



Business Statistics

Syllabus



General Certificate of Education

(Advanced Level)

Grade 12 and 13

(Implemented from 2017)

Department of Commerce
Faculty of Science and Technology
National Institute of Education
www.nie.lk

Business Statistics
Grade 12 and 13 - syllabus

© National Institute of Education
First print 2017

ISBN :

Department of Commerce
Faculty of Science and Technology
National Institute of Education
www.nie.lk

Printed by :

Dpt of Commerce - NIE

Content

	Pages
1.0 Introduction -----	i
2.0 National Goals -----	iii
3.0 Basic Competencies -----	iv - v
4.0 Objectives of the syllabus -----	vi
5.0 Relationship between the common national goals and the objectives of the syllabus -----	vii
6.0 Syllabus- -----	1 - 2
6.1 Grade 12 syllabus -----	3 - 35
6.2 Grade 13 syllabus -----	36 - 68
7.0 School policies and programs -----	69 - 70
8.0 Assessment and evaluation -----	70

1.0 Introduction

The subject " Business Statistics" is introduced to the General Certificate of Education (Advanced Level) with the education reforms of 1995.

It is no secret that a majority of students pursuing G.C.E. (A/L) in Sri Lanka select of subjects outside the science stream. This subject was introduced as the result of realization by academics, involved in the reforms activities, in the field of education, regarding the absence of quantitative techniques in the Arts and Commerce streams conducive to the development of skills related to Mathematics and Measurement. In a social system, advancing day by day in co-operation with the challenges of technological methodologies, it is essential that the capability to arrive at correct and effective decisions is an attribute that should be developed in every individual. Through the introduction of this syllabus, it is expected to equip the majority of those completing their senior secondary education through Arts and Commerce as well as Technology streams, with skills related to mathematics and measurement, when they join the mainstream of society.

This subject is nurtured by a number of superior scientific methodologies that will contribute to the minimization of the risk of uncertainty in the utilization of one's resources frugally and in an economically effective manner in the achievement of an outstanding product.

Similarly, the subject statistics occupies an important place in universally accepted professional courses like AAT, SLIAC, CIMA, ACCA. Therefore, the study of business statistics by any student sitting one's G. C. E. (A/L) s through the Arts/Commerce/ Technology streams stands to benefit in numerous ways in the future.

The business statistics syllabus, introduced in 1995 has been subject to revision on two occasions to be implemented from 2017. The present revised syllabus, anticipates student attention to be focused on the involvement of computer technology and methods of electronic data collection in the organization and analysis of data in place of outdated methodologies, in order to overcome the challenges of the modern world.

Therefore, it is expected that the pursuit of Business Statistics will prove of immense service to the future of any student studying science, Arts, Commerce and Technical streams at G.C.E. (A/L)s.

2.0 National Goals

- (i) National building and the establishment of a Sri Lankan identity through the promotion of national cohesion, national integrity, national unity, harmony, and peace, and recognizing cultural diversity in Sri Lanka's plural society within a concept of respect for human dignity
- (ii) Recognizing and conserving the best elements of the nation's heritage while responding to the challenges of a changing world
- (iii) Creating and supporting an environment imbued with the norms of social justice and a democratic way of life that promotes respect for human rights, awareness of duties and obligations, and a deep and abiding concern for one another
- (iv) Promoting the mental and physical well-being of individuals and a sustainable life style based on respect for human values
- (v) Developing creativity, initiative, critical thinking, responsibility, accountability and other positive elements of a well-integrated and balanced personality
- (vi) Human resource development by educating for productive work that enhances the quality of life of the individual and the nation and contributes to the economic development of Sri Lanka
- (vii) Preparing individuals to adapt to and manage change, and to develop capacity to cope with complex and unforeseen situations in a rapidly changing world
- (viii) Fostering attitudes and skills that will contribute to securing an honorable place in the international community, based on justice, equality and mutual respect

3.0 Basic Competencies

The following Basic Competencies developed through education will contribute to achieving the above National Goals.

(i) Competencies in Communication

Competencies in Communication are based on four subsets: Literacy, Numeracy, Graphics and IT proficiency.

Literacy : Listen attentively, speak clearly, read for meaning, write accurately and lucidly and communicate ideas effectively

Numeracy : Use numbers for things, space and time, count, calculate and measure systematically

Graphics : Make sense of line and form, express and record details, instructions and ideas with line, form and color

IT proficiency : Computeracy and the use of information and communication technologies (ICT) in learning, in the work environment and in personal life

(ii) Competencies relating to Personality Development

- General skills such as creativity, divergent thinking, initiative, decision making, problem solving, critical and analytical thinking, team work, inter-personal relations, discovering and exploring
- Values such as integrity, tolerance and respect for human dignity
- Emotional intelligence

(iii) Competencies relating to the Environment

These competencies relate to the environment : social, biological and physical.

Social Environment : Awareness of the national heritage, sensitivity and skills linked to being members of a plural society, concern for distributive justice, social relationships, personal conduct, general and legal conventions, rights, responsibilities, duties and obligations

Biological Environment : Awareness, sensitivity and skills linked to the living world, people and the ecosystem, the trees, forests, seas, water, air and life-plant, animal and human life

Physical Environment : Awareness, sensitivity and skills linked to space, energy, fuels, matter, materials and their links with human living, food, clothing, shelter, health, comfort, respiration, sleep, relaxation, rest, wastes and excretion included here are skills in using tools and technologies for learning, working and living.

(iv) Competencies relating to Preparation for the World of Work.

Employment related skills to maximize their potential and to enhance their capacity

to contribute to economic development,

to discover their vocational interests and aptitudes,

to choose a job that suits their abilities, and

to engage in a rewarding and sustainable livelihood.

(v) Competencies relating to Religion and Ethics

Assimilating and internalizing values, so that individuals may function in a manner consistent with the ethical, moral and religious modes of conduct in everyday living, selecting that which is most appropriate.

(vi) Competencies in Play and the Use of Leisure

Pleasure, joy, emotions and such human experiences as expressed through aesthetics, literature, play, sports and athletics, leisure pursuits and other creative modes of living

(vii) Competencies relating to ‘learning to learn’

Empowering individuals to learn independently and to be sensitive and successful in responding to and managing change through a transformative process, in a rapidly changing, complex and interdependent world.

4.0 Objectives of the syllabus

- Motivating for efficient utilizations of resources through a systematic analysis of business data
- Guiding for generalization in connection with the entirety by analyzing a representative portion
- Leading towards risk minimizing and optimal decisions
- Directing one to forecast prospective trends of a variable scrutinizing in the current business affairs
- Stimulating one to approach new trends in business through involvement in research and development affairs in the business field
- Preparing to overcome the challenges one comes across in job-oriented higher education field
- Inculcating application of modern technology for a efficient analysis of data
- Encouraging the individual to face the unemployment problem successfully by promoting entrepreneurship skills
- Inspiring one to lead a balanced life style behaving as a rational customer
- Leading towards higher education in the field of statistics by enhancing statistics literacy

5.0 Relationship between the common national goals and the objectives of the syllabus

Objectives of the syllabus	Common National Goals							
	i	ii	iii	iv	v	vi	vii	viii
• Motivating for efficient utilizations of resources through a systematic analysis of business data				√				
• Guiding for generalization in connection with the entirety by analyzing a representative portion					√			
• Leading towards risk minimizing and optimal decisions							√	
• Directing one to forecast prospective trends of a variable scrutinizing in the current business affairs		√						
• Stimulating one to approach new trends in business through involvement in research and development affairs in the business field		√					√	
• Preparing to overcome the challenges one comes across in job-oriented higher education field						√		
• Inculcating application of modern technology for a efficient analysis of data							√	
• Encouraging the individual to face the unemployment problem successfully by promoting entrepreneurship skills				√			√	
• Inspiring one to lead a balanced life style behaving as a rational customer					√			
• Leading towards higher education in the field statistics by enhancing statistics literacy						√		

Proposed plan in the allocation of competency levels in the syllabus into the school terms

Grade	Term	competency and competency level	No. of periods	No. of competency levels
Grade 12	First term	From competency level 1.1 to competency level 3.3	104	11 competency levels
	Second term	From competency level 3.4 to competency level 5.10	98	20 competency levels
	Third term	From competency level 5.11 to competency level 6.3	98	11 competency levels
Grade 13	First term	From competency level 7.1 to competency level 7.11	100	11 competency levels
	Second term	From competency level 8.1 to competency level 9.7	100	14 competency levels
	Third term	From competency level 9.8 to competency level 11.6	100	13 competency levels

6.0 Syllabus

Grade 12 Syllabus

Grade 13 Syllabus

Grade 12 Syllabus		Grade 13 Syllabus	
Competency	No. of Periods	Competency	No. of Periods
1.0 Studies the scope and the nature of the subject Business Statistics.	08	7.0 Uses statistical estimation for business decision making.	100
2.0 Organises and presents business data.	60	8.0 Uses statistical hypothesis testing for business decision making.	70
3.0 Analyses business data using the techniques of descriptive statistics	60	9.0 Analyses the time dependent variables and forecasts.	50
4.0 Forecasts, having studied the relationships between the variables.	40	10.0 Uses Statistical Quality Control techniques for management decision making.	40
5.0 Demonstrates the preparedness to face business risk.	100	11.0 Uses indices for making business decisions.	40
6.0 Uses appropriate sampling techniques for collecting data to make business decisions.	32		
	300		300

