

K L University
Department of Commerce
Course Handout for III Year BBA-BL Program
A.Y.2017-18, Second Semester

CourseName : Quantitative Methods

Course Code : 15BL32C0

L-T-Pstructure : 4-0-0

Course Credits : 4

Course Coordinator : Dr. N. Konda Reddy

Course Instructor : Dr. N. Konda Reddy

Course Objective:

To learn and understand the knowledge of statistics involved in data collection and presentation, to identify the influencing factors and determine the associations, prediction of future estimates in various businesses, economic situations and in the field of law.

Course Rationale:

This course belongs to Basic Sciences (BS) Group and the course is offered in the 6th Semester of BBA-BL Program. Statistics play a very important role in management and commerce and also in Law. The importance of statistics is enumerated in the area of management and law 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 quarters and Statistics is like a looking glass for the future, By going through the past figures once can predict 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, index numbers and time series. One advantage of working in statistics is that you can combine your interest with almost any other field in science, technology, or business. The main competency is to acquire knowledge in decision making.

Course Outcomes (CO):

CO No:	CO	SO	BTL
1	Understand the diagrammatical/graphical presentation of the data and sampling techniques	a, e	2
2	Understand the analytical in understanding measures central tendencies and dispersion, use of probability	a, e	4
3	Understanding the basic concepts of correlation and regression analysis	a, e	4
4	Understanding the basic concepts of Index numbers and Time series to their practical applications in business decision	a, e	4

COURSE OUTCOME INDICATORS (COI):

CO No	COI-1	COI-2
1	Sources of data collection, Construction of frequency distribution and its graphical representation to the given numerical data	diagrammatical representation to the given numerical data and Identify the sample selection techniques, possible errors and its elimination process
2	Estimation of various measures of location (mean, median and mode). Estimation of missing frequencies.	Estimation of various measures of dispersion (range, quartile deviation, standard deviation to the given data. coefficient of variation to the given data and basics of probability
3	Discover and interpret the degree of linear relationship between the two variables (quantitative & qualitative) of a bivariate data	Estimates the values of unknown variable for a given value of known variable through the linear regression
4	Construction of various index numbers for a given data through simple and aggregate index numbers methods	Construction of various time series trends for a given data through simple and aggregate methods

SYLLABUS (As approved by BoS):

Competency I: Definition, important and limitations; Functions and scope of statistics; Types of data; Data collection techniques; Presentation of data- tabulation, charting and diagrammatic. Sampling - Introduction to sampling, random and non random sampling methods. Errors in sampling.

Competency II: Central tendency- mean, median, mode; Variation - range, quartile deviation, standard deviation and Coefficient of Variation. Basics of probability Theory.

Competency III: Significance of study of correlation; Correlation and causation; Types of correlations; Measurement of correlation (Karl Pearson's methods, Spearman's rank correlation); Difference between correlation and regression; Bivariate regression model & regression equations of Y on X.

Competency IV: Meaning and component of time series analysis, Method of least squares, Method of moving averages, Index number - Simple aggregate method, Weighted Index Numbers: Laspeyres method, Paasche method and Fishers ideal method.

Text Books:

1. Anderson, Quantitative Methods in Business, Thomson Learning, Bombay.
2. Gupta, S.P. & Gupta M.P. (2003) Statistical Methods, Sultan Chand & Sons, N Delhi.
3. Levin & Rubin, Statistics for Business, Prentice Hall of India, New Delhi.
4. Anderson, Quantitative Methods in Business, Thomson Learning, Bombay.

COURSE DELIVERY PLAN:

