

**Statistics and Probability**  
EG2206CT

**Year: II**  
**Part: II**

**Total: 4 hours /week**  
**Lecture: 3 hours/week**  
**Tutorial: 1 hour/week**  
**Practical: hours/week**  
**Lab: hours/week**

**Course description:**

This course deals with a practical knowledge of the principles and concept of probability and statistics and their application to simple engineering problems.

**Course objectives:**

After completion of this course students will be able to:

1. Explain the principles and concept of probability.
2. Apply statistics to solve simple engineering problems.

**Course Contents:**

**Theory**

**Unit 1. Introduction of Statistics** **[3 Hrs.]**

- 1.1. Origin and development of statistics
- 1.2. Definition of statistics
- 1.3. Importance and scope of statistics
- 1.4. Limitation of statistics

**Unit 2. Collection of data.** **[3 Hrs.]**

- 2.1. Data, types of data
- 2.2. Methods of collecting primary data
- 2.3. Sources of secondary data

**Unit 3. Classification and Tabulation** **[3 Hrs.]**

- 3.1. Classification of data
- 3.2. Meaning and Importance of table
- 3.3. Parts of table

**Unit 4. Diagrammatic and graphic representation** **[4 Hrs.]**

- 4.1. Difference between diagram and graphs
- 4.2. Bar diagram and its type
- 4.3. Histogram and pie diagram
- 4.4. Graphical representation of data
- 4.5. Limitation of diagrams and graphs

**Unit 5. Summarizing a Data set** **[8 Hrs.]**

- 5.1. Introduction
- 5.2. Measures of central tendency (Mean, Median, Mode, G.M, S.M)
- 5.3. Partition values (quartiles, deciles, percentiles)
- 5.4. Measures of dispersion (range, Q.D., M.D., S.D.)

**Unit 6. Bivariate data analysis** **[8 Hrs.]**

- 6.1. Correlation (Karl Pearson's coefficient of correlation)
- 6.2. Lines of regression, equations of regression

**Unit 7. Classification and Tabulation****[6 Hrs.]**

- 7.1. Definition and terminology of probability
- 7.2. Counting rule (permutation and combination)
- 7.3. Addition theorem of probability
- 7.4. Theorem of compound probability or multiplication

**Unit 8. Classification and Tabulation****[10 Hrs.]**

- 8.1. Random variables
- 8.2. Binomial Distribution
- 8.3. Poisson distribution
- 8.4. Normal distribution

<b>Final written exam evaluation scheme</b>			
<b>Unit</b>	<b>Title</b>	<b>Hours</b>	<b>Marks Distribution*</b>
1	Introduction of Statistics	3	5
2	Collection of data	3	5
3	Classification and Tabulation	3	5
4	Diagrammatic and graphic representation	4	5
5	Summarizing a data set	8	15
6	Bivariate data analysis	8	15
7	Concept of probability	6	10
8	Theoretical probability distribution	10	20
	<b>Total</b>	<b>45</b>	<b>80</b>

\* There may be minor deviation in marks distribution.

**References:**

1. Dr. Arun Kumar Chaudhary, Aswin 2078, Business statistics, Bhudipuran Prakashan, Bagbazar.
2. S.C. Gupta, 2018, Fundamentals of statistics, Himalaya Publishing House, India
3. H.C. Saxena, 17<sup>th</sup> edition, Elementary Statistics, S.Chand & CO. Ltd., India