6.1 Grade 12 Syllabus

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
1.0 Studies the scope and the nature of the subject Business Statistics.	1.1 Reviews Business Statistics and its limitations.	<ul style="list-style-type: none"> • Statistics <ul style="list-style-type: none"> • Definition • Business Statistics <ul style="list-style-type: none"> • Function • Limitations • Importance of statistics • Categories of statistics <ul style="list-style-type: none"> • Descriptive Statistics • Inferential Statistics • Misuses of statistics 	<ul style="list-style-type: none"> • Defines Statistics. • Explains the functions of Business Statistics. • Differentiates between Descriptive Statistics and Inferential Statistics. • Points out the importance of statistics. • Explains the limitations of statistics. • Describes the misuses of statistics. 	08 04
	1.2 Analyses the contribution of Statistics to the business field.	<ul style="list-style-type: none"> • Contribution of statistics to the business field • Specific uses of Business Statistics <ul style="list-style-type: none"> • For market surveys and research • For production planning and quality control • For financial management • For human resource management • For Research and Development • Contribution of statistics in other subjects. 	<ul style="list-style-type: none"> • Highlights the situations where statistics is important in the business field. • Lists the various techniques used in statistics. • Explains how to use these techniques in various business situations. • Evaluates the contribution of statistics in other field. 	04

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
<p>2.0 Organises and presents business data.</p>	<p>2.1 Studies various sources of collecting data.</p>	<ul style="list-style-type: none"> • Introduction to data • Population and sample • Categories of data <ul style="list-style-type: none"> • Quantitative data • Qualitative data • Internal data • External data • Sources of data <ul style="list-style-type: none"> • Primary data • Secondary data • Scales of measurement <ul style="list-style-type: none"> • Nominal scale • Ordinal scale • Interval scale • Ratio scale 	<ul style="list-style-type: none"> • Introduces statistical data. • Describes the need of data for statistical studies. • Introduces “population.” • Introduces “sample.” • Introduces quantitative data and gives examples. • Introduces qualitative data and gives examples. • Introduces internal data and gives examples. • Introduces external data and gives examples. • Introduces primary data sources and secondary data sources and differentiates between them. • Points out the reliability of primary data sources. • Points out the advantages and disadvantages of primary data. • Lists the sources of secondary data. • Points out the advantages and disadvantages of secondary data. • Categorises data according to the scale of measurements. 	<p>60 06</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>2.2</p> <p>Constructs the instruments required to collect data.</p>	<ul style="list-style-type: none"> • Methods of collecting data <ul style="list-style-type: none"> • Personal Interviews • Self enumeration (postal questionnaire method) • Telephone interviews • Direct observation • Electronic data collecting • Focused group interviews • Merits and demerits of data collecting methods • Instruments of collecting data <ul style="list-style-type: none"> • Schedule • Questionnaire <ul style="list-style-type: none"> • Pre-test • Editing of data 	<ul style="list-style-type: none"> • Introduces the methods of collecting data. • Explains the personal interview method. • Shows the merits and demerits of the personal interview method. • Explains the self enumeration method. • Explains the merits and demerits of the self enumeration method. • Introduces the telephone interview method. • Shows the merits and demerits of the telephone interview method. • Explains how to collect data through the direct observation method. • Shows the merits and demerits of the direct observation method. • Explains the electronic data collection method. • States how to collect data using focused groups. • Analyses the instruments of collecting data comparatively. • States the facts to be considered in preparing the schedule and questionnaire. • Explains the pre test. • Introduces the editing of data and explains the requirements of its. 	10

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>2.3 Organises business data.</p>	<ul style="list-style-type: none"> • Organisation of business data • Organised data <ul style="list-style-type: none"> • Array of data • Stem and leaf diagram • Tabulation • Frequency distribution <ul style="list-style-type: none"> • Ungrouped frequency distribution • Grouped frequency distribution • Relative frequency distribution • Cumulative frequency distribution • Cumulative relative frequency distribution 	<ul style="list-style-type: none"> • Explains the difference between raw data and organized data. • Prepares the array of data. • Shows the merits and demerits of the array of data. • Construct the stem & leaf diagram. • Explains the merits and demerits of stem & leaf diagram. • Names the properties of a complete table. • Presents the data in a complete table. • Constructs the ungrouped and grouped frequency distributions by given data. • Constructs the relative frequency distribution and cumulative frequency distribution for a given frequency distribution. • Constructs the cumulative relative frequency distribution using a relative frequency distribution. 	12

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>2.4 Presents business data using charts.</p>	<ul style="list-style-type: none"> • Presentation of data using charts <ul style="list-style-type: none"> • Simple bar charts • Component bar charts • Multiple bar charts • Pictograms • Pie-charts • Profile charts 	<ul style="list-style-type: none"> • Describes the facts to be considered in construction of a chart. • Points out the need for charts by means of presentation of data. • Introduces the simple bar chart. • Points out the need of simple bar charts. • Constructs a simple bar chart using the given data. • Introduces the component bar chart. • Points out the need of a component bar chart. • Constructs a component bar chart using the given data. • Introduces the percentage component bar chart. • Introduces the multiple bar chart. • Points out the need for a multiple bar chart. • Constructs a multiple bar chart using given data. • Introduces the “pictogram”. • Points out the need of a pictogram. • Construct a pictogram for given data. • Introduces the “pie chart”. 	12

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>2.5 Presents business data using graphs.</p>	<ul style="list-style-type: none"> • Presentation of data using graphs <ul style="list-style-type: none"> • Linear graphs • Histogram • Frquency polygon • Cumulative frequency curve (Ogive curve) 	<ul style="list-style-type: none"> • Points out the need of a pie chart. • Constructs a pie chart using the given data. • Introduces the profile chart. • Points out the need of a profile chart. • Constructs a profile chart using the data given. • points out the problems arising in presenting data using charts. • Explains the merits and demerits of each technique of representation of data. • Processes data in an appropriate manner to be presented graphically. • Constructs linear graphs naming the axes appropriately. • Describes the deviations of data using linear graphs. • Constructs the histogram and the frequency polygon related to the frequency distribution. • Differentiates between the histogram and the frequency polygon. 	12

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>2.6 Constructs specific graphs for presentation of business data.</p>	<ul style="list-style-type: none"> • Lorrenze Curve <ul style="list-style-type: none"> • Construction of the Lorrenze curve • Interpretation of the Lorrenze curve • Ginnie coefficient • Applications of the Lorrenze curve • Z - chart <ul style="list-style-type: none"> • Construction of the z - chart • Applications of the z - chart 	<ul style="list-style-type: none"> • Constructs the ogive curve using the cumulative frequency distribution. • States the median observing the ogive curve. • Introduces the variables that can be represented using the Lorrenze curve. • Constructs the Lorrenze curve by processing the data appropriately. • Explains the inequity distribution of relevant variable using the Lorrenze curve. • Describes how to compute the Ginnie co-efficient for making decisions. • States the instances for the Lorrenze curve is applicable. • Introduces the variables that can be represented by using a z - chart. • Interprets the z - chart. • Constructs z - chart processing the data appropriately. • Describes the uses of the z - chart in decision making. 	08

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
<p>3.0 Analyses business data using the techniques of descriptive statistics.</p>	<p>3.1 Uses the measures of central tendency for data analysis.</p>	<ul style="list-style-type: none"> • Central tendency <ul style="list-style-type: none"> • Measures of central tendency for ungrouped and grouped data <ul style="list-style-type: none"> • Mean • Median • Mode • Properties of a good measure of central tendency • Relative merits and demerits of major measures of central tendency 	<ul style="list-style-type: none"> • Interprets “central tendency”. • Explains the properties of a good measure of central tendency. • Interprets the “Mean” as a measure of central tendency. • Computes the mean for ungrouped and grouped data. • Interprets the “Median” as a measure of central tendency. • Computes the Median for ungrouped and grouped data. • Interprets the Mode. • Computes the Mode for ungrouped and grouped data. • Lists the significant features of Mean as a good measure of central tendency. • Lists the significant features of Median • Lists the significant features of Mode. • Comparatively explains the relative advantages and disadvantages of measures of central tendency. 	<p>60</p> <p>12</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>3.2 Analyses data using specific measures of central tendency.</p>	<ul style="list-style-type: none"> • Specific measures of central tendency <ul style="list-style-type: none"> • Geometric mean • Harmonic mean • Weighted mean 	<ul style="list-style-type: none"> • Provides examples for specific situations where each measure of central tendency is applicable. • Explains the Empirical relationship inbetween Mean, Median and Mode. • Points out the need of specific measures of central tendency for data analysis. • Interprets the “geometric” mean. • Explains the situations where the geometric mean is applicable. • Computes the geometric mean for given data. • Points out the problems arrisen in computing the geometric mean. • Interprets “harmonic” mean. • Explains the situations where the harmonic mean is applicable. • Computes the “harmonic” mean. • Interprets “weighted mean” • Describes what weighting means. • Explains the situations where the weighted mean is applicable. 	12