Sess. No.	CO	COI	Topic (s)	Teaching-Learning Methods	Evaluation Components
1			Course Handout, Examination Pattern, Evaluation system	Chalk and talk	
2	I	1	Definition, meaning, importance and scope of statistics in business industry	Lecture - Discussion	Test-1 & End semester
3	I	1	Primary and secondary data sources	Lecture - Discussion	Test-1 & End semester
4	I	1	Various methods of primary data collection techniques	Lecture - Discussion	Test-1 & End semester
5	I	1	Various methods of secondary data collection techniques	Lecture - Discussion	Test-1 & End semester
6	I	1	Construction of frequency distribution-inclusive and exclusive data	Lecture - practice	Test-1 & End semester
7	I	1	Graphical representation of data through histogram and locate Mode, frequency polygons and Ogive curve and locate Median	Lecture - practice	Test-1 & End semester
8	I	2	Diagrammatical representation of data through Bar, and multiple bar diagram	Lecture - practice	Test-1 & End semester
9	I	2	Diagrammatical representation of data through sub-divided bar diagram and pie chart	Lecture - practice	Test-1 & End semester
10	I	2	Probability Sampling methods like simple, stratified, systematic and multi-stage sampling	Lecture - practice	Test-1 & End semester
11	I	2	Non-Probability Sampling methods like Quota, convenience and snow ball	Lecture - practice	Test-1 & End semester
12	I	2	Sampling and Non-Sampling errors	Lecture - practice	Test-1 & End semester
13	II	1	Arithmetic mean to the given data (ungrouped and grouped data)	Problem solving	Test-2 & End semester
14	II	1	Arithmetic mean to the given data (ungrouped and grouped data)	Problem solving	Test-2 & End semester
	II	1	Median to the given data (ungrouped and grouped data)	Problem solving	Test-2 & End semester
15	II	1	Mode to the given data (ungrouped and grouped data)	Problem solving	Test-2 & End semester
16	II	1	Measures of dispersion over central tendency -importance in business applications and Range to the given data (ungrouped and grouped data)	Problem solving	Test-2 & End semester
17	II	2	Quartile Deviation to the given data (ungrouped and grouped data)	Problem solving	Test-2 & End semester
18	II	2	Quartile Deviation to the given data (grouped data)	Problem solving	Test-2 & End semester

19	II	2	Variance and standard deviation to the given data (ungrouped and grouped data)	<i>Problem solving</i>	Test-2 & End semester
20	II	2	Variance and standard deviation to the given data (ungrouped and grouped data)	<i>Problem solving</i>	Test-2 & End semester
21	II	2	Coefficient variation-applications	<i>Problem solving</i>	Test-2 & End semester
22	II	2	Basic on probability theory like experiment, sample space, mutually exclusive and conditional probability	<i>Problem solving</i>	Test-2 & End semester
23	II	2	Practice problems on probability	<i>Problem solving</i>	Test-2 & End semester
24	II	2	Addition theorem on probability and its applications	<i>Problem solving</i>	Test-2 & End semester
25	II	2	Conditional probability and its applications	<i>Problem solving</i>	Test-2 & End semester
26	II	2	Multiplication theorem on probability and its applications	<i>Problem solving</i>	Test-2 & End semester
27	III	1	Correlation and various types of correlation	<i>Lecture - Discussion</i>	Test-3 & End semester
28	III	1	Construction of Scatter diagram	<i>Lecture - Discussion</i>	Test-3 & End semester
29	III	1	Karl Pearson's coefficient of correlation and its properties	<i>Problem solving</i>	Test-3 & End semester
30	III	1	Karl Pearson's coefficient of correlation computation	<i>Problem solving</i>	Test-3 & End semester
31	III	1	Rank correlation coefficient with and without repetitions	<i>Problem solving</i>	Test-3 & End semester
32	III	1	Rank correlation coefficient with and without repetitions	<i>Problem solving</i>	Test-3 & End semester
33	III	2	Construction of linear regression of Y on X and x on y to the data (Method-I)	<i>Problem solving</i>	Test-3 & End semester
34	III	2	Construction of linear regression of X on Y and y on x to the data (Method-I & II)	<i>Problem solving</i>	Test-3 & End semester
35	III	2	Construction of linear regression of Y on X and X on Y to the data (Method-II)	<i>Problem solving</i>	Test-3 & End semester
36	III	2	Regression coefficients and its properties	<i>Problem solving</i>	Test-3 & End semester
37	IV	1	Index numbers and its uses in business applications	<i>Lecture - Discussion</i>	End semester
38	IV	1	Problems in construction of index numbers	<i>Lecture - Discussion</i>	End semester
39	IV	1	Computation of Simple aggregate index numbers	<i>Problem solving</i>	End semester
40	IV	1	Computation of weighted aggregate index numbers	<i>Problem solving</i>	End semester
41	IV	1	Computation of weighted aggregate index numbers	<i>Problem solving</i>	End semester
42	IV	1	Time series –its uses and components	<i>Problem solving</i>	End semester
43	IV	2	Moving averages method- problems – odd period / even	<i>Lecture - Discussion</i>	End semester
44	IV	2	Least squares method - problems	<i>Problem solving</i>	End semester
45	IV	2	Least squares method - problems	<i>Problem solving</i>	End semester
46	IV	2	Exponential method-single smoothing constant	<i>Problem solving</i>	End semester

