



Mohamed Sathak - Department of Management Studies (MS-DoMS)

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Validation authority: IQAC

COURSE DELIVERY PLAN

(This document is to be presented to the students during the first week of commencement of classes by the course instructor)

Course Title: Quantitative Techniques and Research Methods in Business	Course Code: 434C1B
Course Category: Core	Semester: I
Total Duration (Hrs): 60	Credits: 4
Subject Expertise: Dr. Padmanaba Sivakumar Dr. Hemalatha Seeram Dr. F. Mohamed Sabura	

Program Specific Outcomes:

PSO1 – Placement: To develop students with industry specific knowledge & skills added with right attitude towards becoming a successful professional in corporate world and in Public sector units.

PSO 2 - Entrepreneur: To create effective business service owners, with a growth mindset by enhancing their critical thinking, problem solving and decision-making skills.

PSO3 – Research and Development: To instill and grow a mindset that focusses efforts towards inculcating and encouraging the students in the field research and development.

PSO 4 – Contribution to Business World: To produce ethical and innovative business professionals to enhance growth of the business world.

PSO 5 – Contribution to the Society: To work and contribute towards holistic development of society by producing competent MBA professionals.

Program Outcomes:

PO1: Problem Solving Skill: Application of tools & techniques relevant to management theories and practices in analyzing & solving business problems.

PO2: Decision Making Skill: Fostering analytical and critical thinking abilities for data-based decision making.

PO3: Ethical Value: Ability to develop value-based leadership attributes.

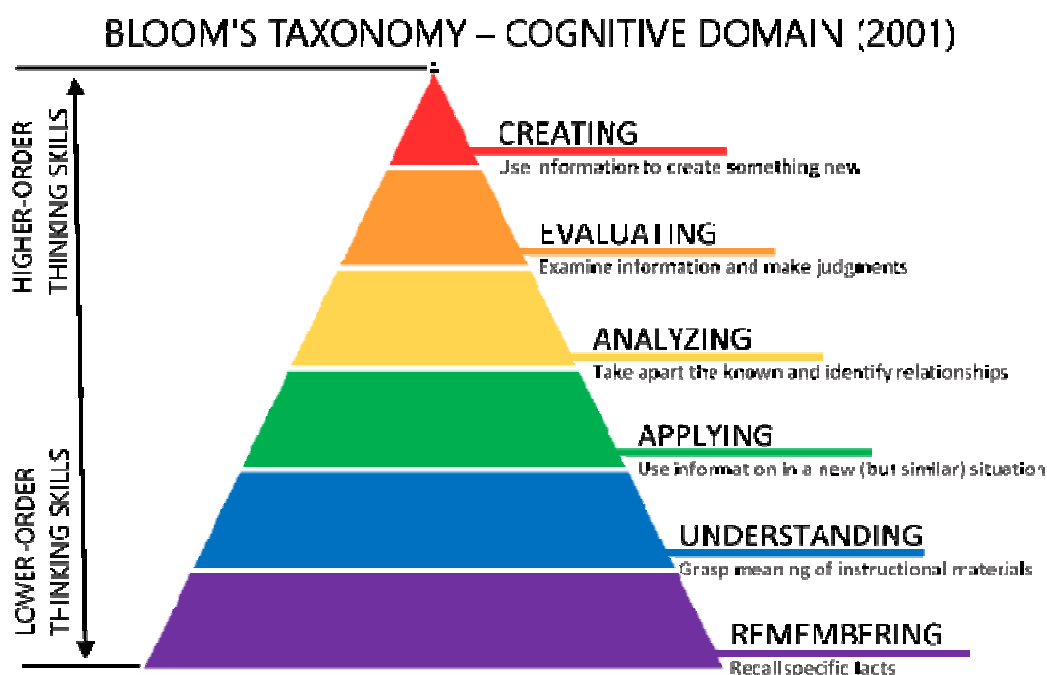
PO4: Communication Skill: Ability to understand, analyze and effectively communicate global, economic, legal and ethical aspects of business.

PO5: Individual and Team Leadership Skill: Ability to be self-motivated in leading & driving a team towards achievement of organizational goals and contributing effectively to establish industrial harmony.

PO6: Employability Skill: Foster and enhance employability skills through relevant industry subject knowledge.

PO7: Entrepreneurial Skill: Equipped with skills and competencies to become a global entrepreneur.

PO8: Contribution to Society: Strive towards becoming a global influencer and motivating future generation towards building a legacy that contributes to overall growth of humankind.