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>3.3 Uses the measures of relative location to analyse the location of data.</p>	<ul style="list-style-type: none"> • Relative location • Measures of relative location <ul style="list-style-type: none"> • Quartiles • Decimals/Deciles • Percentiles • Measures of relative location for ungrouped and grouped data 	<ul style="list-style-type: none"> • Computes the weighted mean. • Arrays, the geometric mean, harmonic mean and the simple arithmetic mean of the same data set in accordance with the magnitude of each measure. • Makes business decisions using the measures of central tendency. • Introduces, ‘relative location.’ • Describes the measures of relative location. • States the benefits of computing the relative location numerically. • Computes the quartiles, decimals and percentiles of ungrouped and grouped distributions. • Makes decisions using quartiles, deciles and percentiles. 	12

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>3.4 Uses the measures of dispersion for data analysis.</p>	<ul style="list-style-type: none"> • Dispersion <ul style="list-style-type: none"> • Interpretation • Importance • Measures of dispersion <ul style="list-style-type: none"> • Range • Quartile deviation • Mean deviation • Variance • Standard deviation • Measures of relative dispersion • Co-efficient of variation <ul style="list-style-type: none"> • Standardized marks (Z-score) 	<ul style="list-style-type: none"> • Interprets dispersion. • States the uses of computing dispersion. • Lists the measures used to measure dispersion. • Computes measures such as the Range, Quartile Deviation, Mean Deviation, Variance and the Standard Deviation of ungrouped and grouped frequency distributions. • Introduces relative dispersions. • Explains the need of measuring relative dispersion. • Measures relative dispersion using the co-efficient of variation. • Standardizes the data using the Z-value. • Makes business decisions using the measures of dispersion. 	12

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>3.5 Uses the measures of skewness and kurtosis for data analysis.</p>	<ul style="list-style-type: none"> • Skewness <ul style="list-style-type: none"> • Interpretation • Measures of skewness <ul style="list-style-type: none"> • Pearson's the 1st co-efficient of skewness • Pearson's the 2nd co-efficient of skewness • Bowley's the 1st co-efficient of skewness • Bowley's the 2nd co-efficient of skewness • Kurtosis <ul style="list-style-type: none"> • Interpretation • Types of Kurtosis <ul style="list-style-type: none"> • Leptokurtic • Mesokurtic • Platykurtic • Measures of kurtosis <ul style="list-style-type: none"> • Percentage kurtosis co-efficient • Box & Whisker Plot <ul style="list-style-type: none"> • Construction • Application 	<ul style="list-style-type: none"> • Interprets the skewness and points out the need of it. • Interprets and computes Pearson's 1st co-efficient of skewness. • Explains the situations where the Pearson's 1st co-efficient of skewness is applicable and inapplicable. • Interprets and computes Pearson's 2nd co-efficient of skewness. • Explains the situations where the Pearson's 2nd co-efficient of skewness is applicable and inapplicable. • Interprets and computes the Bowley's 1st co-efficient of skewness. • Points out the good qualities and weaknesses of Bowley's 1st co-efficient of skewness. • Interprets and computes Bowley's 2nd co-efficient of skewness. • Points out the good qualities and weaknesses of Bowley's 2nd co-efficient of skewness. 	12

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
			<ul style="list-style-type: none"> • Interprets the nature of the distribution using the co-efficient of skewness. • Introduces Kurtosis and points out the need of it. • Explains the situations of Kurtosis such as Mesokurtic, Leptokurtic and Platykurtic. • Interprets and computes the percentage Kurtosis co-efficient. • Interprets the nature of the distribution using the co-efficient of Kurtosis. • Introduces the “ Box & whisker plot” and the need of it. • Constructs a Box & Whisker plot for a given data set and describes the nature of dispersion of these data. 	

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
<p>4.0 Forecasts, having studied the relationships between the variables.</p>	<p>4.1 Classifies the variables in accordance with the nature of relations.</p>	<ul style="list-style-type: none"> • Variables <ul style="list-style-type: none"> • Independent variables • Dependent variables • Scatter diagrams • Relationship between the variables <ul style="list-style-type: none"> • Linear relationships. <ul style="list-style-type: none"> • Linear positive relationships. • Linear negative relationships. • Non-linear relationships. • Instances which are not related 	<ul style="list-style-type: none"> • Interprets the variables. • Names the variables which are related to each other. • Differentiates between the independent variables and dependent variables. • Introduces the scatter diagram. • Presents the data using a scatter diagrams. • Explains the linear relations between variables using scatter diagrams. • Points out the non linear relations between the variables using scatter diagrams. • Presents a situation where there is no relations between the variables using a scatter diagram. • Describes the uses of a scatter diagram. 	<p>40</p> <p>06</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>4.2 Studies the linear correlation concept between two variables.</p>	<ul style="list-style-type: none"> • Concept of the linear correlation <ul style="list-style-type: none"> • Introduction • Uses 	<ul style="list-style-type: none"> • Interprets the concept of correlation. • Provides with the instances where the correlation is applied. • Describes the uses of knowing the correlation between two variables. • Explains the need of measuring the size of correlation between two variables. 	04
	<p>4.3 Quantifies the Product Moment Correlative Co-efficient.</p>	<ul style="list-style-type: none"> • Product Moment Correlative Co-efficient <ul style="list-style-type: none"> • Introduction • Computing • Interpretation 	<ul style="list-style-type: none"> • Interprets the product moment correlative co-efficient. • Gives examples for situations where the product moment correlative co-efficient is applied. • Computes the value of product moment correlative co-efficient for a given pair of variables. • Points out the properties of the product moment correlative co-efficient. • Explains the size and the direction of the correlation between two variables with the various values taken by the co-efficient. 	06

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>4.4 Quantifies the Rank Correlative Co-efficient.</p>	<ul style="list-style-type: none"> • Rank Correlative Co-efficient <ul style="list-style-type: none"> • Introduction • Computing • Interpretation 	<ul style="list-style-type: none"> • Ranks the variables which are not quantitative. • Interprets the rank correlative co-efficient. • Gives examples for the situations where the rank correlative co-efficient is applicable. • Computes the rank correlative co-efficient between two variables which are not quantitative. • Explains the characteristics of the rank correlative co-efficient. • Describes the association among the two variables using the co-efficient. • Ranks the quantitative variables. • Examines the association between the ranked quantitative variables. 	<p>04</p>
	<p>4.5 Studies the concept of regression.</p>	<ul style="list-style-type: none"> • Concept of regression <ul style="list-style-type: none"> • Introduction • Simple regression • Multiple regression • Population regression model • Estimated regression model • Uses of regression 	<ul style="list-style-type: none"> • Distinguishes between deterministic models and stochastic models. • Explains the requirement of expressing the dependent variable with respect to the independent variable using an equation (model). 	<p>06</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>4.6 Uses the Free Hand Method to fit a simple regression Line.</p>	<ul style="list-style-type: none"> • Free Hand Method <ul style="list-style-type: none"> • Introduction • Fitting the line • Importance • Weakpoints 	<ul style="list-style-type: none"> • Interprets the regression. • Distinguishes the simple regression and multiple regression. • Gives examples for situations where simple regression and multiple regression are applicable. • Writes the population regression model. • Introduces the variables, co-efficients and the error term of the population regression model. • Writes the estimated regression model. • Introduces the variables and co-efficients of the estimated regression model. • Describes the uses of regression. • Introduces the free hand method. • Fits a regression line on the free hand method. • Draws the regression line on the scatter diagram using the given data. • States the merits and demerits of deriving a regression line on the free hand method. 	02

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>4.7 Uses the Least Square Method to fit a simple regression line.</p> <p>4.8 Tests the goodness of fit of a regression line.</p>	<ul style="list-style-type: none"> • Least Square Method <ul style="list-style-type: none"> • Introduction • Fitting the regression line <ul style="list-style-type: none"> • Importance • Weakpoints • Testing the goodness of fit of a regression line • Co-efficient of determination <ul style="list-style-type: none"> • Introduction • Calculation • Interpretation • Forecasting the dependent variable using the estimated regression line 	<ul style="list-style-type: none"> • Introduces the least square method. • Derives the equation of the regression line on least square method for given data. • Describes the regression co-efficient. • Estimates the dependent variable on the independent variable using the regression line. • States the merits and demerits of fitting a regression line on the least square method. • Interprets the co-efficient of determination. • Computes the co-efficient of determination using a regression line that has been fit. • Describes about the goodness of fit of the regression line using the computed co-efficient of determination. • Estimates the value of dependent variable using the estimated regression line for any given value of the independent variable. 	<p>04</p> <p>08</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
5.0 Demonstrates the preparedness to face business risk.	5.1 Analyses the concept of probability related to business uncertainty.	<ul style="list-style-type: none"> • Probability <ul style="list-style-type: none"> • Definition • Events <ul style="list-style-type: none"> • Certain events • Uncertain events • Impossible events 	<ul style="list-style-type: none"> • Defines probability as a statistical technique of measuring uncertainty. • Lists business events. • Explains the certain (definite) events involved in businesses. • Explains the uncertain events involved in businesses. • Explains the impossible events that never happen. 	100 02
	5.2 Separates the random experiments.	<ul style="list-style-type: none"> • Deterministic experiments • Random experiments • Sample space • Trails 	<ul style="list-style-type: none"> • Differentiates between deterministic experiments and random experiments. • Provides appropriate examples for deterministic experiments and random experiments. • Highlights the instances related to random experiments from the business field. • Interprets the sample space. • Presents the sample space using sets, tree diagrams, and pictograms. • Explains trails. 	02