Session wise Teaching – Learning Plan

Session Number: 01

Session Outcome: Identify the importance of the course, know the evaluation system

Time(min)	Topic	BTL	Teaching – Learning Method
20	Course outcomes, course outcome indicators, syllabus	1	Chalk and talk
15	Source of the content, Text books, Reference books	1	Chalk and talk
10	Examination pattern	1	Chalk and talk
05	Conclusion & Summary		Interaction

Session Number: 02

Session Outcome: Understand the importance and scope of the statistics in business application and law

Time(min)	Topic	BTL	Teaching – Learning Method
20	Definition and importance of statistics in business industry and law	2	Chalk and talk
15	Scope of statistics in business industry and law	2	Chalk and talk
10	interaction		Chalk and talk
05	Conclusion & Summary		Interaction

Session Number: 03

Session Outcome: Understand the importance and limitations of primary and secondary data

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 2		
15	Primary and secondary data	2	Chalk and talk
15	comparison and limitations	2	Chalk and talk
10	Interaction		Chalk and talk
05	Conclusion & Summary		Interaction

Session Number: 04

Session Outcome: Identify the methods of primary data

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 3		
15	Primary data collection methods -I	2	Chalk and talk
15	Primary data collection methods -II	2	Chalk and talk
10	Interaction		Chalk and talk
05	Conclusion & Summary		Interaction

Session Number: 05

Session Outcome: Identify the methods of primary data

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap to session 4		
15	Secondary data collection methods -I	2	Chalk and talk
15	Secondary data collection methods -II	2	Chalk and talk
10	Interaction		Chalk and talk
05	Conclusion & Summary		Interaction

Session Number: 06

Session Outcome: understand the use and Construction of frequency distribution-inclusive and exclusive data

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 5		Chalk and talk
20	Construction of frequency distribution	2	Chalk and talk & problem solving
20	Practice on construction of frequency of distribution	2	problem solving
05	Conclusion & Summary		Interaction

Session Number: 07

Session Outcome: understand and construct histogram and location of mode, frequency polygon and construct Cumulative frequency curve (Ogive) and location of median for a given numerical data

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 6		Chalk and talk
20	construct histogram and super impose frequency polygon	2	Chalk and talk & problem solving
20	Practice on construction of Ogive curve	2	problem solving
05	Conclusion & Summary		Interaction

Session Number: 08

Session Outcome: Understanding and construct bar and multiple bar diagram

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 7		
25	Construct bar and multiple bar diagram	2	Chalk and talk & Practice
15	Interaction	2	Chalk and talk
05	Conclusion & Summary		

Session Number: 09

Session Outcome: Understanding the importance and use of Measures of central tendency-importance in business applications

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 8		
25	Drawing sub-divided bar diagram and pie chart	2	Chalk and talk & Practice
15	Interaction	2	Chalk and talk
05	Conclusion & Summary		

Session Number: 10

Session Outcome: Understand the importance and can able to identify random sampling techniques

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 9		
25	Random sampling Techniques	2	Chalk and talk & Discussion
15	Interaction	2	Discussion
05	Conclusion & Summary		

Session Number: 11

Session Outcome: Understand the importance and can able to identify non-random sampling techniques

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 10		
15	Non-Random sampling Techniques	2	Chalk and talk & Discussion
25	Interaction	2	Discussion
05	Conclusion & Summary		

Session Number: 12

Session Outcome: Understand the difference between sampling and non-sampling errors

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 11		
15	Sampling & Non-Sampling errors	2	Chalk and talk & Discussion
25	Interaction	2	Discussion
05	Conclusion & Summary		

Session Number: 13

Session Outcome: Estimate the Arithmetic mean to the given data (ungrouped and grouped data)

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 12		
15	Arithmetic mean to the ungrouped and grouped data	3	Chalk and talk & Problem solving
25	Estimation of arithmetic mean	4	Problem solving
05	Conclusion & Summary		

Session Number: 14

Session Outcome: Estimate the Median to the given data (ungrouped and grouped data)

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 13		
15	Median to the ungrouped and grouped data	3	Chalk and talk & Problem solving
25	Estimation of Median	4	Problem solving

05	Conclusion & Summary		
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Session Number: 15

Session Outcome: Estimate Mode to the given data (ungrouped and grouped data)

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 14		
15	Mode to the ungrouped and grouped data	3	Chalk and talk & Problem solving
25	Estimation of Mode	4	Problem solving
05	Conclusion & Summary		