The Bloom's Taxonomy is to be followed in curriculum development, courseware development, planning and delivery of contents, Assessment, Mapping, Data Analysis and CQI (Continuous Quality Improvement)

Course Objectives	
C1	To provide the students with an introduction to probability theory and discuss how probability calculations may facilitate their decision making.
C2	To construct a coherent research proposal that includes an abstract, literature review, research questions, ethical considerations and methodology.
C3	To understand the basic statistical tools for analysis & interpretation of qualitative and quantitative data.
C4	To recognize the principles and characteristics of the multivariate data analysis
C5	techniques.
	To become familiar with the process of drafting a report that poses a significant problem

MAPPING OF COs TO POs		
Course Outcomes	On completion of this course, students will:	Program Outcomes
CO1	Be able to develop problem-solving techniques needed to accurately calculate probabilities.	PO1, PO2, PO6, PO7
CO2	Be able to devise research methods, techniques and strategies in the appropriate manner for managerial decision making and conduct research for the industry.	PO4, PO6
CO3	Be able to apply and interpret the different types of quantitative and qualitative methods of data analysis.	PO4, PO6

CO4	Be able to use multivariate techniques appropriately, undertake multivariate hypothesis tests, and draw appropriate conclusions.	PO4, PO6
CO5	Be able to present orally their research or a summary of another's research in an organized, coherent, and compelling fashion.	PO4, PO6

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	S	S				S	S	
CO2				S		S		
CO3				M		M		
CO4				M		M		
CO5				M		S		

S-Strong

M-Medium

L-Low

Reading List		
1.	https://www.dartmouth.edu/~chance/teaching_aids/books_articles/probability_book/amsbook.mac.pdf	
2.	https://study.com/academy/topic/probability.html	
3.	https://onlinecourses.nptel.ac.in/noc18_ma07/preview	
4.	https://hbr.org/1964/07/decision-trees-for-decision-making	
References Books		
1.	Kumar, R., Research Methodology: A Step-by-Step guide for Beginners, Sage, South Asia, 4th Edition, 2014.	
2.	Srivastava, T.N. and Rego, S., Statistics for Management, 2nd Edition, Tata McGraw Hill, 3rd Edition, 2016.	
3.	Cooper, D.R., Schindler, P. And Business Research Methods, Tata- McGrew Hill, 12th Edition, 2012.	
4.	Cooper, D.R., Schindler, P. and Sharma, J.K., Business Research Methods, 11th Edition, Tata-McGraw Hill, 12th Edition, 2018.	
5	Johnson, R.A., and Wichern, D.W., Applied Multivariate Statistical Analysis, PHI Learning Pvt. Ltd., 6th Edition, 2012.	
6	Anderson, Sweeny, Williams, Camm and Cochran, Statistics for business and Economics, Cengage Learning, New Delhi, 13th Edition, 2017	
Methods of Evaluation		
Internal Evaluation	Continuous Internal Assessment Test	25 Marks
	Assignments	
	Seminars	
	Attendance and Class Participation	
External Evaluation	End Semester Examination	75 Marks
	Total	100 Marks

Methods of Assessment	
BTL 1 - Recall (K1)	Simple definitions, MCQ, Recall steps, Concept definitions
BTL 2 -Understand/ Comprehend (K2)	MCQ, True/False, Short essays, Concept explanations, Short summary or overview
BTL 3 - Application (K3)	Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain
BTL 4 - Analyze (K4)	Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas, Map knowledge
BTL 5 - Evaluate (K5)	Longer essay/ Evaluation essay, Critique or justify with pros and cons
BTL 6 - Create (K6)	Check knowledge in specific or offbeat situations, Discussion, Debating or Presentations

Course Delivery Plan

Period / Session	Session Topic Unit wise	Pertaining CO/CLOs & BTL	Topic Learning Outcome (TLO)	Instructional Methods	Assessment Method for TLO
1	Probability	CO1 & BTL 2	Understand the various definitions of Probability	Lecture / PPT	Discussion Forums
2	Rules of probability	CO1 & BTL 2	Analyse the importance of Probability in statistics	Lecture / PPT	Discussion Forums
3	Probability distribution	CO1 & BTL 2	Understand Probability distribution	Lecture / PPT	Discussion Forums
4	Probability distribution	CO1 & BTL 2	Understand Probability distribution	Lecture / PPT	Discussion Forums
5	Binomial, Poisson and Normal Distributions	CO1 & BTL 2	Comprehended the Importance Binomial, Poisson and Normal Distributions	Lecture / PPT	Discussion Forums
6	Binomial, Poisson and Normal Distributions	CO1 & BTL 2	Comprehended the Importance Binomial, Poisson and Normal Distributions	Lecture / PPT	Discussion Forums
7	Binomial, Poisson and Normal Distributions, their applications in Business and Industrial	CO1 & BTL 2	Comprehended the application of Binomial, Poisson and Normal	Lecture/PPT	Students Presentation

