

## **LIS - 604: Bibliometrics and Related Metrics**

**(4 Credits/100 Marks)**

### **Course Description:**

This course aims to equip students with fundamental theoretical and practical knowledge and skills in Informetrics, scientometrics and webometrics.

### **Learning Objectives:**

1. To familiarise students with the fundamentals, concept, theories, laws and parameters of Bibliometrics, Scientometrics, Informetrics and Webometrics
2. To study various indicators of publication productivity
3. To understand the significance of scientific collaborations
4. To learn about the citation analysis operation research
5. To understand the emerging trends in informatics and Scientometrics.

### **Course Outline:**

#### **Unit- I: Basic Concepts 15 Hours**

Metrics and Metric Studies. Bibliometrics, Informetrics, Scientometrics, Librametrics/ Librametry, Cybermetrics / Webometrics, Altmetrics – Meaning, Definitions and Scope.

#### **Unit -II: Laws, Databases and Tools for Bibliometric Analysis 15 Hours**

Study and application of Classical Bibliometric Laws – Lotka's Law of Scientific Productivity, Bradford's Law of Scattering, and Zipf's Law of Word Occurrence. Other notable regularities: 80/20 Rule, Success-Breeds-Success Model, Law of Price Garfield's Empirical Law.

Data sources for bibliometric studies – Databases as data sources. Kinds of data sources

Software / Tools for Bibliometric analysis

#### **Unit- III: Citation Concepts, Growth and Obsolescence of Literature and Productivity Measures 10 Hours**

Study of the Citation concepts: Citation analysis, Citation network, Citation matrix, Bibliographic Coupling, Co-citation Analysis, Journal Citation Reports. Productivity measurement techniques. Impact Factor. H-index. I-index. G-index. M-index. Impact Per Paper (IPP). Source Normalised Impact per Paper (SNIP).

Growth and obsolescence of literature. Various Growth Models. The Half-life Analogy. Determination of ageing factor and Half-life. Real v/s Apparent. Synchronous and Diachronous.

#### **Unit- IV: Science Indicators and Policy 10 Hours**

Science Indicators. Science Policy Development. Web Impact Assessment. Link Analysis. Trends in metric studies. Technology based indicators. Library-use studies. Mapping of science. Collaboration in science

## **Unit -V: Modern Metrics**

**10 Hours**

Scientometric studies and the role in Science Policy. Challenges of Bibliometric and Scientometric studies.

Webometrics, Cybermetrics, Altmetrics and Nettometrics.

Tools and techniques for enhancing academic visibility

### **Learning Outcomes:**

After completion of the course, students will be aware of various scientometric indicators and laws, different softwares and application of metrics to draw the inferences from published literature and create academic visibility for research work done.

### **References / Readings**

1. Egghe, L. and Rousseau, R. (2001). Elementary statistics for effective Library and Information services management. London: Aslib.
2. Garfield, E. (1979). Citation Indexing: Its theory and applications in Science, technology and humanities. New York: John Wiley.
3. Meadows, A.J. (1974). Communication in Science. London: Butterworths.
4. Neuendorf, K. (2002). The content analysis guidebook. London: Sage.
5. Nicholas D. and Ritchi, M. (1979). Literature & bibliometrics. London: Clive Bingley.
6. Ravichandra Rao, I.K. (1985). Quantitative methods for Library and Information Science. New Delhi: Wiley Eastern.
7. Thelwall, M. (2009). Introduction to webometrics: Quantitative web research for the social Sciences. Morgan and Claypool Publishers.
8. Stuart, D. (2014). Web Metrics for Library and Information Professionals. Facet publishing.