Session Number: 16

Session Outcome: Understanding the importance and use of Measures of dispersion over central tendency - importance in business applications and Estimating the Range to the given data (ungrouped and grouped data)

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 14		
10	Comparison between measures of central tendency & dispersion	2	Chalk and talk
20	Range to the ungrouped and grouped data		Chalk and talk
10	Interaction	1	Chalk and talk
05	Conclusion & Summary		

Session Number: 17

Session Outcome: Estimating the Quartile Deviation to the given data (ungrouped and grouped data)

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 16		
15	Quartile Deviation to the ungrouped and grouped data	2	Chalk and talk & Problem solving
25	Estimation of Quartile Deviation	2	Problem solving
05	Conclusion & Summary		

Session Number: 18

Session Outcome: Estimating the Quartile Deviation to the given data (ungrouped and grouped data)

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 17	1	
15	Quartile Deviation to the ungrouped and grouped data	2	Chalk and talk & Problem solving
25	Estimation of Quartile Deviation	2	Problem solving
05	Conclusion & Summary		

Session Number: 19

Session Outcome: Estimating the Variance and standard deviation to the given data (ungrouped and grouped data)

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 18		
10	Variance & Standard Deviation to the ungrouped and grouped data	3	Chalk and talk & Problem solving
30	Estimation of Variance & Standard Deviation	4	Problem solving
05	Conclusion & Summary		

Session Number: 20**Session Outcome:** Estimating the Variance & standard deviation to the given data (ungrouped and grouped data)

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 19		
15	Variance & Standard Deviation to the ungrouped and grouped data	2	Chalk and talk & Problem solving
25	Estimation of Variance & Standard Deviation	2	Problem solving
05	Conclusion & Summary		

Session Number: 21**Session Outcome:** Estimating the coefficient of variation

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 20		
15	Coefficient of variation to the given sets of data	2	Chalk and talk & Problem solving
25	Estimation of coefficient of variation	2	Problem solving
05	Conclusion & Summary		

Session Number: 22**Session Outcome:** Understand basic terminology on probability, various approaches to probability

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 21		
15	Lecture on introductory aspects on probability theory	2	Chalk and talk & Problem solving
25	Mathematical, statistical and axiomatic approach- probability	2	Problem solving
05	Conclusion & Summary		

Session Number: 23**Session Outcome:**

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 22		
15	Practice problems on probability	3	Chalk and talk & Problem solving
10	Interaction	2	
15	Practice problems on probability	3	Problem solving
05	Conclusion & Summary		

Session Number: 24**Session Outcome:** Understand addition rule of various events

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 23		
15	Addition theorem on probability	3	Chalk and talk & Problem solving
25	Applications on Addition theorem	3	Problem solving
05	Conclusion & Summary		

Session Number: 25**Session Outcome:** Understand Conditional probability of various events

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 24		

15	Conditional probability	3	Chalk and talk & Problem solving
25	Applications on Conditional Probability	3	Problem solving
05	Conclusion & Summary		

Session Number: 26

Session Outcome: Understand Multiplicative rule of various events

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 25		
15	Multiplication theorem on Probability	3	Chalk and talk & Problem solving
25	Applications on Multiplication theorem	3	Problem solving
05	Conclusion & Summary		

Session Number: 27

Session Outcome: Discriminate the difference between various types of data and need for study of bivariate data through correlation

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 26		
15	Classification of data and covariance and correlation for a bivariate data	2	Chalk and talk
15	Correlation and its types	2	Chalk and talk
10	Interaction		Chalk and talk
05	Conclusion & Summary		

Session Number: 28

Session Outcome: Understand the uses of scatter diagram method and its construction

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 27		
15	Scatter diagram	2	Chalk and talk & Problem solving
25	Construction of scatter diagram	2	Problem solving
05	Conclusion & Summary		

Session Number: 29

Session Outcome: Compute Karl Pearson's coefficient of correlation computation

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 28		
20	Compute correlation coefficient for bivariate data	3	Chalk and talk & Problem solving
20	Compute correlation coefficient for grouped bivariate data	4	Problem solving
05	Conclusion & Summary		

Session Number: 30

Session Outcome: Compute Karl Pearson's coefficient of correlation computation

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 29		
20	Compute correlation coefficient for bivariate data	3	Chalk and talk & Problem solving

20	Compute correlation coefficient for grouped bivariate data	4	Problem solving
05	Conclusion & Summary		

Session Number: 31

Session Outcome: Compute Rank correlation coefficient with and without repetitions