	Problem		distributions in practical business scenario		
8	Binomial, Poisson and Normal Distributions, their applications in Business and Industrial Problem	CO1 & BTL 2	Comprehended the application of Binomial, Poisson and Normal distributions in practical business scenario	Lecture / PPT	Discussion Forums
9	Baye's Theorem and its applications	CO1 & BTL 2	Understand Baye's Theorem and its application in business	Lecture / PPT	
10	Baye's Theorem and its applications	CO1 & BTL 2	Understand Baye's Theorem and its application in business	Lecture / PPT	
11	Baye's Theorem and its applications - Decision Making under risk and uncertainty	CO1 & BTL 2	Understand Baye's Theorem and its application in business	Lecture / PPT	Discussion Forums
12	Baye's Theorem and its applications - Decision Making under risk and uncertainty	CO1 & BTL 2	Understand Baye's Theorem and its application in business	Lecture / PPT	Discussion Forums
13	Maximax, Maximin, Regret Hurwitz and Laplace Criteria in Business and Decision Making	CO1 & BTL 2	Understand how these concepts are used in business	Lecture / PPT	Discussion Forums
14	Decision tree	CO1 & BTL 2	Understand how these concepts are used in business	Lecture / PPT	Discussion Forums
15	Decision tree	CO1 & BTL 2	Understand how these concepts are used in business	Lecture / PPT	Discussion Forums
16	Revision on the topics covered in the first unit	CO1 & BTL 2	Understand how these concepts are used in business	Lecture / PPT	Discussion Forums
17	Revision on the topics covered in the first unit	CO1 & BTL 2	Understand how these concepts are used in business	Lecture / PPT	Discussion Forums
18	CIA	---	----	---	Internal – I
19	Research: Definition	CO2 & BTL 2	Understand the various definitions	Lecture / PPT	Discussion Forums

			on research		
20	Research Process	CO2 & BTL 2	Comprehend the research process	Lecture / PPT	Discussion Forums
21	Research Design – Definition- Types of Research Design	CO2 & BTL 2	Understand the various types of research design	Lecture / PPT	Discussion Forums
22	Research Design – Definition- Types of Research Design	CO2 & BTL 2	Understand the various types of research design	Lecture / PPT	Discussion Forums
23	Theories in Research	CO2 & BTL 2	Understand the importance of theories in research	Lecture / PPT	Discussion Forums
24	Variables in Research	CO2 & BTL 2	Comprehend the importance of variables and how it is used to guide a research problem	Lecture / PPT	Discussion Forums
25	Research Objectives	CO2 & BTL 2	Understand the importance and use of research objectives and why it is framed	Lecture / PPT	Discussion Forums
26	Research Hypothesis	CO2 & BTL 2	Comprehend the purpose of research hypothesis, and why it is used in research	Lecture / PPT	Discussion Forums
27	Types of Data; Preliminary Vs Secondary- Methods of Primary Data Collection; Survey, Observation	CO2 & BTL 2	Analyse the different types of data and comprehend how it is collected	Lecture / PPT	Discussion Forums
28	Experiments- Design of experiments in research	CO2 & BTL 2	Analyse the various kinds of experiments and using appropriate experimental research designs in research	Lecture / PPT	Discussion Forums
29	Construction of Questionnaire - Questionnaire Schedule	CO2 & BTL 2	Comprehend how questionnaire is designed and developed	Lecture / PPT	Discussion Forums
30	Validity and Reliability of Instruments	CO2 & BTL 2	Understand the survey instruments validity and reliability and how it is arrived in research	Lecture / PPT	Discussion Forums

31	Types of Scales; Nominal, Ordinal, Interval	CO2 &BTL 3	Analyse the various types of scales and know when to apply them	Lecture / PPT	Discussion Forums
32	Types of Attitude Measurement Scales	CO2 &BTL 3	Analyse the various types of scales and know when to apply them	Lecture / PPT	Discussion Forums
33	Sampling Techniques; Probability And Non probability Techniques- Optimal Sample Size determination.	CO2 &BTL 3	Analyse the different types of sampling techniques and determination of optimal sample size	Lecture / PPT	Discussion Forums
34	CIA	-----	-----	-----	Assignment & Student Presentation
35	Data Preparation - Editing – Coding- Data Entry	CO3 &BTL 3	Analyse the method of data preparation and able to edit, code the data for entry in the system	Lecture / PPT	Discussion Forums
36	Data Analysis- Testing Of Hypothesis Univariate and Bivariate Analysis	CO3 &BTL 3	Evaluate the different types of testing of hypothesis and understand the univariate and bivariate analysis	Lecture / PPT	Discussion Forums
37	Parametric and Nonparametric Tests and Interpretation of Test Results	CO3 &BTL 3	Analyse the difference between parametric and non-parametric tests and when to apply them. In addition understand how to interpret the test results	Lecture / PPT	Discussion Forums
38	Parametric and Nonparametric Tests and Interpretation of Test Results	CO3 &BTL 3	Analyse the difference between parametric and non-parametric tests and when to apply them. In addition understand how to interpret the test results	Lecture / PPT	Discussion Forums
39	Chi-Square Test	CO3 &BTL 2	Understand the method of doing Chi-Square test and	Lecture / PPT	Discussion Forums

