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	**Construct comprehensive correlation analyses** to assess and interpret relationships between variables.	Create	PSO -1, PSO-2, PSO-3, PSO-4, PSO-5
CO2	Construct simple linear regression models to analyze and predict relationships between variables	Create	PSO -1, PSO-2, PSO-3, PSO-4, PSO-5
CO3	**Analyze and interpret probability concepts and random variables** to solve simple problems in various contexts.	**Analyze**	PSO -1, PSO-2
CO4	Apply the concepts of the normal curve and its properties to solve practical probability problems and interpret data in various real-world contexts.	Apply	PSO -1, PSO-2 PSO-3, PSO-4
CO5	Evaluate and assess the strength of associations between dichotomous attributes in datasets.	Evaluate	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), 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.	
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.	
III	**Probability and Random Variables**	**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, **Random variables:** Definition, discrete and continuous types with examples, probability mass function and probability density function (Definition and properties only).	
IV	**Normal Distribution**	**15**
	Normal curve and its properties (without derivation), simple examples to find probability using standard normal tables.	
V	**Practicum**	**30**
	Practical Demonstration using spread sheet software	

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 DATA ANALYTICS-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	**Construct comprehensive correlation analyses** to assess and interpret relationships between variables.	PSO -1, 2,3,4, 5, PO -1, 2, 3,7	Create	C, P	L	P
CO 2	Construct simple linear regression models to analyze and predict relationships between variables	PSO -1, 2, 4,5, PO -1, 2, 3, 7	Create	C, P	L	P
CO 3	**Analyze and interpret probability concepts and random variables** to solve simple problems in various contexts.	PSO -1, PSO-2, PO -1	**Analyze**	C	L	P
CO 4	Apply the concepts of the normal curve and its properties to solve practical probability problems and interpret data in various real-world contexts.	PSO -1, 2,3,4 PO -1, 2, 7	Apply	C, P	L	P
CO 5	Evaluate and assess the strength of associations between dichotomous attributes in datasets.	PSO -1, 2, 3, 4 PO -1, 2, 7	Evaluate			

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

Mapping of COs with PSOs and POs :

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	2	2	1	1	1		1	1	1				2	
CO2	2	2		1	1		1	1	1				2	
CO3	1	1					1							
CO4	1	1					1	1					2	

CO 5	2	2	1	1	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	✓	✓	✓	✓
CO 5	✓	✓	✓	✓