K L University
Department of Management
Course Handout for I Year BBA_MBA Program
A.Y.2017-18, Second Semester

Course Name   : Business Statistics

Course Code   : 17BS115

L-T-P structure   : 4-2-0

Course Credits   : 5

Course Coordinator   : Dr. N. Konda Reddy

Course Instructor   : Mr. G. Charan Kumar

Course Teaching Associates   :   NIL

Course Objective:
To learn and understand the knowledge of statistics involved in data presentation, to identify the influencing factors or determinants of parameters and to test its significance and validity, in various business and economic situations.

Course Rationale:
The course is designed for the second semester students of the second year BBA-MBA (Dual) program. The importance of statistics is enumerated in the area of management like Statisticians give the Management Teams data which helps a lot, in planning production schedules etc., New products can be introduced based on the feedback received from the Statistician of the company, Competition figures are analyzed by the Statistician enabling the marketing department to make correct forecasts for the future. To summarize without statistics any business is incomplete. Statistics helps the business to grow very fast. The topics covered include descriptive statistics, correlation, regression, probability measures, normal and sampling distributions, estimation and tests of hypothesis. The main competency is that a manager has to acquire knowledge in estimating the parameters, testing of hypothesis.

Course Outcomes (CO):

CO No:	CO	SO	BTL
1	Graphical representation of a given numerical data through its frequency distribution and also calculation of various measures of location and dispersion.	a, e	3
2	Determine the relationship and its estimation of unknown values in a bivariate data	a, e	4
3	Determines the chances of occurrences of an event through various probability distributions	a, e	3
4	Estimates the various parameters of the data and tests its significance through various statistical tests of hypothesis in small and large samples	a, e	4

COURSE OUTCOME INDICATORS (COI):

CO No.	COI-1	COI-2	COI-3
1	Construction of frequency distribution and its graphical representation to the given numerical data	Estimation of various measures of location (mean, median and mode) and missing observations in the given data	Estimation of various measures of dispersion (range, mean deviation, standard deviation and coefficient of variation) to the given data
2	Discover and interpret the degree of linear relationship between the two variables (quantitative) of a bivariate data	Discover and interpret the degree of linear relationship between the two variables (qualitative) of a bivariate data	Estimates the values of unknown variable for a given value of known variable through the linear regression
3	Compute the chances of occurrences of various events of a probabilistic phenomena through addition, multiplication and Bayes theorems	Apply the discrete probability distributions (binomial and Poisson) to a variety of problems in business and economics	Apply the continuous probability distribution (normal and standard normal) to a variety of problems in business and economics

| 4 | Construction of sampling distribution of mean with and without repetitions. | Test of significance of means (single and double) through Z and t-tests | Test of significance (goodness of fit and independence of attributes) through Chi-square test |

SYLLABUS (As approved by BoS):

Statistical description of data and its descriptive measures: Frequency Distribution - Graphical representation of frequency distribution – Bar chart, Pie chart, Histogram, Frequency Polygon, Ogive – Descriptive statistics: Measures of central tendency, and Measures of dispersion

Correlation and Regression: Bivariate data – Correlation and its types – Methods of studying correlation – Scatter diagrams method, covariance method and rank correlation method - Regression analysis – Linear and Non-linear Regression – Lines of regression and its equations – Regression coefficients and its properties.

Elementary Probability Theory: Concepts of Probability: Random Experiment – Sample Space – Events and their types, Classical definition of Probability, Addition and Multiplication Theorems (without proofs) – Independence of events –Bayes Theorem – Concept of Probability Distribution Function – Binomial, Poison and Normal Distribution and Standard Normal Distribution – Simple Examples – Central limit theorem.

Sampling and Testing of Hypothesis: Preliminary Concepts – Population – Sample -Parameter and Statistic– Types of samples – Sampling methods – Sampling Distribution – Sampling Distribution of Mean (when σ is known and unknown)– Interval Estimation for population mean-Determining the sample size. Concepts of hypothesis, null and alternative hypothesis. Concept of Hypothesis Testing: Procedure of testing hypothesis. Test of significance based on Z-test, t- Test, and Chi-Square test.

BoS Approved Text books:

1. Anderson, Sweeney, Williams, *Statistics for Business and Economics,* 9th edition, Cengage Learning, 2001.
2. S.C.Gupta, **Fundamentals** *of Statistics*, Himalaya Publishing House, 7th revised and enlarged edition, 2013.