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>5.3 Uses sets notations to combine events.</p>	<ul style="list-style-type: none"> • Events • Event space • Simple events and composite events <ul style="list-style-type: none"> • Making the events composite <ul style="list-style-type: none"> • Union • Intersection • Complement of an event • Difference of two events 	<ul style="list-style-type: none"> • Interprets the events. • Separates the sample space into regions that belong to each event interpreted in it. • Interprets simple events. • Interprets composite events. • Explains that a composite event consists of several simple events. • Makes the events composite using the union and intersection of sets. • Expresses the complement of an event using venn diagrams and standard symbols. • Expresses the difference between two events using venn diagrams and standard symbols. • Interprets the event space. 	04

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>5.4 Prepares and chooses a set of materials.</p>	<ul style="list-style-type: none"> • Counting techniques <ul style="list-style-type: none"> • Permutations • Combinations • Tree diagrams 	<ul style="list-style-type: none"> • States the number of ways in which a set of different materials can be arranged in order. • Interprets the permutations and combinations • Writes the formula used to compute a number of permutations and combinations. • Differentiates between permutations and combinations. • Solves problems accurately using the relevant formulae. • Derives the sample space for random experiments using tree diagrams. • Solves problems related to random experiments using tree diagrams. 	04
	<p>5.5 Expands a binomial expression.</p>	<ul style="list-style-type: none"> • Binomial theorem <ul style="list-style-type: none"> • Binomial expansion • Usage of binomial theorem 	<ul style="list-style-type: none"> • Expresses a binomial expression. • Expands a binomial expression. • States that a binomial expression with any power can be expanded. • Uses the binomial theorem to binomial expansion. 	04

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>5.6 Uses the classical approach as an approach to probability.</p>	<ul style="list-style-type: none"> • Classical approach <ul style="list-style-type: none"> • Interpretation • Usage 	<ul style="list-style-type: none"> • Interprets the classical approach. • Points out the situations where the classical approach is applicable to evaluate probability. • Computes the probability of an event in accordance with the classical approach. • Points out the weaknesses in the classical approach. 	02
	<p>5.7 Uses the relative frequency approach as an approach to probability.</p>	<ul style="list-style-type: none"> • Relative frequency approach <ul style="list-style-type: none"> • Interpretation • Usage 	<ul style="list-style-type: none"> • Expresses relative frequency accurately. • Represents graphically the relative frequency of occurrence of the considered event with respect to each number of times that the experiment is conducted. • Interprets the probability based on the relative frequency of occurrence of the considered event when increasing the number of times that the experiment is conducted. • States the situations where the relative frequency approach can be applied. 	04

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>5.8 Uses the subjective approach as an approach to probability.</p> <p>5.9 Uses the axiomatic approach as an approach to probability.</p>	<ul style="list-style-type: none"> • Subjective approach <ul style="list-style-type: none"> • Interpretation • Uses • Axiomatic approach <ul style="list-style-type: none"> • Interpretation • Theorem • Uses 	<ul style="list-style-type: none"> • Explains the subjective approach. • Points out the instances where the probability is expressed on subjective approach. • Points out the weaknesses of this approach as a technique of expressing the probability. • States the axioms related to probability. • Writes expressions for probability of various events using axioms. • Interprets the additive law of probability. • Interprets the mutually exclusive events. • States the additive law for the union of mutually exclusive events. • States the additive law for the union of any two events. • Solves probability based problems using the additive law. • Uses venn diagrams as well as the theorems to calculate the probability of various events. • Makes rational decisions by computing the possibilities of various events. 	<p>02</p> <p>06</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>5.10 Uses the techniques of conditional probability to solve the probability based problems.</p>	<ul style="list-style-type: none"> • Conditional probability <ul style="list-style-type: none"> • Interpretation • Multiplicative law • Uses 	<ul style="list-style-type: none"> • Interprets the conditional probability. • Solves problems related to the conditional probability using the relevant formula. • States the multiplicative law using the formulae of the conditional probability. • Demonstrates the ability of making rational decisions in the business field using the concept of conditional probability. 	04
	<p>5.11 Uses the probability theorems of independence to solve problems.</p>	<ul style="list-style-type: none"> • Independence <ul style="list-style-type: none"> • Interpretation • Independence of two events • Independence in more than two events • Uses of independence 	<ul style="list-style-type: none"> • Interprets independence. • Separates the independent events through various events. • Uses the probability theorems of independence to make business decisions. • Computes the probability of occurring the independent events simultaneously. • Computes the probability of occurring more than two independent events simultaneously. 	04

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>5.12 Apportions sample space correctly to use the total probability theorem and Baye’s theorem.</p> <p>5.13 Builds up probability distributions interpreting the random variables.</p> <p>5.14</p>	<ul style="list-style-type: none"> • Apportionment of the sample space • Total probability theorem <ul style="list-style-type: none"> • Interpretation • Uses • Baye’s theorem <ul style="list-style-type: none"> • Interpretation • Uses • Usage of tree diagrams to solve problems • Random variables <ul style="list-style-type: none"> • Discrete random variables • Continuous random variables • Probability distributions <ul style="list-style-type: none"> • Definition 	<ul style="list-style-type: none"> • Explains the mutually exclusive and collectively exhaustive events. • Highlights the events that provide the basis for total probability theorem. • Interprets the total probability theorem. • Gives examples for the instances where the total probability theorem is applicable. • Computes the probability using the total probability theorem. • Interprets the Baye’s theorem. • Gives examples for instances where the Baye’s theorem is applicable. • Solves problems using the Baye’s theorem. • Uses tree diagrams to solve problems related to probability. • Introduces the random variables. • Categorizes the random variables. • Gives examples for discrete random variables. • Gives examples for continuous random variables. 	<p>08</p> <p>08</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<ul style="list-style-type: none"> • Studies the Standard Probability Models. 	<ul style="list-style-type: none"> • Expected value • Variance • computing the expected value and the variance of a discrete random variable • Standard Probability Models <ul style="list-style-type: none"> • Interpretation • Discrete Probability Models • Continuous Probability Models 	<ul style="list-style-type: none"> • Introduces the probability distribution. • Explains the conditions that should be satisfied by a probability distribution. • Introduces the expected value and the variance of a probability distribution of a random variable. • Builds up the probability distribution of a discrete random variable related to a random experiment. • Computes the expected value and the variance of a discrete probability distribution. • Makes business decisions using probability distribution of a discrete random variable. • Explains the necessity of the standard probability models. • Lists out the probability models related to discrete random variables. • Names the probability models related to continuous random variables. 	04

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>5.15 Solves probability based problems using the binomial distribution.</p>	<ul style="list-style-type: none"> • Binomial Distribution • Bernoli trials <ul style="list-style-type: none"> • Conditions relevant to the binomial distibutions • Probability mass function of a bionomial distribution • Mean and variance of a bionomial distribution • Uses of the bionomial distribution model • Properties of a binomial distribution 	<ul style="list-style-type: none"> • Describes Bernoli trials. • Interprets the bionomial distribution stating the relevant conditions. • Provides instances for binomial random variables using binomial theorem. • Interprets the function of the binomial distribution. • Solves probability based problems using the function of a binomial distribution. • Uses the binomial distribution tables to solve the problems easily. • Interprets and computes the mean and the variance of a binomial distribution. • Describes the properties of a binomial distribution. 	10
	<p>5.16 Solves the probability based problems using the poisson model.</p>	<ul style="list-style-type: none"> • Poisson Distribution <ul style="list-style-type: none"> • Introduction to poisson distribution • Probability mass function of a poisson distribution • Mean and variance of a poisson 	<ul style="list-style-type: none"> • Writes the assumptions on which the poisson random variables have been built. • Interprets the poisson distribution. • Provides instances for possison random variables. • Writes the probability mass function of the poisson distribution. 	12

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>5.17 Studies the normal distribution as a probability model.</p>	<p>distribution</p> <ul style="list-style-type: none"> • Usage of the poisson model • Properties of a poisson distribution • Poisson approximation to the binomial distribution <p>• Normal Distribution</p> <ul style="list-style-type: none"> • Introduction • Probability density function of the normal distribution • Mean and variance of the normal distribution • Properties of the normal distribution 	<ul style="list-style-type: none"> • Explains the mean and the variance of the poisson distribution. • Describes the properties of a poisson distribution. • Solves problems related to poisson distribution easily using the tables. • States the conditions needed to use the poisson distribution as an approximation to the binomial distribution. • Uses the poisson distribution as an approximation to solve the problems related to the binomial distribution. • Points out the characteristics of a normal distribution and defines it. • Defines the probability density function of the normal distribution. • States the parameters of a normal distribution. • Provides instances for variables which distribute normally. 	06

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>5.18</p> <p>Uses the standard normal distribution to solve the probability related problems.</p>	<ul style="list-style-type: none"> • Standard Normal Distribution <ul style="list-style-type: none"> • Introduction • Probability density function of the standard normal distribution • Transformation of a normal distribution into a standard normal distribution • Properties of the standard normal distribution • Solves problems using the standard normal distribution tables • Normal distribution as an approximation to the binomial distribution • Normal distribution as an approximation to the poisson distribution 	<ul style="list-style-type: none"> • Introduces the standard normal distribution. • States the probability density function of the standard normal distribution. • Transforms a normal distribution to the standard normal distribution. • Lists out the properties of a standard normal distribution. • Differentiates between the normal distribution and the standard normal distribution. • Solves problems using the standard normal distribution tables. • Solves problems related to the binomial distribution using the normal approximation. • Solves problems related to poisson distribution using the normal approximation • Explains the importance of a normal distribution. 	14

