



GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Master of Business Administration, 1st Semester

Subject Name: Business Statistics

Subject Code: 1519607

With effective
from academic
year 2020-21

1. Learning Outcome:

Learning Outcome Component	Learning Outcome (Learner will be able to)
Business Environment and Domain Knowledge (BEDK)	<ul style="list-style-type: none"> • <i>Inculcate</i> statistical thinking for business decision-making under uncertainty.
Critical thinking, Business Analysis, Problem Solving and Innovative Solutions (CBPI)	<ul style="list-style-type: none"> • <i>Determine</i> appropriate statistical tools / techniques to evaluate business information.
Global Exposure and Cross-Cultural Understanding (GECCU)	<ul style="list-style-type: none"> • <i>Analyze</i> data and information with the use of globally accepted basic tools/techniques and derive solutions for appropriate business problems.
Social Responsiveness and Ethics (SRE)	<ul style="list-style-type: none"> • <i>Appraise</i> the ethicality of the inferences drawn from the results of the statistical tools or techniques.
Effective Communication (EC)	<ul style="list-style-type: none"> • <i>Propose</i> and <i>justify</i> decisions to stakeholders based on results of rational statistical analyses.
Leadership and Teamwork (LT)	<ul style="list-style-type: none"> • <i>Enhance</i> team's comprehension of statistically powered decision making.

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

3. Course Contents:

Module No:	Module Content	No. of Sessions	70 Marks (External Evaluation)
I	<p>Introduction to Business Statistics:</p> <ul style="list-style-type: none"> • Introduction to Statistics, Statistics in Business, Types of data – Nominal, Ordinal, Interval, Ratio. • Types of variables – Dependent, independent, moderating, intervening, extraneous. Discrete / continuous. • Charts and Graphs. <p>Descriptive Statistics:</p> <ul style="list-style-type: none"> • Measure of central tendency – mean, median, 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, boxplot. <p>Probability:</p> <ul style="list-style-type: none"> • 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
II	<p>Probability Distribution:</p> <ul style="list-style-type: none"> • Discrete distribution – Binomial, Poisson. 	10	17



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	<ul style="list-style-type: none"> Continuous distribution – Uniform, normal. <p>Hypothesis testing:</p> <ul style="list-style-type: none"> Types of hypothesis – 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. 		
III	<p>Parametric Tests:</p> <p><u>Uni-variate tests:</u></p> <ul style="list-style-type: none"> z-test, T-test, Levene's F-test <p><u>Bi-variate tests:</u></p> <ul style="list-style-type: none"> T-test – Paired and independent, Pearson's Correlation, Simple Linear Regression, One Way ANOVA 	10	18
IV	<p>Non-Parametric Tests:</p> <p><u>Uni-variate tests:</u></p> <ul style="list-style-type: none"> Chi-square goodness of fit for uniform distribution <p><u>Bi-variate tests:</u></p> <ul style="list-style-type: none"> Spearman's Rank Correlation, Mann-Whitney U test, Wilcoxon Sign Paired Rank Test, Chi-square test of independence <p><u>Multivariate:</u></p> <ul style="list-style-type: none"> Kruskal-Wallis, Friedman's test <p>Multivariate analysis:</p> <ul style="list-style-type: none"> Overview of Multiple Regression, Factor Analysis, Multidimensional scaling, Discriminant analysis. (theoretical concepts only) 	10	18
V	<p>Practical:</p> <p>Students should apply the statistical hypothesis testing on assumed/hypothesized data using statistical software.</p>	---	(30 marks CEC)

4. Pedagogy:

- ICT enabled Classroom teaching
- Case study
- Practical / live assignment
- Interactive class room discussions

5. Evaluation:

Students shall be evaluated on the following components:

A	Internal Evaluation	(Internal Assessment- 50 Marks)
	<ul style="list-style-type: none"> Continuous Evaluation Component 	30 marks
	<ul style="list-style-type: none"> Class Presence & Participation Quiz 	10 marks 10 marks
B	Mid-Semester examination	(Internal Assessment-30 Marks)
C	End –Semester Examination	(External Assessment-70 Marks)



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6. Reference 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. Levin and 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 Srivastava and 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.

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