Statistics and Probability

EG2206CT

Year: II **Total: 4 hours /week**

Part: II **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, Medain, Mode, G.M, S.M)
5.3. Partition values (quartiles, deciles, percentiles)
5.4. Measures of description (rage, 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

Final written exam evaluation scheme			
Unit	**Title**	**Hours**	**Marks Distribution***
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
	Total	**45**	**80**

* 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, 17th edition, Elementary Statistics, S.Chand & CO. Ltd., India