BoS Approved Reference Books:

1. S.C.Gupta & V.K.Kapoor, *Fundamentals of Mathematical Statistics*, 11th thoroughly revised edition, 2007,S.Chand and Sons, New Delhi
2. Richard Levin, David S.Rubin, *Statistics for Management,* Prentice Hall of India, 7th edition, New Delhi, 2008.

COURSE DELIVERY PLAN:

Sess. No.	CO	COI	Topic (s)	Teaching-Learning Methods	Evaluation Components
1.	1	1	Construction of frequency distribution through inclusive method	Chalk and Talk, Problem Solving, Tutorial	Assignment-1, In semester-1(Test-1) and End-Semester Examination
2.	1	1	Construction of frequency distribution through exclusive method		
3.	1	1	Graphical representation of data through histogram and frequency polygons		
4.	1	1	Graphical representation of data through Ogive curves		
5.	1	2	Arithmetic mean to the given data (ungrouped and grouped data)		
6.	1	2	Median to the given data (ungrouped and grouped data)		
7.	1	2	Mode to the given data (ungrouped and grouped)		
8.	1	2	Missing values (single and double) in the data through averages		
9.	1	3	Range and mean deviation to the given data (ungrouped and grouped data)		
10.	1	3	Variance to the given data (ungrouped and grouped data)		
11.	1	3	Standard deviation to the given data (ungrouped and grouped data)		
12.	1	3	Coefficient of variation to the given data		
13.	2	1	Bivariate data, Correlation and various types of correlation	Chalk and Talk, Problem Solving, Tutorial	Assignment-2, In semester-2(Test-2) and End-Semester Examination
14.	2	1	Scatter diagrams method of studying correlation		
15.	2	1	Karl Pearson's coefficient of correlation and its properties		
16.	2	1	Change of origin and scale on correlation coefficient		
17.	2	1	Rank correlation coefficient without repetitions		
18.	2	1	Rank correlation coefficient with repetitions		
19.	2	3	Regression and various types of regression and its properties		
20.	2	3	Construction of linear regression of Y on X to the data		
21.	2	3	Construction of linear regression of X on Y to the data		
22.	2	3	Regression coefficients and its properties		

23.	3	1	Concepts of probability and various types of events	Chalk and Talk, Problem Solving, Tutorial	Assignment-3, In semester-3(Test-3) and End-Semester Examination
24.	3	1	Various approaches to the definition of probability of an event		
25.	3	1	Addition theorem of probability of events		
26.	3	1	Multiplication theorem of probability of events		
27.	3	1	Bayes' theorem of probability of events		
28.	3	2	Concept of Binomial distribution and various properties of binomial distribution		
29.	3	2	Determination of binomial probabilities of the given experiments		
30.	3	2	Binomial approximation to the Poisson distribution		
31.	3	2	Concepts of Poisson distribution and properties of Poisson distribution		
32.	3	2	Determination of Poisson probabilities of the given experiments		
33.	3	3	Concepts of Normal and Standard normal distributions		
34.	3	3	Area property and its applications of standard normal probability distribution		
35.	3	3	Normal approximation to the binomial distribution		
36.	4	1	Concepts of Sampling and Sampling distribution	Chalk and Talk, Problem Solving, Tutorial	Assignment-4, and End-Semester Examination
37.	4	1	Construction of sampling distribution of mean without repetitions		
38.	4	1	Construction of sampling distribution of mean with repetitions		
39.	4	2	Concepts of hypothesis and test of statistical hypothesis		
40.	4	2	Null and alternate hypothesis, general procedure of test of statistical hypothesis		
41.	4	2	Test of significance of means in case of large samples		
42.	4	2	Test of significance of means in case of small samples (one mean)		
43.	4	3	Test of significance of means in case of small samples (two means)		
44.	4	3	Chi-square test of goodness of fit		
45.	4	3	Chi-square test of independence of attributes		

Blooms Taxonomy Level (BTL):

1. Remember   2. Understand   3. Apply   4. Analyze

Session wise Teaching – Learning Plan

SESSION 1: After this session student will be able to understand the frequency distribution and its construction through inclusive method.

