M.A (ECONOMICS) FIRST SEMESTER
FUNDAMENTALS OF DATA ANALYTICS
ECO-104

Maximum Marks: 100 **External Examination: 80**
Time: 3 Hrs. **Internal Assessment: 20**

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

COURSE OUTLINE: Data Analytics is the science of analyzing data to convert information to useful knowledge. This knowledge could help us understand our world better, and in many contexts enable us to make better decisions. While this is broad and grand objective, the last 20 years has seen steeply decreasing costs to gather, store, and process data, creating an even stronger motivation for the use of empirical approaches to problem solving. This course seeks to enable the students get an insight into data analytic techniques. It is structured around the broad contours of the different types of data analytics, namely, descriptive, inferential, predictive, and prescriptive analytics.

Unit -I
Data Analytics: Introduction, types, characteristics, and advantages of data analytics; Overview of Analytic Tools: Excel as analytic tool, SPSS, Data Visualization in Tableau, Use of R Programming (Elementary idea)

Unit- II
Descriptive statistical techniques: Central tendency, Dispersion, Skewness and Kurtosis. Correlation and Regression: Simple, Partial and Multiple.

Unit- III
Probability Theory: Concept and Approaches, Application of Additive and Multiplication Laws, Baye's Theorem, Mathematical Expectations. Probability Distribution: Binomial, Poisson, Normal. Inferential Statistics: Sampling, parameter and statistic, Sampling and non-sampling errors.

Unit -IV
Hypothesis Testing, Parametric tests: t-test and Analysis of Variance – one way classification, two way classification; Chi-Square test & its application. An introduction to non-parametric tests.

SUGGESTED READINGS:

- Abbot D. Applied Predictive Analytics: Principles and Techniques for the Professional Data Analyst; Wiley.
- Bajpai, Naval, Business Statistics, Pearson Education. Business Performance. Wiley.
- Davenport H., Harris J.G. and Morison R. Analytics at Work: Smarter Decisions, Better Results, Harvard Business Review Press.
- Davenport, H., Harris J.G. Competing on Analytics: The New Science of Winning, Harvard Business Review Press.
- Davis and Pecar: Business Statistics using Excel, Oxford University Press
- Fitz-enz J. and Mattox J. Predictive Analytics for Human Resources, Wiley and SAS Business Series.
- Gupta, S.P. and Gupta, M.P., Business Statistics, Sultan Chand and Sons.
- James R. Evans, Business Analytics, Pearson Education.

- Levin, R.I. and Rubin D.S., Statistics for Management, Pearson Education.
- Maisel L. and Cokins G. Predictive Business Analytics: Forward Looking Capabilities to Improve
- Provost F., Fawcett T. Data Science for Business: What you need to know about data mining and data-analytic thinking, O'Reilly Media.
- Schniederjans M.J., Schniederjans D.G. and Starkey C.M. Business Analytics Principles, Concepts, and Applications with SAS: What, Why, and How, FT Press Analytics.
- Sharma, J.K., Business Statistics, Vikas Publication House Pvt. Ltd.
- Siegel E. Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die. Wiley.