STATISTICS FOR BUSINESS AND ADMINISTRATION

Programme	**B.Sc. Statistics**				
Course Code	**STA1MN111 (P)**				
Course Title	**Fundamentals of data analysis**				
Type of Course	**Minor**				
Semester	**I**				
Academic	**100-199**				
Level					
Course Details	**Credit**	**Lecture per week**	**Tutorial per week**	**Practical per week**	**Total Hours**
	4	**3**	**-**	**2**	**75**
Pre-requisites	Competence in basic algebraic concepts, knowledge of basic data visualization techniques.				
Course Summary	Provide students with a comprehensive understanding of different types of data, methods of data collection, frequency distributions, graphical representation techniques, measures of central tendency and dispersion, positional values, and utilization of statistical tools like R for data analysis.				

Course Outcomes (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	Differentiate between types of data and suitable methods for their collection and diagrammatic representation of data with frequency distribution.	Ap	C	Instructor-created exams / Quiz
CO2	Apply measures of central tendency with practical examples and analyze data to help entrepreneurial decisions using critical thinking skills.	Ap	F	Practical Assignment / Observation of Practical Skills/ Instructor-created exams

CO3	Grasp measures of dispersion and their applications.	Ap	C	Seminar Presentation / Group Tutorial Work/ Instructor-Created exams
CO4	Apply basic mathematical operations, methods of data input and graphical representations in R.	Ap	C	Instructor-created exams / Home Assignments
CO5	Utilize R as a calculator, statistical software, and programming language for data analysis.	Ap	P	Viva Voce/ Instructor-created exams
* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C) # - Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)				

Detailed Syllabus:

Module	Unit	Content	Hrs (45+30)	Marks (70)
I	**Introduction of data**		**9**	**15**
	1	Types of data-Primary data, Secondary data, Quantitative data, Qualitative data, Discrete data, Continuous data	2	
	2	Frequency distributions for discrete and continuous variables- Cumulative frequency distribution	2	
	3	Histogram, Frequency Polygon	3	
	4	Frequency Curve, Ogives	2	
	Sections from References: Unit 1: 2.2-2.5 [Ref 3] Unit 2: 3.3 [Ref 3] Unit 3&4: 4.3-4.4 [Ref 3]			
II	**Measures of central tendency**		**9**	**15**
	5	Mean	2	
	6	Median, Mode	3	
	7	GM	2	
	8	HM	2	
	Sections from References: Unit 5: 2.5 [Ref 1] Unit 6: 2.6&2.7 [Ref 1] Unit 7: 2.8[Ref 1] Unit 8: 2.9[Ref 1]			
III	**Measures of dispersion**		**19**	**25**
	9	Positional values- Quartiles	2	

	10	Deciles	3	
	11	Percentiles	1	
	12	Range	1	
	13	Quartile Deviation	2	
	14	Mean Deviation	3	
	15	Standard Deviation	3	
	16	Coefficient of Variation	1	
	17	Coefficient of Dispersion	3	
	Sections from References: Unit 9,10&11: 2.10,2.11[Ref 1] Unit 12,13,14&15: 2.12,2.13[Ref 1] Unit 16&17: 2.14[Ref 1]			
IV	**Introduction to R programming**		**8**	**15**
	18	Installation & Basic Mathematical Operations	2	
	19	R Preliminaries, Methods of Data Input	2	
	20	Graphical Representations(R Code)	2	
	21	Diagrammatic Representations(R Code)	1	
	22	Descriptive Measures(Mean, Median, Mode)	1	
	Sections from References: Unit18&19:1.2&1.3[Ref2] Unit 20: 1.4 [Ref 2] Unit21: 1.5&1.6[Ref2] Unit22: 1.8,2.3[Ref2]			
V	**PRACTICUM**		**30**	
	Do practice problems in R Software fromany5 units of the given list and one additional problem decided by the teacher-in-charge, related to the content of the course. Other units listed here may be used as demonstrations of the concepts taught in the course.			
	1	Basic mathematical operations		
	2	Frequency distributions for organizing and summarizing data		
	3	Histogram		
	4	Frequency Curve		
	5	Pie diagram		
	6	Arithmetic mean		
	7	Median		
	8	Mode		
	Sections from References: Unit1:1.8 Ref[2] Unit2:1.9 Ref[2] Unit3:2.1 Ref[2] Unit4:2.2Ref[2] Unit5:2.2Ref[2] Unit6:2.3Ref[2] Unit7:2.3Ref[2] Unit8:2.3Ref[2]			

Books and References:

1. Gupta,S.C. and Kapoor,V.K.(2002).Fundamentals of Mathematical Statistics. , 11th edition,Sulthan Chand, New Delhi.
2. Sudha G Purohith, SharadDCore, Shailaja R Deshmukh (2015), Statistics Using R.
3. Gupta, S. C.(2015). Fundamentals of Statistics, Himalaya Publishing House.

Mapping of COs with PSOs and POs :

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	0	0	1	0	0	2	1
CO2	0	0	2	0	3	0	2
CO3	0	0	2	0	2	0	1
CO4	2	0	2	0	2	0	2
CO5	2	0	2	0	2	0	2

Correlation Levels:

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

Assessment Rubrics:

- Quiz / Assignment/ Quiz/ Discussion / Seminar
- Midterm Exam
- Programming Assignments (20%)
- Final Exam (70%)

Mapping of COs to Assessment Rubrics :

	Internal Exam	**Assignment**	**Project Evaluation**	**End Semester Examinations**
CO1	✓	✓		✓
CO2	✓	✓		✓
CO3	✓	✓		✓
CO4	✓	✓		✓
CO5	✓			