GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Master of Business Administration

Level: PG

Course / Subject Code: MB01092041

Course / Subject Name: Business Statistics

w. e. f. Academic Year:	2024-25
Semester:	1
Category of the Course:	Core Course (CC)

Prerequisite:	**Any Graduate**
Rationale:	Studying Business Statistics equips students with the analytical skills needed to make data-driven decisions, enhancing their ability to solve complex business problems. It enables a deep understanding of market trends and performance metrics, crucial for strategic planning and competitive advantage. Additionally, it fosters critical thinking and effective communication of statistical findings, essential for leadership roles in today's data-centric business environment.

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level
01	Understand and apply basic statistical concepts and methods to solve business problems	Understand
02	Apply regression analysis and hypothesis testing in business contexts.	Apply
03	Apply statistical findings effectively to support decision-making.	Apply
04	Analyze probability theory to make informed business decisions under uncertainty.	Analyze
05	Evaluate different types of data using descriptive and inferential statistical techniques.	Evaluate

**Revised Bloom's Taxonomy (RBT)*

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
				Theory		Tutorial / Practical		
L	T	PR	C	ESE (E)	PA / CA (M)	PA/CA (I)	ESE (V)	
3	1	0	4	70	30	50	0	150

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	**Introduction to Business Statistics:** • Introduction to Statistics, Statistics in Business, Types of data – Nominal, Ordinal, Interval, Ratio. • Types of variables – Dependent, Independent, Discrete and Continuous. • Charts and Graphs. **Descriptive Statistics**: • Measure of central tendency – mean, median, percentile, quartile, mode (for Group and ungrouped data) • Measure of variability – Range, Interquartile range, standard deviation, variance, coefficient of variation, (for Group and ungrouped data) • Measures of Shape, Kurtosis, Skewness, Box-Plot. **Probability:** • Introduction to probability • Theories of probability – Classical, Relative frequency and subjective. • Laws of probability– addition, multiplication. • Inverse Probability. Revision of probability: BAYES'RULE	10	17
2.	**Probability Distribution:** • Discrete distribution –Binomial, Poisson. • Continuous distribution–Uniform, Normal. **Hypothesis testing:** • Types of hypotheses – Research, Statistical, Substantive. • Null and Alternative Hypothesis. • One-tailed &Two-tailed-test. • Types of Error– Type – I & Type - II. • Level of significance. • Steps of hypothesis testing.	10	17

3.	**Parametric Tests:** ***Uni-variatetests:*** z-test, T-test, ***Bi-variate tests:*** T-test – Paired and independent, Pearson's Correlation, Simple Linear Regression, One Way ANOVA	15	20
4.	**Non-Parametric Tests:** ***Uni-variate tests:*** • Chi-square goodness of fit for uniform distribution ***Bi-variate tests:*** • Spearman's Rank Correlation, Mann-Whitney U test, Wilcoxon Sign Paired Rank Test, Chi-square test of independence **Multivariate analysis:** • Overview of Multiple Regression, Factor Analysis, Multidimensional scaling, Discriminant analysis. (**theoretical concepts only**)	10	16
5.	**Practical:** Students should be given various practical data analysis and interpretation assignments/case studies so they may apply the statistical hypothesis testing on assumed/hypothesized data using statistical software.	15	NIL
	Total		**100**

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
0	20%	40%	20%	20%	0

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

(a) Books:

No.	Author	Name of the Book	Publisher	Year of Publication/ Edition
1	Ken Black	Business Statistics for Contemporary Decision making	Wiley	Latest Edition
2	Sanjiv Jaggia,Alison Kelly	Business Statistics	McGraw Hill	Latest Edition
3	Richard I.Levinand David S. Rubin	Statistics for Management	Pearson	Latest Edition
4	D. P. Apte	Statistics for Managers	Excel	Latest Edition
5	Gerald Keller&Hitesh Arora	Business Statistics	Cengage	Latest Edition
6	Joseph Francis	Business Statistics	Cengage	Latest Edition
7	T N Srivastavaand Shailaja Rego	Statistics for Management	TMH	Latest Edition
8	K.B.Akhilesh &S. B. Balasubrahmanyam	Mathematics and Statistics for Management	Vikas	Latest Edition
9	Naval Bajpai	Business Statistics	Pearson	Latest Edition
10	D. P. Apte	M.S.Excel: Statistical Tools for Managers	Excel	Latest Edition
11	Qazi Zameerudin,Vijay K.Khara,S.K. Bhamri	Business Mathematics	Vikas	Latest Edition

Note: Wherever the standard books are not available for the topic appropriate print and online resources, journals and books published by different authors may be prescribed.

(b) ListofJournals /Periodicals /Magazines/Newspapers/Webresources,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

CO- PO Mapping:

Semester 1	Business Statistics				
	POs				
Course Outcomes	PO1	PO2	PO3	PO4	PO5
CO1	3	1	2	2	2
CO2	3	1	-	2	-
CO3	3	3	2	2	3
CO4	2	3	-	2	-
CO5	2	2	3	3	3

*Legend: '**3**' for high, '**2**' for medium, '**1**' for low and '**-**' for no correlation of each CO with PO.*

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