University of Kerala

Discipline	STATISTICS				
Course Code	UK2DSCSTA101				
Course Title	BUSINESS DATA ANALYTICS-II				
Type of Course	**DSC**				
Semester	2				
Academic Level	100 - 199				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours/Week
	4	3 hours	-	2 hours	5
Pre-requisites					

COURSE OUTCOMES

Up on Completion of the course, students should be able to:		Cognitive level	PSO Addressed
CO1	Calculate the degree and nature of relationship between data sets	Apply	PSO -1, PSO-2, PSO-3, PSO-4, PSO-5
CO2	Model real life data sets with regression methods	Apply	PSO -1, PSO-2, PSO-3, PSO-4, PSO-5
CO3	Explain the basic concepts of probability theory and its applications for decision–making	Understand	PSO -1
CO4	Solve problems using probability distributions	Apply	PSO -1, PSO-2 PSO-3, PSO-4

Course Content

Module	Content	Hrs
I	**Correlation and Regression Analysis**	10
	Correlation Analysis*:* Scatter diagram, Linear Correlation, Direct and inverse correlation, Karl Pearson's coefficient of correlation – formula and problems, properties of correlation coefficient (no derivation), probable error, Spearman's rank correlation including tied ranks (no derivation) – formula and numerical problems **Regression Analysis***:* Simple linear regression, regression coefficients and properties (no derivation), point of intersection two regression lines, identification of two regression lines, angle between two regression lines (formula only), standard error of estimates.	

II	**Association of attributes**	**10**
	Association of attributes (dichotomous classification)*:* Consistency of data, methods of studying association - Yule's coefficient of association, coefficient of colligation, Definitions of partial and illusory association	
III	**Probability**	**10**
	Probability: Definition and examples of Random Experiment, sample space, events, simple and composite events, exhaustive, mutually exclusive, equally likely and independent events. Classical definition of probability, elementary properties of probability, addition theorem for two events (statement only), concept of odds in favour of and against an event, concept of conditional probability of two events, independence of two events, simple problems on probability.	
IV	**Distribution Theory**	**15**
	Normal distribution – Probability density function, mean and variance (no derivation), important properties of normal curve (no derivation required), simple examples to find probability using standard normal tables. Definition of Statistic, parameter, sampling distribution and standard error, Definition of Chi- square, t and F statistic (pdf not required), examples and usage of statistical tables.	
V	**Practicum**	**30**
	Practical Demonstration using spread sheet software	

PRACTICAL/LABWORK
List of Practical worksheet

1. Correlation Analysis.
2. Regression Analysis
3. Normal distribution

REFERENCES

1. Agarwal, B.L. (2017). Basic Statistics, New Age International Publishers, New Delhi
2. Elhance D.N., Veena Elhance and B.M. Agarwal (2018). Fundamentals of Statistics, Kitab Mahal Publications, New Delhi.
3. Goon, Gupta, Das Gupta (2016). Fundamentals of Statistics, The World Press
4. Gupta S.C. and V.K. Kapoor (2021). Fundamentals of Mathematical Statistics, Sultan Chand & Sons, New Delhi
5. Gupta S.P. (2019). Statistical Methods, Sultan Chand & Sons, New Delhi

Name of the Course: BUSINESS ANALYTICS TOOLS-II
Credits: 3:0:1 (Lecture:Tutorial:Practical)

CO No.	CO	PO/PSO	Cognitive Level	Knowledge Category	Lecture (L)/Tutorial (T)	Practical (P)

CO 1	Calculate the degree and nature of relationship between data sets	PSO -1, 2,3,4, 5, PO -1, 2, 3,7	Apply	C, P	L	P
CO 2	Model real life data sets with regression methods	PSO -1, 2, 4,5, PO -1, 2, 3, 7	Apply	C, P	L	P
CO 3	Explain the basic concepts of probability theory and its applications for decision– making	PSO -1, PSO-2, PO -1	Understand	C	L	P
CO 4	Solve problems using probability distributions	PSO -1, PSO-2, PO -1, 2, 7	Apply	C, P	L	P

F-Factual, C- Conceptual, P-Procedural, M-Metacognitive

Mapping of COs with PSOs and POs :

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**
CO 1	2	2	1	1	1		1	1	1				2	
CO 2	2	2		1	1		1	1	1				2	
CO 3	1	1					1							
CO 4	1	1					1	1					2	

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Discussion / Seminar
- Internal Examination

- Practical Evaluation
- End Semester Examinations

Mapping of COs to Assessment Rubrics :

	Internal Exam	Quiz / Assignment/ Discussion / Seminar	Practical Evaluation	End Semester Examinations
CO 1	✓	✓	✓	✓
CO 2	✓	✓	✓	✓
CO 3	✓	✓		✓
CO 4	✓	✓	✓	✓