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
<p>6.0 Uses appropriate sampling techniques for collecting data to make business decisions.</p>	<p>6.1 Plans a sample survey for statistical inference.</p>	<ul style="list-style-type: none"> • Statistical inference • Population and sample • Parameters and statistics • Census and sample survey • Sampling frame and sampling unit • Sampling with replacement and without replacement • Merits and demerits of a sample survey • Basic steps of a sample survey • Sampling errors and non-sampling errors 	<ul style="list-style-type: none"> • Introduces statistical inference. • Differentiates between population and sample. • Differentiates among census (complete enumeration) and sample survey. • Differentiates between the parameters and statistics. • Explains sampling. • Describes the sampling frame and the sampling unit. • Differentiates between sampling with replacement and sampling without replacement. • Explains the need of a sample survey. • Describes the advantages of a sample survey beyond a census. • Proposes the most appropriate sampling frames to draw out various samples. 	<p>32</p> <p>06</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>6.2 Uses probabilistic sampling techniques for alternative sampling.</p>	<ul style="list-style-type: none"> • Probabilistic sampling techniques • Simple random sampling <ul style="list-style-type: none"> • Introduction • Selecting the sample • Usage of the sampling technique • Merits and demerits • Stratified sampling <ul style="list-style-type: none"> • Introduction • Selecting the sample • Usage of the sampling technique • Merits and demerits 	<ul style="list-style-type: none"> • Gives instances where sample surveys should not be followed. • Lists out the steps of a sample survey. • Introduces the sampling error. • Introduces the non-sampling errors. • Reasonifies for non-sampling errors. • Explains ‘probabilistic sampling’. • States the situations where probabilistic sampling is applicable. • Lists the merits and demerits of probabilistic sampling. • Defines the simple random sampling. • Selects simple random samples from a finite population. • Gives examples where the simple random sampling technique can be applied. • Lists out the merits and demerits of the simple random sampling technique. • Defines the stratified random sampling technique. • Selects the stratified random samples from a finite population. 	16

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
		<ul style="list-style-type: none"> • Cluster sampling <ul style="list-style-type: none"> • Introduction • Selecting the sample • Usage of the sampling technique • Merits and demerits • Systematic sampling <ul style="list-style-type: none"> • Introduction • Selecting the sample • Usage of the sampling technique • Merits and demerits 	<ul style="list-style-type: none"> • Gives instances where the stratified sampling technique is applicable. • Lists the merits and demerits of the stratified sampling technique. • Defines the cluster sampling. • Describes the concepts related to cluster sampling. • Gives instances where cluster sampling is applicable. • States the merits and demerits of cluster sampling. • Defines one stage, two stage and multi stage cluster sampling separately. • Describes how to draw a sample under each technique. • Defines the systematic sampling. • Lists the steps followed in selecting a systematic sample. • Gives instances where systematic sampling is applicable. • Describes the relationships between stratified, cluster and systematic samples. • Points out the relative merits and demerits of each technique. 	

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>6.3 Uses non-probabilistic sampling techniques for sampling.</p>	<ul style="list-style-type: none"> • Non-probabilistic sampling techniques <ul style="list-style-type: none"> • Quota sampling <ul style="list-style-type: none"> • Introduction • Drawing the sample • Uses of the sampling technique • Merits and demerits • Judgement sampling <ul style="list-style-type: none"> • Introduction • Drawing the sample • Usage of the sampling technique • Merits and demerits • Convenient sampling <ul style="list-style-type: none"> • Introduction • Drawing the sample • Usage of the sampling technique • Merits and demerits • Purposive sampling <ul style="list-style-type: none"> • Introduction • Drawing the sample • Usage of sampling technique • Merits and demerits 	<ul style="list-style-type: none"> • Explains the differences between probabilistic sampling techniques and non-probabilistic sampling techniques . • Names the non-probabilistic sampling techniques. • Introduces quota sampling. • Selects a sample on quota sampling from a given population. • Writes the merits and demerits of quota sampling technique. • Defines judgement sampling. • States the situations where judgement sampling is appropriated. • Draws out a sample using judgement sampling from a given population. • Lists the merit and demerit of judgement sampling. • Defines convenient sampling. • Draws a sample on convenient sampling from a given population. • lists the merits and demerits of convenient sampling. • Describes purposive sampling. • Gives instances of purposive sampling. • Points out merits and demerits of purposive sampling. 	<p>10</p> <hr/> <p>300</p>

Grade 13 Syllabus

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
7.0 Uses statistical estimation for business decision making.	7.1 Constructs sampling distributions for statistical inference.	<ul style="list-style-type: none"> • Sampling distributions <ul style="list-style-type: none"> • Introduction • Construction of sampling distributions • Introduction of mean and variance of a sampling distribution 	<ul style="list-style-type: none"> • Builds up probability distributions for statistics. • Introduces the probability distribution of a statistic as a sampling distribution. • Explains the differences between population distribution, sample distribution and sampling distribution. • Calculates the mean and variance of a sampling distribution. • Explains differences between standard deviation and the standard error of an estimator. 	100 04
	7.2 Constructs the sampling distribution of the sample mean for statistical inference.	<ul style="list-style-type: none"> • Sampling distribution of the sample mean (\bar{x}) <ul style="list-style-type: none"> • When the population is normal • Central limit theorem <ul style="list-style-type: none"> • Introduction • Sampling distribution of \bar{x} when the population is not normal and the sample size is large 	<ul style="list-style-type: none"> • Defines the sampling distribution of the sample mean \bar{x}. • Constructs the sampling distribution of sample mean of large samples drawn from normal populations with known variance. 	18

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
		<ul style="list-style-type: none"> • Solving problems related to the sampling distribution of \bar{x} 	<ul style="list-style-type: none"> • Constructs the sampling distribution of sample mean of large samples drawn from normal populations with unknown variance. • Constructs the sampling distribution of sample mean of small samples drawn from normal populations with known variance. • Constructs the sampling distribution of sample mean of small samples drawn from a normal population with unknown variance. • States the central limit theorem and explains its uses. • Constructs the sampling distribution of sample mean of large samples drawn from a population not distributed normally with known variance. • Constructs the sampling distribution of sample mean of large samples drawn from a population not distributed normally with unknown variance. • Solves the problems related to the sampling distribution of sample mean. 	

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>7.3 Constructs the sampling distributions of the difference between two sample means for statistical inference.</p>	<ul style="list-style-type: none"> • Sampling distribution of the difference between two sample means $(\bar{x}_1 - \bar{x}_2)$ <ul style="list-style-type: none"> • When the population is normal • When the population is not normal and the sample size is large • Problem solving related to the sampling distribution of $(\bar{x}_1 - \bar{x}_2)$ 	<ul style="list-style-type: none"> • Explains that the sampling distributions are inaplicable, when small size samples are drawn form a population that is not normally distributed. • Describes what the sampling distribution of the difference between two sample means is. • Constructs the sampling distribution of the difference between two sample means. • Introduces the mean and the variance of the sampling distribution of the difference between two sample means. • Describes the sampling distribution of the difference between two sample means when the populations are normal and variances are known using large samples. • Describes the sampling distribution of the difference between two sample means using small samples when the populations are normal with known variance. 	12

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
			<ul style="list-style-type: none"> • Describes the sampling distribution of the difference between two sample means when the populations are normal and the variances are unknown using large samples. • Describes the sampling distribution of the difference between two sample means when the populations are normal and the variances are unknown using small samples. • Describes the sampling distribution of the difference between two sample means for large size samples when the populations are not normal, but the variances are known. • Describes the sampling distribution of the difference between two sample means for large samples when the populations are not normal, and the variances are unknown. • Solves problems using the sampling distribution of the difference between two sample means. • Makes decisions using the sampling distributions of the difference between two sample means. 	

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>7.4 Constructs the sampling distributions of sample proportions, for statistical inference.</p>	<ul style="list-style-type: none"> • Sampling distributions of sample proportions (P) <ul style="list-style-type: none"> • population proportion and sample proportion • Sampling distribution of sample proportions (when the sample size is large) • Solving problems related to the sampling distributions of sample proportions 	<ul style="list-style-type: none"> • Explains the population proportion and the sample proportion. • Introduces the sampling distribution of sample proportions. • Constructs the sampling distribution of the sample proportions. • States the mean and the variance of the sampling distribution of the sample proportion. • Describes the sampling distribution of the sample proportion when the sample size is large. • Solves the problems using the sampling distribution of the sample proportion. • Makes decisions related to the sampling distribution of sample proportion. 	08

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>7.5 Constructs the sampling distribution of the difference between two sample proportions for statistical inference.</p>	<ul style="list-style-type: none"> • Sampling distribution of the difference between two sample proportions ($P_1 - P_2$) • Difference between two population proportions and difference between two sample proportions • The sampling distribution of the difference between two sample proportions. ($P_1 - P_2$) (when the sample size is large) • Solving problems related to the sampling distribution of the difference between two sample proportions 	<ul style="list-style-type: none"> • Provides examples of the situations where the difference between two population proportions is needed. • Constructs the sampling distribution of the difference between two sample proportions. • Derives the mean and the variance of the sampling distribution of the difference between two sample proportions. • Writes down the sampling distribution of the difference between two sample proportions. • Solves problems related to the sampling distribution of the difference between two sample proportions. 	08

