SEMESTER VIII

BP801T. BIOSTATISITCS AND RESEARCH METHODOLOGY (Theory)

45 Hours

Scope: To understand the applications of Biostatics in Pharmacy. This subject deals with descriptive statistics, Graphics, Correlation, Regression, logistic regression Probability theory, Sampling technique, Parametric tests, Non Parametric tests, ANOVA, Introduction to Design of Experiments, Phases of Clinical trials and Observational and Experimental studies, SPSS, R and MINITAB statistical software's, analyzing the statistical data using Excel**.**

Objectives: Upon completion of the course the student shall be able to
- Know the operation of M.S. Excel, SPSS, R and MINITAB$^{®}$, DoE (Design of Experiment)
- Know the various statistical techniques to solve statistical problems
- Appreciate statistical techniques in solving the problems**.**

Course content:

Unit-I   10 Hours
Introduction: Statistics, Biostatistics, Frequency distribution
Measures of central tendency: Mean, Median, Mode- Pharmaceutical examples
Measures of dispersion: Dispersion, Range, standard deviation,   Pharmaceutical problems
Correlation: Definition, Karl Pearson's coefficient of correlation, Multiple correlation - Pharmaceuticals examples

Unit-II   10 Hours
Regression: Curve fitting by the method of least squares, fitting the lines y= a + bx and x = a + by,   Multiple regression, standard error of regression– Pharmaceutical Examples
Probability: Definition of probability, Binomial distribution, Normal distribution, Poisson's distribution, properties - problems
Sample, Population, large sample, small sample, Null hypothesis, alternative hypothesis, sampling, essence of sampling, types of sampling, Error-I type, Error-II type, Standard error of mean (SEM) - Pharmaceutical examples
Parametric test: t-test(Sample, Pooled or Unpaired and Paired) , ANOVA, (One way and Two way), Least Significance difference

Unit-III   10 Hours
Non Parametric tests: Wilcoxon Rank Sum Test, Mann-Whitney U test, Kruskal-Wallis test, Friedman Test