Time in Minutes	Topic	BTL	Teaching – Learning Method
15	Brief outline of course handout and evaluation pattern		Chalk and Talk, Problem Solving, Tutorial
10	Concepts of frequency distribution and its types	2	
10	Procedure of construction of frequency distribution	2	
10	Construction of frequency distribution	2	
05	Summary and conclusions		

SESSION 2: After this session student will be able to construct the frequency distribution through exclusive method

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving, Tutorial
15	Procedure of construction of frequency distribution	2	
25	Construction of frequency distribution	2	
05	Summary and conclusions		

SESSION 3: After this session student will be able to sketch the histogram and frequency polygon to the frequency data

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving, Tutorial
15	Histogram and frequency polygon	2	
25	Sketch the graph of histogram and frequency polygon	2	
05	Summary and conclusions		

SESSION 4: After this session student will be able to sketch the cumulative frequency curve to the frequency data

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving,

15	Calculation of cumulative frequencies and its curves	2	Tutorial
25	Construct the cumulative frequency curves	2	
05	Summary and conclusions		

SESSION 5: After this session student will be able to estimate the arithmetic mean for ungrouped and grouped data

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving, Tutorial
15	Averages :arithmetic mean and its properties	2	
25	Estimation of arithmetic mean	3	
05	Summary and conclusions		

SESSION 6: After this session student will be able to estimate the median for ungrouped and grouped data

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving, Tutorial
15	Median and its properties	2	
25	Estimation of median	3	
05	Summary and conclusions		

SESSION 7: After this session student will be able to estimate the mode for ungrouped and grouped data

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving, Tutorial
15	Mode and its properties	2	
25	Calculation of mode	3	
05	Summary and conclusions		

SESSION 8: After this session student will be able to estimate the missing frequencies through the given averages

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving, Tutorial
15	Relationship among the averages	2	
25	Calculation of missing frequencies	3	
05	Summary and conclusions		

SESSION 9: After this session student will be able to estimate the range and mean deviation for ungrouped and grouped data

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving, Tutorial
15	Dispersion and its measures	2	
25	Calculation of range and mean deviation	3	
05	Summary and conclusions		

SESSION 10: After this session student will be able to estimate the variance for ungrouped and grouped data

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving, Tutorial
15	Variance and its properties	2	
25	Calculation of variance	3	
05	Summary and conclusions		

SESSION 11: After this session student will be able to estimate the standard deviation for ungrouped and grouped data

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving, Tutorial
15	Standard deviation and its properties	2	
25	Calculation of standard deviation	3	
05	Summary and conclusions		

SESSION 12: After this session student will be able to categorize the more consistent data from a given two or more groups data.

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
15	Coefficient of variation and its properties	2	
25	Determination of more consistent data	3	
05	Summary and conclusions		

SESSION 13: After this session student will be able to understand correlation and various types of correlation to the bivariate data

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk
15	Bivariate data	1	
25	Correlation and various types of correlation	1	
05	Summary and conclusions		

SESSION 14: After this session student will be able to sketch the graph of scattered diagram

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
15	Scattered diagram and its significance	2	
25	Construction of scattered diagram	2	
05	Summary and conclusions		

SESSION 15: After this session student will be able to discover and interpret the correlation coefficient between two variables through Karl Pearsons method

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
15	Karl Pearsons coefficient of correlation and properties	2	
25	Calculation of correlation coefficient	4	
05	Summary and conclusions		

SESSION 16: After this session student will be able to discover and interpret the correlation coefficient between two variables through Karl Pearsons method by changing origin and scale.

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
15	Effect of change of origin and scale on correlation	3	
25	Calculation of correlation coefficient	4	
05	Summary and conclusions		

SESSION 17: After this session student will be able to discover and interpret the correlation coefficient between two variables through Spearmans Rank method

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
15	Rank correlation coefficient	3	
25	Calculation of rank correlation coefficient (no tie rank)	4	
05	Summary and conclusions		

SESSION 18 After this session student will be able to discover and interpret the correlation coefficient between two variables through Spearmans Rank method with repetition of ranks

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
15	Rank correlation coefficient	3	
25	Calculation of rank correlation coefficient (tied ranks)	4	
05	Summary and conclusions		

SESSION 19: After this session student will be able to understand regression and distinguish between the correlation and regression