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>7.6 Uses the point estimation for estimating population parameters.</p>	<ul style="list-style-type: none"> • Statistical estimation <ul style="list-style-type: none"> • Point estimation • Estimator and estimate • Point estimators <ul style="list-style-type: none"> • For population mean • For population proportion • For population variance • Desired properties in a good point estimator <ul style="list-style-type: none"> • Unbiasedness • Efficiency • Consistency • Sufficiency 	<ul style="list-style-type: none"> • Explains statistical estimation. • Describes what an estimation is. • Explains properties of unbiasedness, efficiency, consistency and sufficiency, which are expected in a good point estimator. • Explains the difference and the relationship between estimation and estimator and between estimator and estimate. • States unbiased estimators for population mean, population proportion and population variance. • Points out the need of unbiased estimator with minimum variance for estimation. • Computes the relative efficiency of an estimator. • Separates unbiased estimators, efficient estimators and consistent estimators among the given estimators. • Points out the need of variance approaching toward 0 (zero) once the sample size is increased. 	10

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>7.7 Uses the interval estimation for estimating the population parameters.</p>	<ul style="list-style-type: none"> • Interval estimation <ul style="list-style-type: none"> • Introduction • Difference between the point estimation and interval estimation • Confidence co-efficient and confidence level • Confidence interval and confidence limits 	<ul style="list-style-type: none"> • Explains what the interval estimation is. • Differentiates between the point estimation and interval estimation. • Defines the confidence interval. • Defines confidence limits. • Differentiates between confidence level and confidence co-efficient. • Computes a confidence interval for population parameter at a given confidence level. • Introduces the standard error. • Manipulates the eligibility of interval estimation than point estimation. 	04
	<p>7.8 Uses the confidence interval to estimate the population mean.</p>	<ul style="list-style-type: none"> • Confidence interval for population mean (μ) <ul style="list-style-type: none"> • In a normal population with known variance • In a normal population with unknown variance 	<ul style="list-style-type: none"> • States the situations where the population mean should be estimated. • Constructs confidence interval to estimate the population mean (μ) • Derives confidence limits for μ using that expression. • Interprets the calculated confidence limits for parameter. 	12

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>7.9 Uses the confidence intervals for the difference between two population means.</p>	<ul style="list-style-type: none"> • For small samples using the t - distribution) • For large samples • Confidence interval for the mean of a population with unknown variance when the sample size is large • Confidence intervals for the difference between two population means ($\mu_1 - \mu_2$) <ul style="list-style-type: none"> • For the difference between the means of two normal populations, whose variances are known • For the difference between the means of two non-normal populations, whose variances are known 	<ul style="list-style-type: none"> • Writes the sampling distribution of sample means of small size samples drawn from a normal population whose variance is unknown. • Introduces the characteristics of the t - distribution and gives instances where the t - distribution is applicable. • derives the estimations using the t distributions for (μ) • Estimates confidence intervals for using large size samples drawn from a normal population whose variance is unknown. • Evaluate the significance and precision of the constructed confidence interval. • Explains the need of estimating the difference between two population means. • Builds up an expression for the difference between the means of two normal populations with known variance. • Computes and interprets the confidence limits for the difference between the means of two non-normal populations with known variance. 	10

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>7.10 Uses the confidence intervals for estimating the population proportion.</p>	<ul style="list-style-type: none"> • For the difference between the means of two non normal populations, whose variances are unknown • For the difference between the means of two normal populations with unknown variances, but the variances are equal <ul style="list-style-type: none"> • Confidence intervals for population proportion (π) <ul style="list-style-type: none"> • Using normal distribution 	<ul style="list-style-type: none"> • Derives pooled variance in an instance where the population variance are unknown but considered to be equal. • Computes the confidence limits for the difference between the means of two normal populations using the pooled variance using - t - distribution. • Builds confidence limits for the difference between the means of two normal populations with unknown variance using t - distribution. • Builds confidence intervals for the difference between the means of two non normal populations with unknown variance using central limit theorem. <ul style="list-style-type: none"> • Explains the need of constructing confidence intervals for the population proportion. • Computes the confidence intervals for the population proportion using the normal distribution. • Interprets the confidence intervals constructed for population proportion. 	06

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>7.11 Uses the confidence intervals to estimate the difference between the two population proportions.</p>	<ul style="list-style-type: none"> • Confidence intervals for the difference between two population proportions ($\pi_1 - \pi_2$) • For large samples 	<ul style="list-style-type: none"> • Solves problems related to the business field using the confidence intervals for population proportions constructed. • Points out the need of a confidence intervals for the difference between two population proportions. • Constructs the confidence intervals for the difference between two population proportions. • Solves practical problems using confidence intervals for the difference between two population proportions. 	08

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
<p>8.0 Uses statistical hypothesis testing for business decision making.</p>	<p>8.1 Studies the concepts related to statistical hypothesis testing.</p>	<ul style="list-style-type: none"> • Concepts related to statistical hypothesis testing <ul style="list-style-type: none"> • Hypothesis • Null hypothesis and alternative hypothesis • Simple hypothesis and composite hypothesis • Errors of hypothesis testing • Size of a test and power of a test • Test statistics • One tail test and two tail test • Critical region and acceptance region • Level of significance and p - value • Steps of a hypothesis testing 	<ul style="list-style-type: none"> • Introduces what a hypothesis is. • Explains ‘statistical hypothesis testing.’ • Points out the need for statistical hypothesis testing. • Introduces the null hypothesis and alternative hypothesis. • Differentiates between a simple hypothesis and a composite hypothesis. • Differentiates between the type one (type I) error and the type two (type II) error. • Introduces the level of significance. (size of a test) • Explains the power of a test and how to compute it. • Explains the test statistics and explains how to compute it. • Explains one tail test and two tail test. • Explains left tail test and right tail test. • Explains critical value and how to separate the acceptance region and rejected region of a test. 	<p>70 10</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>8.2 Uses hypothesis testing for population mean.</p>	<ul style="list-style-type: none"> • Hypothesis testing for the mean of a normally distributed population <ul style="list-style-type: none"> • When the population variance is known • When the population variance is unknown <ul style="list-style-type: none"> • Large size samples • Small size samples • Hypothesis testing for the mean of any non- normal population 	<ul style="list-style-type: none"> • Explains the level of significance and the p - value. • Lists the steps of hypothesis testing. • Explains the hypothesis testing for a normally distributed population. • Manipulates the test statistic to be used for that purpose. • Performs the standard normal test for testing hypothesis related to the mean of normally distributed population whose variance is known. • Substitutes the sample standard deviation (S) for population standard deviation (σ) in computing the test hypothesis related to the mean of a normally distributed population whose variance is unknown. • Uses the t-distribution to test hypothesis related to the mean of a normally distributed population whose variance is unknown with a small sample. 	10

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>8.3 Uses hypothesis testing for the difference between two population means.</p>	<ul style="list-style-type: none"> • Hypothesis testing for the difference between the means of two populations distributed normally <ul style="list-style-type: none"> • When the population variances are known • When the population variances are unknown <ul style="list-style-type: none"> • Large samples • Small samples • Hypothesis testing for the difference between the means of any two populations which are not normally distributed 	<ul style="list-style-type: none"> • Tests hypothesis for mean of any population which is not normally distributed using the central limit theorem. • Builds up hypothesis for the difference between two population means. • Tests statistical evidence for the hypothesis built using appropriate test statistics. • Derives the critical value relevant to the information provided (using the normal distribution or t-distribution). • Makes decisions comparing the value of the test statistic with - p - value or critical value. 	10

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>8.4 Uses hypothesis testing for population proportion.</p> <p>8.5 Uses hypothesis testing for the difference between two population proportions.</p>	<ul style="list-style-type: none"> • Hypothesis testing for proportion <ul style="list-style-type: none"> • For large samples • Testing whether two population proportions are equal <ul style="list-style-type: none"> • For large size samples 	<ul style="list-style-type: none"> • Builds up hypothesis for population proportion. • Derives the critical value on the level of significance using normal distribution. • Computes the value of test statistic using sample data. • states the decision rule. • Conclude about the hypothesis. <ul style="list-style-type: none"> • Builds up hypothesis for the difference between two population proportions. • Derives the critical value on the level of significance using the normal distribution. • Computes the value of test statistic using the sample data. • States the decision rule. • Conclude about the hypothesis. 	<p>04</p> <p>06</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>8.6 Uses the chi-square testing for making business decisions.</p>	<ul style="list-style-type: none"> • Chi square test (χ^2 - test) <ul style="list-style-type: none"> • Of two variables <ul style="list-style-type: none"> • Testing for independence • Contingency coefficient • Fitting the probability distributions <ul style="list-style-type: none"> • Binomial distribution • Poisson distribution • Testing the goodness of fit <ul style="list-style-type: none"> • Binomial distribution • Poisson distribution 	<ul style="list-style-type: none"> • Introduces the chi-square test. • Explains the characteristics of chi square distribution. • States the situations where chi square testing is applicable. • Conducts a chi square test for independence of two variables. • Introduces the contingency coefficient. • Computes the contingency coefficient. • Tests the equilibrium of an observed distribution. • Fits a theoretical binomial distribution for observed data. • Conducts a chi square test to assess the goodness of fit of a binomial distribution. • Fits a poisson distribution for observed data. • Conducts a chi square test to evaluate the goodness of fit of a poisson distribution. 	16