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 30		
15	Rank correlation coefficient untied observations	3	Chalk and talk & Problem solving
25	Compute rank correlation coefficient for untied observations	4	Problem solving
05	Conclusion & Summary		

Session Number: 32

Session Outcome: Compute Rank correlation coefficient with and without repetitions

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 31		
15	Rank correlation coefficient tied observations	3	Chalk and talk & Problem solving
25	Compute rank correlation coefficient for tied observations	4	Problem solving
05	Conclusion & Summary		

Session Number: 33

Session Outcome: Understand and construction of regression lines through various methods

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 32		
15	Construction of regression lines	2	Chalk and talk & Problem solving
15	regression lines-method-I (method-I)	3	Problem solving
05	Conclusion & Summary		

Session Number: 34

Session Outcome: Understand and construction of regression lines through various methods

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 33		
15	regression lines-method-I (method-I)	3	Problem solving
25	regression lines-method-I (method-II)	3	Problem solving
05	Conclusion & Summary		

Session Number: 35

Session Outcome: Understand and construction of regression lines through various methods

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 34		
15	regression lines-method-I (method-II)	3	Chalk and talk & Problem solving
25	regression lines-method-I (method-II)	4	Problem solving
05	Conclusion & Summary		

Session Number: 36

Session Outcome: Regression coefficients and its properties

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 35		
20	regression and its types, why two lines of regression and its applications	3	Chalk and talk
20	Testing regression coefficients	4	Chalk and talk & Problem solving
05	Conclusion & Summary		

Session Number: 37

Session Outcome: understand the uses of Index numbers and its types in business applications

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 36		
20	Uses and Characteristics of Index numbers	2	Chalk and talk
20	Types of Index numbers and their relations	2	Chalk and talk
05	Conclusion & Summary		

Session Number: 38

Session Outcome: Problems in construction of index numbers

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 37		
15	Simple index numbers	2	Chalk and talk & problem solving
25	Construction of simple index numbers	3	Problem solving
05	Conclusion & Summary		

Session Number: 39

Session Outcome: Computation of Simple aggregate index numbers

Time(min)	Topic	BTL	Teaching – Learning Method
20	Recap session 38		
15	Simple index numbers	2	Chalk and talk & problem solving
25	Construction of simple index numbers	3	Problem solving
05	Conclusion & Summary		

Session Number: 40

Session Outcome: Computation of weighted aggregate index numbers

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 39		
20	weighted index numbers	3	Chalk and talk & problem solving
20	Construction of weighted index numbers	4	Problem solving
10	Interaction		Chalk and talk
05	Conclusion & Summary		

Session Number: 41

Session Outcome: Computation of weighted aggregate index numbers

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 40		
20	Construction of weighted index numbers	4	Problem solving

20	Construction of weighted index numbers	4	Problem solving
05	Conclusion & Summary		

Session Number: 42

Session Outcome: understand the time series and its uses and components

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 41		
20	Definition of time series and uses	2	Chalk and talk
20	Components of time series analysis	2	Chalk and talk
05	Conclusion & Summary		

Session Number: 43

Session Outcome: Understand and predict future values by Moving Averages Method

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 42		
15	Moving averages method – even/odd period	3	Chalk and talk & Problem solving
25	Predict future values by Moving averages by even/odd period method	4	Problem solving
05	Conclusion & Summary		

Session Number: 44

Session Outcome: Understand and predict future values by Least square estimation Method

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 43		
15	Least square estimation method	3	Chalk and talk & Problem solving
25	Predict future values by Least square estimation method	4	Problem solving
05	Conclusion & Summary		

Session Number: 45

Session Outcome: Understand and predict future values by Least square estimation Method

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 44		
15	Least square estimation method	3	Chalk and talk & Problem solving
25	Predict future values by Least square estimation method	4	Problem solving
05	Conclusion & Summary		

Session Number: 46

Session Outcome: Understand and predict future values by Exponential method

Time(min)	Topic	BTL	Teaching – Learning Method
05	Recap session 45		
15	Exponential method	3	Chalk and talk & Problem solving
25	Predict future values by Exponential indices method	4	Problem solving
05	Conclusion & Summary		

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	

Signature of COURSE COORDINATOR:



Hari Kiran Vege,
Assoc. Dean-TLP

Recommended by HEAD OF DEPARTMENT:

for **Approved By: DEAN-ACADEMICS**

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