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
20	Regression and its types	2	Chalk and Talk, Problem Solving and Tutorial
20	Distinguish between correlation and regression	2	
05	Summary and conclusions		

SESSION 20: After this session student will be able to construct the line of regression of Y on X

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
15	Line of regression of Y on X	3	Chalk and Talk, Problem Solving and Tutorial
25	Construction of line of regression of Y on X	4	
05	Summary and conclusions		

SESSION 21: After this session student will be able to construct the line of regression of X on Y

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
15	Line of regression of X on Y	3	Chalk and Talk, Problem Solving and Tutorial
25	Construction of line of regression of X on Y	4	
05	Summary and conclusions		

SESSION 22: After this session student will be able to determination of regression coefficients of Y on X and X on Y

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
15	Regression coefficients of Y on X and X on Y	4	Chalk and Talk, Problem Solving and Tutorial
25	Determine the regression coefficients	3	
05	Summary and conclusions		

SESSION 23: After this session student will be able to understand the various types of events that are associated with the random experiment

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
15	Random experiment and sample space	2	Chalk and Talk
25	Events and various types of events	2	
05	Summary and conclusions		

SESSION 24: After this session student will be able to compute the probability of an event

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
20	Classical approach to the probability of and event	2	Chalk and Talk, Problem Solving and Tutorial
20	Axioms of probability of an event	2	
05	Summary and conclusions		

SESSION 25: After this session student will be able to compute the probability of an event through addition rule on probability of events

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
15	Addition rule on probability of event	3	Chalk and Talk, Problem Solving and Tutorial
25	Calculation of probability of events	3	
05	Summary and conclusions		

SESSION 26: After this session student will be able to compute the probability of an event through multiplication rule on probability of events

Time in Minutes	Topic	BTL	Teaching – Learning Method

05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
10	Conditional probability of events	2	
10	Multiplication rule on probability of an events	3	
20	Calculation of probability of events	3	
05	Summary and conclusions		

SESSION 27: After this session student will be able to compute the probability of events through Bayes rule on probability of events

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
15	Bayes' rule on probability of events	2	
25	Calculation of probability of events	3	
05	Summary and conclusions		

SESSION 28: After this session student will be able to understand physical conditions of applying the binomial distribution and its various characteristics

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk
20	Binomial distribution	2	
20	Properties and constants of binomial distribution	2	
05	Summary and conclusions		

SESSION 29: After this session student will be able to apply the binomial distribution in determination of various probabilities of the events

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
20	Calculation of Binomial probabilities	3	
20	Application of binomial distribution	3	
05	Summary and conclusions		

SESSION 30: After this session student will be able to relate the binomial distribution to the Poisson distribution

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
20	Binomial approximation to the Poisson distribution	3	
20	Poisson probabilities through Binomial distribution	3	
05	Summary and conclusions		

SESSION 31: After this session student will be able to understand physical conditions of applying the Poisson distribution and its various characteristics

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk
20	Poisson distribution	2	
20	Properties and constants of Poisson distribution	2	
05	Summary and conclusions		

SESSION 32: After this session student will be able to apply the Poisson distribution in determination of various probabilities of the events

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
20	Calculation of Poisson probabilities	3	
20	Application of Poisson distribution	3	
05	Summary and conclusions		

SESSION 33: After this session student will be able to understand properties and constants of normal and standard normal distributions

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
20	Normal distribution	2	Chalk and Talk
20	Standard normal distribution	2	
05	Summary and conclusions		

SESSION 34: After this session student will be able to determine the probabilities of events by applying the area property of normal and standard normal probability distributions

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
15	Area property of standard normal distribution	2	Chalk and Talk, Problem Solving and Tutorial
25	Applications of standard normal distribution	3	
05	Summary and conclusions		

SESSION 35: After this session student will be able to relate the binomial distribution to the normal distribution

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
15	Normal approximation to the binomial distribution	3	Chalk and Talk, Problem Solving and Tutorial
25	Binomial probabilities using normal approximation	3	
05	Summary and conclusions		

SESSION 36: After this session student will be able to understand the concepts of sampling distribution of a statistic

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
15	Sampling and Sampling techniques	2	Chalk and Talk
25	Sampling distribution	2	
05	Summary and conclusions		

SESSION 37: After this session student will be able to construct the Sampling distribution of mean without repetitions

