Libraries
- Role of Research Institutions and Professional Organizations in India, UK, and USA
- Contributions of Prominent Physical and Biological Scientists

Essential Readings

- AMERICAN CHEMICAL SOCIETY. Searching the chemical literature. Washington, American Chemical Society. 1979.
- BERNAL (JD). Social function of science. Cambridge, MIT Press. 1964.

- BROWN (CH). Scientific serials. Chicago, Association of College and Research Libraries. 1956.
- LANCASTER (FW) and FAYEN (EG). Information retrieval systems: Theory and practice. 2nd ed. San Diego, Academic Press. 2012.
- MOSER (DK) and SPANGENBURG (G). The history of science. New Delhi, University Press. 1994.
- ROWLEY (J) and HARTLEY (R). Organizing knowledge: An introduction to managing access to information. 5th ed. London, Routledge. 2017.
- SPANGENBURG (R) and MOSER (DK). The history of science in the 19th century. Hyderabad, University Press. 1994.
- TENOPIR (C) and KING (DW). Communication patterns of scientists. 2nd ed. Oxford, Wiley-Blackwell. 2004.

Suggested Readings

- DAMPIER (WC). History of science and its relations with philosophy and religion. London, Cambridge University Press. 1961.
- GROGAN (D). Science and technology: Introduction to the literature. 4th ed. London, Clive Bingley. 1982.
- HAMES (I). Peer review and manuscript management in scientific journals: Guidelines for good practice. Oxford, Wiley-Blackwell. 2013.