

**Generic Elective Courses in Mathematics offered  
by Department of Mathematics**

Semester – V			
<b>19UMTGE501</b>	<b>GE-1: Fundamentals of Statistics</b>	<b>2hrs/week</b>	<b>2Credits</b>

**Objectives:-**

Upon completion of the course students will be able to

1. Identify the relevant population, sample, study units (subjects) and variables.
2. Identify data that follow a normal curve and find chances and percentages using a normal curve.
3. Produce and interpret numerical summary statistics using mean, median, mode, range, standard deviation and variance.
4. Perform and interpret testing of hypothesis including chi-squared test and other ANOVA test for independence.

**Unit 1: Descriptive Statistics****(4Hrs)**

- Types of data
- Mean, median, mode, variance, standard deviation
- Graphical presentation of data

**Unit 2: Graph and Charts****(4Hrs)**

- Histogram, Ogive, frequency polygon
- Stem and Leaf plot, dot plot
- Bar Graphs, pie chart

**Unit 3: Events and Their Probabilities****(5Hrs)**

- Classical definition of probability
- Probability of union, intersection, difference of events
- Conditional Probability

**Unit 4: Discrete Probability Distributions****(6Hrs)**

- Types of random Variable
- Binomial distribution
- Poisson distribution

**Unit 5: Continuous Probability Distributions****(5Hrs)**

- Continuous random variable
- Normal distribution
- Exponential random variable

**TEXT BOOKS: -**

1. Digambar Patri, D. N. Patri, (2011) Statistical Methods, Kalyani Publications.

**REFERENCE BOOKS:-**

1. Nabendu Pal, Sabaded Sarkar, Statistics concepts and Applications, (2015) Prentice Hall of India.
2. J. N Kapur, H. C Saxena, Mathematical Statistics, (2010) S. Chand & Company Ltd.

Semester – VI			
19UMTGE601	GE-II: Probability and Distributions	2hrs/week	2Credits

**Objectives:-**

Upon completion of the course students will be able to

1. Understand basic concepts of set theory and logic.
2. Understand the nature of any random experiment and construct sample space..
3. Calculate mathematical expectation of a discrete random variable.
4. Understand and construct the probability distribution and find mean and variance of the given Binomial Distribution and Poisson distribution.

**Unit 1:Set Theory & Logic (4Hrs)**

- Basic of Intuitive set theory.
- Operations for sets.
- Algebra of sets.
- Vann Diagram.
- Logic.
- The statement calculus-Truth table.
- The statement calculus-Consequence.
- The statement calculus-Applications.

**Unit 2: Probability (5Hrs)**

- Random Experiments.
- Sample Space.
- Generation of Sample Space.
- Events & Algebra or Events.
- Laws of probability.
- Theorems of probability.
- Bayes' Theorem.

**Unit 3: Mathematical Expectation (5Hrs)**

- Discrete random variable.
- Probability distributions of a discrete random variable.
- Mathematical Expectation of a discrete random variable.
- Variance of a random variable.

**Unit 4: Probability distributions (5Hrs)**

- Introduction.
- Binomial Distribution.
- Mean and Variance of Binomial Distribution.
- Properties of Binomial Distribution.

**Unit 5:Poisson Distribution (5Hrs)**

Shree M. & N. Virani Science College, Rajkot.

Generic Elective Courses in Mathematics offered by the Department of Mathematics

- Poisson Distribution.
- Mean and Variance of Poisson Distribution.
- Properties of Poisson Distribution.

**TEXT BOOKS: -**

1. Digambar Patri, D. N. Patri, (2011) Statistical Methods, Kalyani Publications.

**REFERENCE BOOKS:-**

1. Nabendu Pal, Sabaded Sarkar, Statistics concepts and Applications, (2015) Prentice Hall of India.
2. J. N Kapur, H. C Saxena, Mathematical Statistics, (2010) S. Chand & Company Ltd.

**Revised Evaluation Norms for All UG Programmes**  
**PART-II CORE Courses: GENERIC ELECTIVE**  
**Effective from A. Y. – 2019-20 & Onwards**

Generic Elective (GE) Course: An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

**Generic Elective Course:**

- a. Generic Elective Course– two courses in 5<sup>th</sup>& 6<sup>th</sup> semesters-each of 2 credits, total credit-04, 100% CIA courses.
- b. Choice from the **List-GE**

S.N.	Component	Content	Duration if any	Marks	Sub Total
1.	Test-I	1 <sup>st</sup> &2 <sup>nd</sup> unit	1 hrs.	20 (set of 20 marks Objective)	90 Marks
	Test-II	All 5 units	3 hrs.	70 (set of 70 marks) Question Paper Pattern enclosed in Annexure-I	
2.	Assignment-I		5 (marks on 20)		10 Marks
	Assignment-II		5 (marks on 20)		
<b>Total</b>					100 Marks

**Question Paper Pattern - Test-II - Generic Elective Courses-UG Programmes**

**Effective from A.Y. 2019-20 & Onwards**

Duration of Examination: **3 Hrs.**

Max. Marks: **70**

**Part A (45 Questions X 1 Mark = 45 Marks)**

Answer **ALL** questions

1.



45.

**Part B (5 Questions X 5 Marks = 25 Marks)**

Answer **ALL** questions

46a.

**OR**

46b.



50a.

**OR**

50b.

---