GE 1a

Research Metrics and Visibility

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		
GE 1a: Research Metrics and Visibility	4	3	1	0	**BLISc**	**-**

Course Objectives

This course covers the quantitative evaluation of scientific literature and research impact. Students will apply bibliometric laws, growth models, and citation analysis to measure research productivity and visibility, while exploring modern indicators like the h-index and Altmetrics for individual and institutional performance.

Learning Outcomes

After completing this course, students will be able to:

- Apply bibliometric, informetrics laws for quantitative and qualitative measurement of documents / information.
- Measure the performance of individuals and countries applying the principles of informetrics.
- Identify the growth and obsolescence of literature in a specific discipline / subject.
- Evaluate the quality of literature by using quality indicators such as citation analysis.
- Apply the informetrics and other metrics for collection development/ access.

UNIT I: Introduction to Metric Studies 10 Hours

- Librametry, Bibliometrics, Scientometrics, Informetrics and Webometric
- Scientific Indicators
- Trends in Metric Studies

UNIT II: Growth Models and Scientific Collaboration 11 Hours

- Growth and Obsolescence of Literature: Growth Models, Aging factor and half-life: Real vs. Apparent, Synchronous vs. Diachronous
- Collaborative Measures and Indicators

UNIT III: Bibliometric Laws and Its Application 12 Hours

- Bibliometrics Laws: Bradford, Lotka and Zipf
- Bibliometrics Distributions
- Informetrics Models: Bradford's Curve, Leimukuhler's Distribution, etc
- Concentration Measures: 80-20 Rule, Price's Law related to Scientific Productivity

UNIT IV: Citation Analysis and Altmetrics 12 Hours

- Citation Analysis: Bibliographic Coupling and Co-Citation Analysis
- Science Indicators: Impact factor, h-index, g-index, i-10, Mapping of Science
- Author level and Article Level Metrics
- Altmetrics Tools and Techniques

Essential Reading

- BAKER (SL) and LANCASTER (SW). Measurement and evaluation of library services. Ed. 2. Arlington: Information Resources Press. 1991.
- JIBU (Mari) and OSABE (Yoshiyuki). Scientometrics. London: IntechOpenLtd .doi: 10.5772/intechopen.72488
- EGGHE (L) and ROUSSEAU (R). Introduction to informetrics: Quantitative methods in library, documentation and information science. Amsterdam: Elsevier. 1990.

- GARFIELD (E). Citation indexing: Its theory and application in science, technology and humanities. New York: John Wiley. 1979.
- GARG (KC). Introduction to bibliometrics and scientometrics. Ess Ess Publication, 2024
- RAO (I K R). Quantitative methods for library and information science. New Delhi: Wiley Eastern. 1985.
- SANGAM (SL). Scientometrics: qualitative methods for library and information science. Bangalore, Content Craft. 2015.
- TATTERSALL (Andy) Ed.Altmetrics: A practical guide for librarians, researchers and academics. Facet Publishing, 2016

Suggested Reading

- CARPENTER (RL) and VASU (ES). Statistical methods for librarians. Chicago: ALA. 1979.
- CRONIN(Blaise) (Editor) and SUGIMOTO (Cassidy R) Eds. Beyond Bibliometrics: Harnessing Multidimensional Indicators of Scholarly Impact. 1st Edition. MIT Press, 2014.
- DONOHUE (JC). Understanding scientific literature: A bibliometric approach. London: MIT Press. 1990.
- EGGHE (L) and ROUSSEAU (R). Elementary statistics for effective library and information services management. London: ASLIB. 2001.
- RAO (IKR). Growth of Literature .and Measures of Scientific productivity. Delhi: Ess Ess Publication, 2010.