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
15	Sampling distribution of mean	2	Chalk and Talk, Problem Solving and Tutorial
25	Construction of sampling distribution of mean without repetition	4	
05	Summary and conclusions		

SESSION 38: After this session student will be able to construct the Sampling distribution of mean with repetitions

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
15	Sampling distribution of mean	3	Chalk and Talk, Problem Solving and Tutorial
25	Construction of sampling distribution of mean with repetition	4	
05	Summary and conclusions		

SESSION 39: After this session student will be able to understand the test of statistical hypothesis by demonstrating the various types of hypothesis

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		
20	Hypothesis and types of hypothesis	2	Chalk and Talk
20	Test of Statistical hypothesis	2	
05	Summary and conclusions		

SESSION 40: After this session student will be able to describes the general procedure of test of statistical hypothesis

Time in Minutes	Topic	BTL	Teaching – Learning Method

05	Recap of the previous session		Chalk and Talk
20	Null and alternate hypothesis and notations	2	
20	Procedure of test of Statistical hypothesis	2	
05	Summary and conclusions		

SESSION 41: After this session student will be able to test of significance of means (large samples)

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
10	Test of significance of means (large samples)	3	
30	Applications of test for means	4	
05	Summary and conclusions		

SESSION 42: After this session student will be able to test of significance of one mean (small samples)

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
10	Test of significance of one mean (small samples)	3	
30	Applications of test for one mean	4	
05	Summary and conclusions		

SESSION 43: After this session student will be able to test of significance of two means (small samples)

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
10	Test of significance of two means (small samples)	3	
30	Applications of test for two means	4	
05	Summary and conclusions		

SESSION 44: After this session student will be able to test the significance of goodness of fit by using Chi-square test of goodness of fit

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
10	Procedure of chi-square test of goodness of fit	3	
30	Applications of chi-square test of goodness of fit	4	
05	Summary and conclusions		

SESSION 45: After this session student will be able to test the significance of independence of attributes Chi-square test of independence of attributes

Time in Minutes	Topic	BTL	Teaching – Learning Method
05	Recap of the previous session		Chalk and Talk, Problem Solving and Tutorial
10	Procedure of chi-square test of independence of attributes	3	
30	Applications of chi-square test of independence of attributes	4	
05	Summary and conclusions		

EVALUATION PLAN:

Evaluation Component	Weightage/Marks	Date	Duration (Hours)	CO I			CO II			CO III			CO IV		
	COI Number	Date	Duration (Hours)	1	2	3	1	2	3	1	2	3	1	2	3
	BTL			1,2	1,2,3	1,2,3	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3	1,2,3	1,2,3	1,2,3,4	1,2,3,4	1,2,3,4
Test 1	Weightage (10%)		90Minutes	2	4	4									
	Max Marks (20)			4	8	8									
Test 2	Weightage (10%)		90Minutes				3	3	4						
	Max Marks (20)						6	6	8						
Test 3	Weightage (10%)		90Minutes							3	3	4			
	Max Marks (20)									6	6	8			
Tutorial/ Assignments/	Weightage (15%)				3			3			3			6	
	Max Marks (30)				6			6			6			12	
Attendance	Weightage(5%)														
Semester End Exam	Weightage (50%)		180Minutes		10			10			10			20	
	Max Marks (50)				10			10			10			20	
	Question Number														

Course Team members, Chamber Consultation Hours and Chamber Venue details:

S.No.	Name of Faculty	Chamber Consultation Day(s)	Chamber Consultation Timings for each day	Chamber Consultation Room No:	Signature of Course faculty
1	Dr. N. Konda Reddy			F106	
2	Mr. G. Charan Kumar			F406	

Signature of COURSE COORDINATOR:

Recommended by HEAD OF DEPARTMENT:

Hari Kiran Vege,
Assoc.Dean-TLP

for   **Approved By: DEAN-ACADEMICS**

Document digitally approved by Vetting Team and HOD.

For details please contact Digital Learning Team @C104.

Please refer to the document's digital certificate for authenticity.

(Sign with Office Seal)

Instructions:

1. **This form is to be filled using Calibri (Body) font, size 10.**

2. **Only titles, captions, table headings as given in this form are to be in bold. All others should be in normal letter mode.**

3. **Instructions specified in Italics are to be removed while submitting the filled in format.**