Syllabus of Statistics

Testing of Hypothesis and Applied Statistics

Credits: 04	Course Code: B060401T	Sem. IV
	External Max. Marks 75	Internal Max. Marks. 25

Part –A: Testing of Hypothesis and Tests of Significance

Unit	Topic	No. of Lectures
I	Statistical Hypothesis (Simple and Composite), Testing of hypothesis, Type –I and Type I- II errors, Significance level, p-values	08
II	Neyman – Pearson Lemma, Power of a test, Definitions of Most Powerful (MP), Uniformly Most Powerful (UMP) and Uniformly Most Powerful Unbiased (UMPU) tests.	08
III	Test of significance: Large sample tests for (Attributes and Variables) proportions and means (i) for one sample (ii) for two samples.	06
IV	Small sample test based on t, F and chi-square distributions.	08

Part- B: Applied Statistics	
V	Introduction & Definition of Time Series, its different components, illustrations, additive and multiplicative models. Determination of trend by free hand curve, semi average method, moving average method, method of least squares, Analysis of Seasonal Component by Simple average method, Ratio to moving Average, Ratio to Trend Link relative method.	09
VI	Index number – its definition, application of index number, price relative and quantity of volume relatives link and chain relative problem involved in computation of index number, use of averages, simple aggregative and weighted average method, Laspeyre's, Paasche's and Fisher's index numbers, time and factor reversal tests of index number, consumer price index.	09
VII	Vital Statistics: Measurement of Fertility – Crude birth rate, general fertility rate, age-specific birth rate, total fertility rate, gross reproduction rate, net reproduction rate, standardized death rates Complete life table, its main features and construction.	06
VIII	Introduction to Statistics Quality Control, Process control, tools of statistics quality 3σ control limits, Principal underlying the construction of control charts. Control charts for variables, '$\bar{x}$' and 'R' charts, construction and interpretation, Control charts for attributes 'p' and ' c' charts construction and interpretation.	06