

Mother Teresa Women's University, Kodaikanal
Course Work syllabus
Mathematics - Compulsory Paper

MATHEMATICAL METHODS

Unit I INTRODUCTION TO FACTOR ANALYSIS

Introduction- Logical foundations of Factor Analysis- Obtaining Factor Analysis Solutions.

Unit II STATISTICAL METHODS AND PRACTICAL ISSUES

Introduction- Methods of Extracting Initial factors- Methods of Rotation- Number of Factors Problem Revisited- Introduction to Confirmatory Factor Analysis-Construction of Factor Analysis.

Unit III QUEUING MODELS

Applications of Queuing Models- Introduction- Elements of a Queuing System- Operating Characteristic of a Queuing System- Waiting Time and Idle Time Costs- Transient and Steady States of the System- Kendall's Notation for Representing Queuing Models- Classification of Queuing Models- Single-Channel Queuing Theory- Model VI: Multi-Channel Queuing Theory Model(M/M/C):(FCFS/ ∞/∞) exercises 10.5(1 to 14)- Erlang Family Distribution Exercises 10.6 (1 to 14)- Machine Repair Problem- Model X. Power Supply Model- Deterministic Models- Monte Carlo Technique Applied to Queuing Problems Exercises 10.7 (1 to 2).

Unit IV FUZZY SETS AND OPERATIONS OF FUZZY SETS

Crisp Sets- An Overview- The notion of fuzzy sets- Basic concepts of fuzzy sets- Classical Logic: An Overview- Fuzzy Logic- Fuzzy Complement- Fuzzy Union- Fuzzy Intersection- Combinations of Operations- General Aggregation Operations.

Unit V FUZZY RELATIONS

Crisp and Fuzzy Relations- Binary Relations- Binary Relations on a Single set- Equivalence and Similarity Relations- Compatibility or Tolerance Relations-Ordering- Morphisms-Fuzzy Relation Equations.

UNIT –V(a) Plagiarism

Plagiarism – Definition – History of Plagiarism – Key to avoid Plagiarism – Different forms of Plagiarism – Intentional – Unintentional – Non – Attribution – accidental – Common Plagiarism Problems – Six ways to avoid plagiarism in Research Report – Paraphrase – cite – Quoting – Citing Quotes – Citing one's own material – Referencing – Plagiarism checker services – Softwares – write check – VAILL Tutor Tool – Plagiarism Test – Pen and Paper plagiarism Knowledge Test – etc. UGC Public notice dated 01.09.2017

TEXT BOOKS:

1. Michael S.Lewis- Beck, *Factor Analysis and Related Techniques*, International Handbooks of Quantitative Applications in the Social Sciences, Vol:5, SAGE Pblcation Toppan Publishing, 1994. **UNIT I,II : Chapter 1,2**
2. Prem Kumar Gupta and D.S.Hira, *Operations Research*, S.Chand & Company Pvt.Ltd, New Delhi,2014 **UNIT III, Chapter : 11**
3. Geroge J Klir and Tina A.Folger, *Fuzzy Sets,Uncertainty and Information*, Prentice – Hall of India Pvt Ltd, New Delhi,2008. **Unit IV, V : Chapter : 1,2,3**