

## BA

## Semester 1

Course Title: B.A	
Total Contact Hours: 42	Course Credits:3
Formative Assessment Marks: 40	Duration of ESA/Exam: 2hours
	Summative Assessment Marks: 60

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs 1-12)**

[illegible]

[illegible]

and their real life applications.													
13. Understand the nature of data and to perform appropriate analysis.											X	X	
14. Carry out time series analysis and predict the future values of given trend.											X	X	
15. Analyze the Seasonal Indices by using different methods.	X										X	X	

Course Articulation Matrix relates course outcomes of course with the corresponding program outcomes whose attainment is attempted in this course. Mark 'X' in the intersection cell if a course outcome addresses a particular program outcome.

### BA Semester 1

#### Title of the Course: Applied statistics

Course 1: Descriptive Statistics-I		Course 2: Descriptive Statistics-II	
Number of Theory Credits	Number of lecture hours/semester	Number of Theory Credits	Number of lecture hours/semester
3	42	3	42

Content of Course 1: Descriptive Statistics-I	42 Hrs
<b>Unit – 1 :Introduction to Statistics and Basic Concepts</b>	<b>12 Hrs</b>
Meaning, origin, definition, functions, limitations and applications of Statistics. Primary and secondary data, different methods of collection of primary data with merits and demerits. Sources of secondary data. Classification: meaning, objectives, types of classifications- Chronological, Geographical, Qualitative and Quantitative classifications with illustrations. Definition of some important terms - class, class limits, class intervals, width of class interval, open-end classes, inclusive and exclusive classes. Formation of discrete and continuous frequency distributions. Tabulation: meaning, objectives and rules of tabulation, format of a statistical table and its parts. Types of table, examples of preparation of a blank table and tables with numerical information.	
<b>Unit – 2 :Diagrammatic and Graphical representation of Data</b>	<b>10 Hrs</b>
Diagrams: Meaning, importance of diagrams and general rules of construction of diagrams. Types of Diagrams – simple, multiple, component, percentage bar diagrams and pie diagrams with simple illustrations. Graphs: Types of Graphs – Histogram, frequency Polygon, frequency curve and Ogives, simple problems, location of mode, median and partition values from the graphs. Difference between diagrams and graphs.	

<b>Unit – 3: Measures of Central Tendency</b>	<b>10 Hrs</b>
<p>Meaning of central tendency and essentials of a good measure of central tendency. Types of measures of central tendency: Arithmetic mean, Median, Mode, Geometric mean and Harmonic mean - definition, merits and demerits. Properties of arithmetic mean. Empirical relation between mean median and mode. Problems on both grouped and ungrouped data for all the measures.</p> <p>Partition values-definition and types of partition values: quartiles, deciles and percentiles. Problems on Quartiles for grouped ungrouped data only.</p>	
<b>Unit – 4: Measures of Dispersion</b>	<b>10 Hrs</b>
<p>Meaning and objectives of measures of dispersion. Essentials of a good measure of dispersion, absolute and relative measures of dispersion. Types of measures of dispersion- Range, Quartile deviation, Mean deviation and standard deviation with relative measures – definition, merits and demerits. Properties of Standard deviation, simple problems on ungrouped and grouped data. <b>Skewness and Kurtosis:</b> Skewness- Definition, objectives and types of skewness, explanation of positive and negative skewness with diagrams. Measures of skewness- Karl Pearson's coefficient of skewness and Bowley's coefficient of skewness. Simple problems. Kurtosis: Definition and types of kurtosis. Explanation of types of kurtosis with neat diagrams. Measure of skewness based on moments. Difference between skewness and kurtosis.</p>	

## References

1. Gani S. G., Sankhyshastra and Ganakayantra. Udaya Ravi Publications, Bijapur.
2. Gupta S. C. Fundamentals of Statistics, Himalaya Publishing House, Bombay
3. Mukhopadhaya, P. Applied Statistics, New Central Book Agency (P) Ltd., Calcutta
4. Gupta S P. and V K Kapoor Fundamentals of Mathematical Statistics, Sultan Chand, New Delhi

## Pedagogy

1. The course is taught using traditional chalk and talk method using problem solving through examples and exercises.
2. Students are encouraged to use resources available on open sources.

<b>Content of Course 2:Descriptive Statistics-II</b>	<b>42 Hrs</b>
<b>Unit – 1 :Correlation</b>	<b>12 Hrs</b>
Definition of relationship, Definition, Types of correlation, Methods of measuring correlation, Scatter diagram, Correlation Coefficient for quantitative data: Prof. Karl Pearson's coefficient of linear correlation, its properties, Correlation Coefficient for qualitative data: Spearman's rank correlation coefficient, its properties. Simple regression analysis- regression equations by method of least squares, linear regression coefficients and its properties. Angle between the regression lines.	
<b>Unit – 2: Association of Attributes</b>	<b>10 Hrs</b>
Meaning of association of attributes, definition of class of the first order and second order. Methods of studying association. Yule's coefficient of association and its interpretation. Determination of Yule's coefficient of association in case of two attributes.	
<b>Unit – 3: Spatial Statistics</b>	<b>10 Hrs</b>
History and introduction, spatial characterization, spatial dependence, spatial auto correlation, spatial association, spatial scaling, spatial sampling, errors in spatial analysis.	
<b>Unit:4: Multivariate data Analysis</b>	<b>10 Hrs</b>
Introduction: Yule's notations, distribution of two variables, distribution of three or more variables, primary and secondary subscripts, Plane of regression and its derivation, estimation of regression coefficients a and b in case of three variables, partial regression coefficient in terms of delta, Residual, properties of residuals, Standard deviation of residuals, Multiple and partial correlation, definition, derivation and their standard properties.	