Programme: MMS   Semester: I   Period: 1st Feb-31st -April
Course Code   :MMS-1-C-03

Name of the subject: Business Statistics   Maximum marks: 100 (60+40)
No. of Sessions: 13

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Program Outcomes (PO)	Course Outcomes (CO)
1. Nurture leadership skills, team-membership skills and mutual trust. 2. Demonstrate decision-making ability. 3. Ability to develop culture of technology-usage. 4. Inculcate social sensitivity among students. 5. Integrate and apply business knowledge and management techniques for problem-solving/ analytical skills.	1. Understand and recognize the statistical techniques and tools used in Business. 2. Apply the business statistics tools for business research 3. Create models showing relationship between dependent and independent variables 4. Infer the decision support provided by the analysis technique

Reference Books:

1. Business Statistics, C Beri, Mc Graw Hill (R1)
2. Statistical Methods, S. P. Gupta, Sultan Chand & Sons (R2)
3. Business Statistics – Making Better Decision Making, Ken Black, Wiley (R3)

A. **Plan:**

Session No.	Planned Date	Topic	Ref. Study Material	Course Outcomes
1		Revision of Data Representation	R1: Chap 4, 5 PPT **Website** https://www.mathsisfun.com/data/index.html **Case:** The e-billing case: Reducing Bill payment Times **Article:** Examples of Business Analytics In Action https://online.hbs.edu/blog/post/business-analytics-examples	Construct different type of data graph and chart, in order to interpret the data being displayed

			Examples: Marketing: https://www.datapine.com/blog/sales-graphs-and-charts-for-managers/ Finance: https://www.datapine.com/blog/financial-graphs-and-charts-examples/	
2		Central Tendency	R1: Chap 6 PPT **Website** http://www.quickmba.com/stats/centralten/ **Case:** The Bank Customer Waiting Case (Page 143 Book: Business Statistics in Practice)	Apply and infer various measures of central tendency including mean, median, mode.
3		Dispersion	R1: Chap 7 PPT Website: https://www.statisticshowto.datasciencecentral.com/dispersion/ Case: Volatility of Nifty 50 v/s Bank Nifty	Apply and infer various measure of variability including range, variance and standard deviation
4		Kurtosis and Skewness	R1: Chap 8 PPT Website: https://www.spcforexcel.com/knowledge/basic-statistics/are-skewness-and-kurtosis-useful-statistics	Calculation of Skewness and Kurtosis and differentiating it form standard deviation
5		Probability- Axioms, Addition and Multiplication rule, Types of probability, Independence of events, probability tree, Bayes' Theorem	R2: CHAP 1 VOL II PPT Case: Equity of Sexes in the Workplace	Calculate probabilities using general law of addition, Joint probabilities and conditional probabilities using Bayes law
6		Concept of Random variable, Probability distribution, Expected value and	R1: CHAP 22 PPT Case: Bidding for a government Contract at SCITOOLS (Page 232,	Understanding and apply expected value and utility as decision criteria

		variance of random variable, conditional expectation, Classical News Paper boys problem(EMV, EVPI)	Business Analytics)	
7		Probability distributions Binomial, Poisson, Normal	R2: CHAP 2 VOL II PPT Case: Quality Control at Paperstock (Page 179, Business Analytics)	Recognizing and Solving problems by using binomial, normal and poisson distribution
8		Sampling distribution	R1: CHAP 11 Case: What is the attitude of Maquiladora Workers	Determining the sample of study
9		Estimation- Point estimation Interval estimation Hypothesis testing	R2: CHAP 12 Case Study: A Study On The Influences of Advertisement On Consumer Buying Behavior	Develop both one and two tailed null and alternative hypotheisis that can be tested in a business setting
10		Students t	R2: CHAP 3 VOL II Case: Statistical Significance and Credibility in Marketing https://www.optimove.com/resources/learning-center/statistical-significance-in-marketing	Estimate the population mean with an unknown population standard deviation using the t statistics
11		Chi square, Z	R2: CHAP 3, 4 VOL II Case: Online Stock Trading: Do Demographics, Internet Usage, and Attitudes Matter?	Use the chi square distribution to estimate the population variance given the sample variance
12		Analysis of variance- one way, two way	R2: CHAP 5 VOL II Case: Burke Marketing Services (Statistics in Use)	Compare the two population meanusing analysis of variance
13		Correlation Analysis and significance	R1: CHAP 16 Case Study: A Study On The Influences of Advertisement On Consumer Buying Behavior https://www.abacademies.org/articles/a-study-on-the-	Calculating and interpreting the Pearson product movement correlation coefficient to determine if there is a correlation between two variable

			influences-of-advertisement-on-consumer-buying-behavior-7177.html	
		Regression Analysis and significance	R1: CHAP 17 Case Study: A Study on The Influences of Advertisement On Consumer Buying Behavior https://www.abacademies.org/articles/a-study-on-the-influences-of-advertisement-on-consumer-buying-behavior-7177.html	Interpretation of regression analysis and understanding the concepts of independent and dependent variable

B. Practical Approach: Other activities

Sr. No.	Activity Name	Topic Covered	Learning Outcomes	Source
1	Case study	All most every topic short case study for data analysis and interpretation	Understanding the use and application of data in every dimension of management	Mentioned in the reference section
2	Group Discussion	For case studies discussion	Team work and better communication	
3	Business Quiz / Business News sharing	Articles relating to use of data analysis in management decision making	Understanding the practical application of Statistics	Mentioned in the reference section
4	Videos / Simulation	Distribution and probability	For quick and better understanding	
5	Use of Software and Labs	Excel	Will be helpful in faster calculation and more technology	

				oriented	

C. **Innovative Pedagogy adopted:**

Following Pedagogy will be used:

1. To make live class more interactive students will discuss cases in discussion rooms and then discuss their interpretation with other students.
2. Quiz competition
3. Class presentations on case study analysis

D. **Industrial sector focused through the course:**

Develop analytical skills used by every sector especially retail, banking

E. **Types of job profile available in the sector:**

Market Research Executive, Sales Manager, Research Analyst, Data Analyst, HR Analyst

F. **Skill sets for the given job profiles as learning outcomes of the course:**

Market Research Executive: Analytical, logical thinking and numerical skills

Prepared by: **Approved by:**
Faculty   **Specialisation Head**
Date: **Date:**

A. **Execution:**

Session No.	Actual Date	Topic Covered	Evaluation Method	Case Study Ref.	Quiz Ref.	CR Sign

B. Evaluation:

Component	Details	Marks
Presentations	Mandatory	10
Class Tests	Mandatory (MCQ, Descriptive, etc)	20
Attendance & Active Participation	Mandatory	5
Overall Conduct	Mandatory	5
Final Exam	Mandatory	60

Comments / Suggestions / Recommendations:

Suggestions (if any) to students on subject related Certificate/Diploma or Add-on program: -

Signature of Faculty   **Signature of Co-ordinator**