

GUJARAT TECHNOLOGICAL UNIVERSITY

INTEGRATED MASTER OF BUSINESS ADMINISTRATION

Year – 2 (Semester –4) (W.E.F. Academic Year 2018-19)

Subject Name: Advanced Statistical Techniques (AST)

Subject Code: 2547101

1. Learning Outcomes:

- Interpret and communicate the results of a statistical analysis in the context of a business problem.
- Understand a time series model with deterministic trend and seasonality component.
- Concept clarity of Acceptance sampling techniques and Quality control.

2. **Course Duration:** The course duration is of **40 sessions of 60 minutes each.**

3. Course Contents:

Module No.	Modules with its Contents/Chapters	No. of Sessions	Marks (out of 70)
I	<u>Probability Distribution</u> Discrete Distribution: Uniform distribution, Hyper Geometric distribution, Binomial distribution, Poisson distribution Continuous Distribution: Normal Distribution	10	14
II	<u>Sampling and Time Series Analysis</u> Forecasting and Time Series Analysis: Introduction, Utility of Time series, Components, Quantitative Methods of Time series analysis like Simple moving averages and Weighted average moving averages	10	14
III	<u>Index Number and Decision Theory</u> Index Number: Introduction and Characteristics of Index Number, Methods of index numbers (Laspeyres', Paasche's, Fisher's, Dorbish-Bowley, Marshall-Edgeworth, Consumer Price Index, IIP, Family Budget & Cost of Living Index No.)	12	21

	Decision Theory: Steps of Decision-making process, Decision-making Under Uncertainty (Maximax, Maximin, Laplace, Hurwicz, Savage), Decision-making Under Risk (EMV, EOL, EVPI), Decision Tree Analysis		
IV	Statistical Quality Control: Definitions of Statistical Quality Control, Types of control charts for variables like X, and R-chart, Control Charts i.e. p-chart, C-chart, np-chart, advantages and disadvantages of SQC	8	21
V	Practical: -To forecast the sale of commercial & residential properties during festive occasions. -Demand forecasting and Trend analysis of Air Conditioners and Refrigerators in Summer.	---	30 marks CEC

4. Teaching Methods:

- Lectures
- Case Discussions
- Audio-visual Material (Using CDs/Clippings/ online videos)
- Assignments and Presentations

5. Evaluation:

The evaluation of participants will be on continuous basis comprising of the following elements:

A	Continuous Evaluation Component comprising of Projects / Assignments / Quiz / Class Participation / Class test / Presentation on specific topic etc.	(Internal Assessment-50 Marks)
B	Mid-Semester examination	(Internal Assessment-30 Marks)
C	End –Semester Examination	(External Assessment-70 Marks)

6. Reference Books:

Sr. No.	Author	Name of the Book	Publisher	Year of Publication
1	J. K. Sharma	Business Statistics	Vikas	Latest Edition
2	S.P. Gupta	Statistical Methods	Sultan Chand & Sons	Latest Edition
3	Joseph Francis	Business Statistics	Cengage	Latest Edition
4	T N Srivastava and Shailaja Rego	Statistics for Management	McGraw - Hill	Latest Edition

5	Ken Black	Business Statistics for Contemporary Decision Making	Wiley	Latest edition
6	Richard I. Levin and David S. Rubin	Statistics for Management	Pearson Education	Latest edition

7. List of Journals/Periodicals/Magazines/Newspapers / Web resources, etc.

1. Journal of Indian Business Research
2. International Journal of Statistics and Analysis
3. Sankhya – Indian Journal of Statistics
4. Economic Times
5. Financial Express
6. Business Standard
7. Economic & Political Weekly
8. Vikalpa