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>8.7 Uses the techniques of analysis of variance in order to make decisions about equity among the means of more than two populations.</p>	<ul style="list-style-type: none"> • One way analysis of variance <ul style="list-style-type: none"> • Assumptions • Mode of analysing • F - distribution • <u>Analysis of variance</u> (ANOVA) table • F - test 	<ul style="list-style-type: none"> • Explains the objectives of analysis of variance. • Explains the assumptions used for analysis of variance. • States the model of the Analysis of variance (one way ANOVA model). • Builds up hypothesis regarding the equity among the means of more than two populations. • Computes the value of test statistic using the variance between the samples and variance within the samples. • Finds the value of the test statistic using an analysis of variance (ANOVA) table. • Introduces the F-distribution. • Derives the critical value in accordance with the level of significance using the F- distribution. • States the decision law. • Concludes regarding the hypothesis. 	14

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
9.0 Analyses the time dependent variables and forecast.	9.1 Studies the variations in a time dependent variable.	<ul style="list-style-type: none"> • Time series <ul style="list-style-type: none"> • Introduction • Data processing <ul style="list-style-type: none"> • Calendar processing • Price processing • Population changes processing • Uses of time series analysis • Variations included in a time series <ul style="list-style-type: none"> • Long term trend (secular trend) - T • Seasonal movements - S • Cyclical movements - C • Irregular movements - I 	<ul style="list-style-type: none"> • Explains what a time series is. • Interprets the function of time series. • Plots the time series graphically. • Describes that the calendar processing, price processing and processing of data for population changes should be performed before analyzing a time series. • States the uses of time series analysis. • Introduces the components of time series such as Trend, Cyclical movements, Seasonal movements, and Irregular movements. • Gives examples for each component. 	50 08
	9.2 Studies the models used for time series analysis.	<ul style="list-style-type: none"> • Additive model <ul style="list-style-type: none"> • Introduction • Usage • Multiplicative model <ul style="list-style-type: none"> • Introduction • Usage 	<ul style="list-style-type: none"> • Names the models used for analyzing a time series. • Introduces the additive model. • Describes how to separate the components according to the additive model. 	04

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>9.3 Uses the free hand method to estimate the trend.</p>	<ul style="list-style-type: none"> • Free hand method <ul style="list-style-type: none"> • Estimating the trend • Merits and demerits 	<ul style="list-style-type: none"> • Explains the situations where the additive model is applicable. • Introduces the multiplicative model. • Describes how to separate the components according to the multiplicative model. • Explains the situations where the multiplicative model is used. • Explains that there are instances consists of both additive and multiplicative properties. • Explains the free hand method as a way of estimating the trend. • Derives the trend line on scatter diagram for a given set of data. • Explains the merits and demerits of fitting a trend line on free hand method. 	<p>02</p>
	<p>9.4 Uses the semi-average method to estimate the trend.</p>	<ul style="list-style-type: none"> • Semi average method <ul style="list-style-type: none"> • Calculating semi averages • Deriving the equation of the trend line • Estimating the trend values • Merits and demerits 	<ul style="list-style-type: none"> • Interprets the semi-average method. • Describes how to derive the trend line on semi-average method. • Derives the semi-average value using an appropriate example with an odd number of observations. 	<p>04</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>9.5 Uses the Least Square Method to estimate the trend.</p>	<ul style="list-style-type: none"> • Least square method • Estimating the parameters of the least square trend line • Deriving the equation of the trend line • Estimating the trend values • The trend line once the base is shifted • Merits and demerits 	<ul style="list-style-type: none"> • Derives the semi-average values using an appropriate example with an even number of observations. • Plots the trend line using the derived values. • Constructs the equation of the trend line. • Makes estimations using the trend line or trend equation. • Points out the merits and demerits of this method. • Introduces the least square method. • Estimates the parameters of the least square trend line. • Derives the equation of the trend line according to the least square method. • Plots the trend line on the time series graph using the least square method. • Forecasts using the trend line or equation. • Derives the equation of the trend line shifting the base. • Explains the merits and demerits of the least square method. 	04

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>9.6 Uses the moving average method to estimate the trend.</p>	<ul style="list-style-type: none"> • Moving average method <ul style="list-style-type: none"> • Introduction of moving averages • Smoothing the time series data using moving averages • Estimating the trend values • Merits and demerits of moving average method 	<ul style="list-style-type: none"> • Explains the moving averages in connection to the time series data. • Derives the moving averages separately when the order is an odd number and an even number. • Explains the need of centered moving averages. • Plots a trend line using moving averages for a given set of data. • States the merits and demerits of the moving average method. 	04
	<p>9.7 Uses the general percentage method to estimate the seasonal indices.</p>	<ul style="list-style-type: none"> • General percentage method <ul style="list-style-type: none"> • Introduction • Steps of computing the seasonal indices • Computing the seasonal indices • Merits and demerits of the general percentage method 	<ul style="list-style-type: none"> • Explains the general percentage method for estimating the seasonal indices. • States the steps of computing the seasonal indices on average percentage method. • Computes the seasonal indices using the general percentage method for a given data set. • Writes the merits and demerits of general percentage method. 	04

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>9.8 Uses the moving average method to estimate the seasonal indices.</p> <p>9.9 Makes appropriate decisions using the deseasonalised data.</p>	<ul style="list-style-type: none"> • Moving average method <ul style="list-style-type: none"> • Introduction • Steps of computing the seasonal indices • Computing the seasonal indices using moving average method • Merits and demerits • Deseasonalisation of time series data <ul style="list-style-type: none"> • Introduction • Computation • Graphical representation • Usage of deseasonalised data 	<ul style="list-style-type: none"> • Introduces the moving average method, which is used to estimate the seasonal indices. • Describes the steps of computing the seasonal indices according to the moving average method. • Computes the seasonal indices using an example. • Describes the merits and demerits of computing the seasonal indices using moving average method. • Introduces the deseasonalisation of data. • Describes the requirement of deseasonalising the time series data. • Deseasonalises the time series data using the appropriate seasonal indices. • Represents deseasonalised data on the original time series graph itself. • Makes decisions using deseasonalised data. • Includes seasonalized indices to the deseasonalized data. 	<p>06</p> <p>08</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>9.10 Forecasts using the analysis of time series components.</p>	<ul style="list-style-type: none"> • Forecasting • Forecasting the time series variable using components <ul style="list-style-type: none"> • Forecasting long term trend • Forecasting seasonal variations • Forecasting by adjusting the period of the time series 	<ul style="list-style-type: none"> • Describes what forecasting is. • Forecasts the time series variables using the secular trend and seasonal indices. • Forecasts changing the base of the equation of the trend line. • Forecasts converting the annual data into monthly data or quarterly data. 	06

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
<p>10.0</p> <p>Uses Statistical Quality Control techniques for management decision making.</p>	<p>10.1</p> <p>Studies the quality of a product and the variations that affect on the quality.</p>	<ul style="list-style-type: none"> • Quality of a product • Quality control <ul style="list-style-type: none"> • Introduction • Importance of quality control • Statistical quality control • Variations in production <ul style="list-style-type: none"> • Random variations • Assignable variations • Statistical quality control techniques 	<ul style="list-style-type: none"> • Explains what the quality of a product is. • Explains the random variations that affect to change the quality of a product, giving examples. • Explains the assignable variations that affect to change the quality of a product. • Assures the requirement of using the quality control techniques in order to protect the quality of a product. • Explains what statistical quality control is. • Writes the significant uses of the statistical quality control. • Introduces the techniques that can be used to control the quality of product or service. 	<p>40</p> <p>08</p>

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>10.2 Uses the appropriate techniques to control the variables.</p>	<ul style="list-style-type: none"> • Process control <ul style="list-style-type: none"> • Control of variables • Control of attributes • Control charts for variable control <ul style="list-style-type: none"> • \bar{x} chart to control the mean of a process • R chart to control the variability of a process 	<ul style="list-style-type: none"> • Explains what process control is. • Introduces the variable control. • Explains what control charts are used in process control. • Constructs the mean control chart for variable control. • Constructs the control limits for \bar{x} - chart, when the standards are pre-determined. • Constructs the \bar{x} - chart when the standards are pre-determined. • Constructs the control limits using the relevant formulae for constructing \bar{x} - chart when the standards are not pre-determined. • Constructs the \bar{x} - charts when the standards are not pre-determined. • Introduces the range chart to control the production process. • Constructs the control limits for range chart when the standards are pre-determined. • Constructs the range control chart when the standards are pre-determined. • Constructs the control limits for range chart when the standards are not pre-determined. 	10

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>10.3 Uses appropriate methodologies to control attributes.</p>	<ul style="list-style-type: none"> • Introduction of attributes <ul style="list-style-type: none"> • Control charts to control the attributes <ul style="list-style-type: none"> • P - chart • np - chart • C - chart • U - chart 	<ul style="list-style-type: none"> • Constructs the range chart when the standards are not pre-determined. • Gives opinion about the production process using the mean and range charts. • Explains the uses of control charts. • Introduces the attributes. • Gives examples for attributes from the manufacturing field. • Names the control charts available to control the attributes. • Defines the P-chart. • States instances where P-charts are applicable. • Constructs a P - chart for given data and interprets. • Defines the np chart. • States instances where np charts are applicable. • Constructs an np chart for given data and interprets. • Defines the C-chart. • Explains the instances where the C-charts are applicable. • Constructs a C - chart for given data and interprets. • Defines the “U” chart. 	12