			when to apply the test		
40	Correlation	CO3 &BTL 2	Understand the method of doing Correlation test and when to apply the test	Lecture / PPT	Discussion Forums
41	Karl Pearson's Vs Correlation Coefficient and Spearman's Rank Correlation	CO3 &BTL 3	Analyse the differences between the tests and also know when to apply the test and interpret the results	Lecture / PPT	Discussion Forums
42	Regression Analysis	CO3 &BTL 3	Comprehend the method of performing a regression analysis, and various types of regression analysis	Lecture / PPT	Discussion Forums
43	Regression Analysis	CO3 &BTL 3	Comprehend the method of performing a regression analysis.	Lecture / PPT	Discussion Forums
44	One Way and Two Way Analysis of Variance (ANOVA)	CO3 &BTL 3	Understand and perform one way and two way ANOVA	Lecture / PPT	Discussion Forums
45	One Way and Two Way Analysis of Variance (ANOVA)	CO3 &BTL 3	Understand and perform one way and two way ANOVA	Lecture / PPT	Discussion Forums
46	CIA	-----	----	----	Internal – 2
47	Multivariate Statistical Analysis: Exploratory and Confirmatory Factor Analysis	CO4 &BTL 3	Comprehend the method of performing exploratory and confirmatory factor analysis	Lecture / PPT	Discussion Forums
48	Exploratory and Confirmatory Factor Analysis	CO4 &BTL 3	Comprehend the method of performing exploratory and confirmatory factor analysis and interpret the results	Lecture / PPT	Discussion Forums
49	Discriminant Analysis	CO4 &BTL 3	Understand the method of performing the discriminant analysis	Lecture / PPT	Discussion Forums

			and interpret the results		
50	Cluster Analysis and Conjoint Analysis	CO4 &BTL 3	Comprehend the method of performing Cluster analysis and conjoint analysis	Lecture / PPT	Discussion Forums
51	Multiple Regression	CO4 &BTL 3	Comprehend the method of performing Multiple regression analysis	Lecture / PPT	Discussion Forums
52	Multidimensional Scaling- Their Application in Marketing Problems	CO4 &BTL 3	Analyse the data with the help of MDS, and its application in marketing problems	Lecture / PPT	Discussion Forums
53	Application of Statistical Software For Data Analysis- SEM Analysis	CO4 &BTL 3	Using the SPSS software and understand using AMOS for SEM analysis	Lecture / PPT	Discussion Forums
54	CIA	-----	-----	-----	Assignment & Student Presentation
55	Report Writing and Ethics in Business Research: Research Reports- Different Types	CO5 &BTL 5	Understand the nuances of report writing and the different types of report	Lecture / PPT	Discussion Forums
55	Report Writing Format- Content of Report	CO5 &BTL 5	Comprehend the format of report writing and understand the content of a report	Lecture / PPT	Discussion Forums
56	Need For Executive Summary- Chapterization	CO5 &BTL 5	Able to write a executive summary and do chapterization of report	Lecture / PPT	Discussion Forums
57	Framing the Title of the Report- Different Styles Of Referencing	CO5 &BTL 5	Able to frame the title of the report and understand the different styles of referencing	Lecture / PPT	Discussion Forums
58	Academic Vs Business Research Reports	CO5 &BTL 4	Evaluate and differentiate between academic and	Lecture / PPT	Discussion Forums

			business research reports		
59	Ethics In Research.	CO5 &BTL 3	Understand and follow the ethics in doing research	Lecture / PPT	Discussion Forums
60	CIA	-----	-----	-----	Review & Improvement
Model Examination					

COURSE ASSESSMENT PLAN

Continuous Internal Assessment (CIA)	Learning Outcome for Assessment	CO/CL Os	Assessment Method / Activity	Corrective Action	Duration (Hrs)	Weightage
Unit I	Understand what is probability and various probability distribution methods	CO1	Internal I	Assignment	1.5	15%
Unit II	Examine the research methods and various types of research	CO2	Discussion Forums & Practice Quiz	Assignment	1	10%
Unit III	Possess the ability to interpret the data and do data analysis manually or with the help of software	CO3	Internal II	Assignment	1.5	15%
Unit IV	Evaluate various multi-variate statistical methods and their applications	CO4	Discussion Forums & Practice Quiz	Assignment	1	10%
Unit V	Ability to write research reports and submit	CO5	Model Exam	Assignment	3	50%
Internal Marks – 25 (20 CIA + 5 Attendance)						

FACULTY SIGNATURE

Head -DoMS

Head - IQAC