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>10.4 Uses the appropriate methodologies for product control.</p>	<ul style="list-style-type: none"> • Product control <ul style="list-style-type: none"> • Introduction • Acceptance sampling plans <ul style="list-style-type: none"> • Introduction • Single sampling plan • Construction of a sampling plan • Operational Characteristic Curve <ul style="list-style-type: none"> • Introduction • Construction • Accepted Quality Level (AQL) <ul style="list-style-type: none"> • Producer's risk • Lot Tolerance Proportion of Defectives (LTPD) <ul style="list-style-type: none"> • consumers's risk. 	<ul style="list-style-type: none"> • States the instances where a U - chart is applicable. • Constructs a U - chart for given data and interprets. • Introduces product control. • Explains acceptance sampling plan as the technique of product control. • Introduces the single sampling plan. • Explains how to construct a sampling plan. • Introduces the operational characteristics curve. • Collects the information required to construct an operational characteristic curve. • Constructs the operational characteristic curve. • Defines the acceptance quality level. • Sets AQL on the operational characteristic curve. • Defines the producer's risk. • Defines the lot tolerance proportion of defective. • Sets LTPD on the operational characteristic curve. 	10

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
			<ul style="list-style-type: none"> • Defines the consumer's risk • Plots the producer's risk and the consumer's risk on the operational characteristic curve. • Computes the AQL, LTPD, producer's risk and the consumers's risk using the data given. • Explains the uses of the operational characteristic curve. • Describes the properties of a good acceptance sampling plan. 	

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
11.0 Uses indices for making business decisions.	11.1 Constructs the base for studying indices.	<ul style="list-style-type: none"> • Indices • Introduction • Uses • Problems arisen in constructing indices 	<ul style="list-style-type: none"> • Defines indices. • Lists the uses of indices. • Writes the problems faced in constructing indices. 	40 02
	11.2 Uses the simple relative indices to measure the relative change in a single variable.	<ul style="list-style-type: none"> • Simple relative indices <ul style="list-style-type: none"> • Simple price relative index • Simple quantity relative index • Simple value relative index • Properties of simple relative indices <ul style="list-style-type: none"> • Identical property • Time reversal property • Factor reversal property • Cyclical property 	<ul style="list-style-type: none"> • Explains simple relative indices. • Introduces the simple price relative index and computes it. • Introduces the simple quantity relative index and computes it. • Introduces the simple value relative index and computes it. • Explains the properties of simple relative indices. • Explains identical property. • Explains time reversal property. • Explains factor reversal property. • Explains cyclical property. • Points out weaknesses of simple relative indices. 	06

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>11.3 Uses a single index to measure the relative change in several variables.</p>	<ul style="list-style-type: none"> • Simple aggregate indices <ul style="list-style-type: none"> • Price indices • Quantity indices • Value indices • Properties of a simple aggregate index • Simple average relative indices <ul style="list-style-type: none"> • Simple average index of price relatives • Simple average index of quantity relatives • Simple average index of value relatives • Properties of simple average relative indices 	<ul style="list-style-type: none"> • Introduces the simple aggregate indices. • Defines each simple aggregate index separately. • Computes the simple aggregate price index, simple aggregate quantity index, and simple aggregate value index using the data given. • Explains the uses and limitations of simple aggregate indices. • Makes decisions using the simple aggregate indices. • Introduces the simple average indices of relatives. • States the each simple average indices of relatives and defines them. • Computes each simple average index of relatives using the data given. • Describes the uses and limitations of simple average indices of relative. • Makes decisions using the simple average indices of relative. 	10

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>11.4 Constructs the weighted aggregate indices for several variables using the weights.</p>	<ul style="list-style-type: none"> • Weighted aggregate indices <ul style="list-style-type: none"> • Introduction • Importance of weighting • Major weighted aggregate indices <ul style="list-style-type: none"> • Laspeyre’s Index <ul style="list-style-type: none"> • Introduction • Computing • Properties • Paasche’s Index <ul style="list-style-type: none"> • Introduction • Computing • Properties • Marshall Edgeworth Index <ul style="list-style-type: none"> • Introduction • Computing • Properties • Fisher Perfect Index <ul style="list-style-type: none"> • Introduction • Computing • Properties • Typical Period Index <ul style="list-style-type: none"> • Introduction • Computing • Properties 	<ul style="list-style-type: none"> • Introduces the weighted aggregate indices. • Points out the uses of considering the relative importance of the items. • Lists the major weighted aggregate indices. • Defines the Laspeyre’s Index. • Computes the Laspeyre’s price and quantity indices using the relevant formula. • States the properties of the Laspeyre’s Index. • Defines the Paasche’s index. • Computes the Paasche’s price index and quantity index using the relevant formula. • States the properties of the Paasche’s Index. • Defines the Marshall Edgeworth Index. • Computes the Marshall Edgeworth price and quantity indices using the relevant formula. • Lists the properties of the Marshall Edgeworth Index. • Defines the Fisher Perfect Index. 	10

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>11.5 Computes an appropriate consumer price index to measure the cost of living.</p>	<ul style="list-style-type: none"> • Consumer Price Index <ul style="list-style-type: none"> • Introduction • Facts to be considered in constructing a consumer price index • Steps of constructing a consumer price index • Construction of a consumer price index • Uses of consumer price index • Problems arisen in constructing a consumer price index 	<ul style="list-style-type: none"> • Computes the Fisher Perfect price and quantity indices using the relevant formula. • Lists the properties of Fisher Perfect Index. • Defines the Typical Period index. • Computes the Typical Period price and Quantity Indices using the relevant formula. • Lists the properties of Typical Period Index. • Introduces the consumer price index. • Points out the need of a consumer price index. • Explains the factors to be considered in constructing a consumer price index. • Lists the steps of constructing a consumer price index. • Computes a consumer price index using the data given. • Explains the uses of a consumer price index. • Points out the problems arisen in constructing a consumer price index. 	04

Competency	Competency Level	Content	Learning Outcomes	Number of Periods
	<p>11.6 Studies the applications of indices.</p>	<ul style="list-style-type: none"> • Shifting the base period of the index. • Using the indices for deflation • The indices used practically in Sri Lanka <ul style="list-style-type: none"> • Colombo consumer price index • Whole sale price index • Share market indices • The G. D. P. deflator 	<ul style="list-style-type: none"> • Explains the need of shifting the base period of an index and recalculating. • Shifts the base year of a series of indices given and recalculates. • Converts the given monetary values into real values using the indices. • Takes decisions using real values. • Lists the important indices used in Sri Lanka. • Describes separately each of those indices 	<p style="text-align: center;">08</p> <hr/> <p style="text-align: center;">300</p>

7.0 School Policies and Programmes

The Economics syllabus comprises 12 competencies and 83 competency levels. It is expected to provide all these competency levels to the student through a student centered learning - teaching process. The learning outcomes that should be actualized by the student, under each competency level, are given separately.

Although, normally, 420 periods are assigned for this subject, in the school time-table, the present syllabus is planned only for 300 periods a year. Accordingly, the syllabus has been prepared so as to provide 600 periods for Grade 12 and 13. Accordingly, this syllabus has been planned with a fewer number of periods than the expected number of periods, for a year. These extra periods can be utilized for purposes of school based assessment related activities.

In approaching the learning outcomes under each competency level, it is expected that the learning-teaching process will be so planned as to ensure that students achieve concepts based on practical experiences. For this purpose the student should be facilitated in highlighting one's skills and creative talents through co-curricular programmes.

The policy and programmes implemented in the school contribute much in the successful implementation of this syllabus. Proposed below are several school policies and programmes that can be easily implemented in the school.

- Since, methodologies of statistics can be employed for school management as well as in the development of other subjects, especially in advanced level group, as well as individual projects, the organization of programmes on school management, through the intervention of subject teacher is suggested.
- Organization of data on the school, school environment, school community as well as the business field, with the assistance of the school computer section and displaying the outcome on the school notice-board, wall newspaper etc.

- Implementation of programmes on the descriptive analysis as well as analysis approved statistical methods, the marks scored by each student in each subject, each term and presentation of same.
- Implementation of programmes for the analysis by students pursuing statistics the marks obtained by students of the school of national level examination (G. C. E. O/L and A/L)
- Carrying out a statistical study of a project that can be implemented practically in the school annually, with the co-operation of the school management.

It is proposed, that for the purpose of equipping students with experience in Economics on students and the school community through programmes of a specific nature for the purpose of preparation and implementation of programmes and policy, committees comprising students, teachers, sectional heads and school principals, and if necessary, parents, should be set up.

8.0 Assessment and Evaluation

Under the School Based Assessment and Evaluation procedure, it is expected that assessment instrument suited to cover competencies and competency levels assigned for each term are prepared creatively and implemented.

This syllabus is prescribed for the G. C. E.(A/L) examination, the national level evaluation at the end of Grade 13. The national level examination conducted by the Department of Examinations Sri Lanka, based on this syllabus, will be conducted for the first time in 2019, Particulars regarding the structure and nature of the questions set for this examination will be provided by the Department of Examination.