Sem. - IV

Vertical – 1
Major

Syllabus
B.Com. (Banking & insurance)
(Sem.- IV)

Title of Paper : DATA-DRIVEN DECISION MAKING IN BANKING AND INSURANCE

Sr. No.	Heading	Particulars
1	**Description the course :** **Including but Not limited to :**	Quantitative methods are essential tools for decision-making in banking and insurance. This course provides a solid foundation in statistical and mathematical techniques used to analyze financial data, assess risks, and make data-driven business decisions. By integrating real-world applications, students will develop analytical skills to address challenges in banking, finance, and insurance.
2	**Vertical :**	Major
3	**Type :**	Theory (with Practical Illustration)
4	**Credit**:	4 credits
5	**Hours Allotted :**	60 Hours
6	**Marks Allotted**:	100 Marks
7	**Course Objectives**: 1. To Understand the role and applications of quantitative methods in banking and insurance. 2. To Apply statistical tools for analyzing financial data and risk management. 3. To Develop skills in probability and hypothesis testing for financial decision-making. 4. To Utilize regression and forecasting models for financial planning and risk assessment. 5. To Interpret and analyze time series data for making informed financial decisions.	

8	**Course Outcomes**: Upon successful completion, students will be able to: 1. Apply quantitative techniques in financial data analysis and decision-making. 2. Use probability and statistical tools to assess financial risks and uncertainties. 3. Perform hypothesis testing and interpret results for business insights. 4. Construct regression models for predicting financial and insurance trends. 5. Utilize time series analysis for forecasting in banking and insurance sectors.
9	**Modules**:-
	Module 1: Fundamentals of Quantitative Methods
	Unit 1: Basics of Quantitative Techniques: Role of Quantitative Methods in Banking and Insurance, Types of Data: Primary & Secondary Data, Cross-Sectional & Time Series Data, Data Collection, Classification, and Presentation (Tables, Graphs, and Charts), Measures of Central Tendency: Mean, Median, Mode **Unit 2: Measures of Dispersion and Correlation:** Range, Variance, Standard Deviation, and Coefficient of Variation, Skewness and Kurtosis, Correlation Analysis: Types and Interpretation (Pearson's & Spearman's), Applications of Correlation in Financial Analysis
	Module 2: Probability and Statistical Distributions
	Unit 3: Probability Concepts and Theorems: Introduction to Probability: Concepts and Rules, Types of Probability Distributions: Discrete & Continuous, Conditional Probability and Bayes' Theorem, Applications of Probability in Risk Assessment and Insurance **Unit 4: Statistical Distributions in Finance and Insurance:** Binomial, Poisson, and Normal Distributions, Central Limit Theorem and Its Implications, Use of Probability Distributions in Credit Risk and Insurance Claims, Monte Carlo Simulation in Banking and Insurance
	Module 3: **Inferential Statistics and Hypothesis Testing**
	Unit 5: Sampling Methods and Estimation: Types of Sampling: Random, Stratified, and Systematic Sampling, Sampling Distributions and Standard Error, Point and Interval Estimation, Confidence Intervals and Their Applications in Finance **Unit 6: Hypothesis Testing and Decision Making:** Null and Alternative Hypothesis, Type I and Type II Errors,
	Module 4: Regression, Forecasting, and Time Series Analysis
	Unit 7: Regression Analysis and Financial Modelling: Simple and Multiple Linear Regression, Regression Assumptions and Interpretation of Results, Application of Regression in Credit Scoring and Risk Analysis **Unit 8: Time Series Analysis and Forecasting:** Introduction to Time Series Components (Trend, Seasonality, Cyclic, and Irregular), Moving Averages and Exponential Smoothing, Application of Time Series Analysis in Stock Markets and Interest Rate Forecasting

11	**Reference Books:** 1. Statistical Methods - S.G. Gupta (S. Chand & Co.) 2. Statistics - Theory, Method & Applications D.S.Sancheti & V. K. Kapoor. 3. Business Mathematics & Statistics : B Aggarwal, Ane Book Pvt. Limited 4. Business Mathematics : A P Verma, Asian Books Pvt. :Limited. 5. Fundamentals of Applied Statistics: S G Gupta and V K Kapoor, Sultan Chand & Co	
12	**Internal Continuous Assessment: 40%**	**External, Semester End Examination 60% Individual Passing in Internal and External Examination**
13	**Refer annexure :A**	**Refer annexure :B**

QUESTION PAPER PATTERN
(External and Internal)

The Internal continuous Assessment should be conducted after completing 20% of Syllabus of the course. All Assessment activities to be recorded and spread across semester

ANNEXTURE: A

Individual faculty member shall have the flexibility to design the continuous assessment for each course/s in a manner so as to evaluate students' capabilities across knowledge, skills and attitudes. Internal Assessment may be undertaken through any or combination of the methods stated below after obtaining due permission of Principal and remain same across that particular course and semester. Introduction of multiple activates among groups of students in same class may be encouraged for better exposure:

- **Class Test (Mandatory) with Objective questions** Class Test during the lectures (physical/online mode) MCQs/Match the pairs/Answer in one sentence etc.

Any two of following for each course & may be similar or different for different group of students in a class

- Essays / Tutorials
- Home assignments
- Library notes based on published research papers
- Report writings
- Practical Projects/ Practical activities /Group projects
- Reflective Practical assignments / Industry work / Field work
- Drawing Portfolios
- Oral examination
- Student's Seminar / Workshop / Exhibition
- Reviews / PPT presentation
- Problem solving Exercises
- Laboratory/Library Work
- Book reviews
- Case Study analysis
- Podcast/Blog writing /Video making e.g., Tips to become successful investor/satisfied customer, company profile, successful entrepreneur etc.

ANNEXTURE: B

Question Paper Pattern

Credit: 02 (Total 50 Marks)
External = 30 Marks
Duration: 1 Hr.

Student has to attempt any two questions out of three.

Q.1	Answer the following(Theory/Practical Questions) A,B	15 Marks
Q.2	Answer the following(Theory/Practical Questions) A,B	15 Marks
Q.3	Answer the following(Theory/Practical Questions) A,B	15 Marks

Credit: 04 (Total 100 Marks)
External =60 Marks
Duration: 2 Hrs.

Student has to attempt any four questions out of six.

Q.1	Answer the following(Theory/Practical Questions) A,B	15 Marks
Q.2	Answer the following(Theory/Practical Questions) A,B	15 Marks
Q.3	Answer the following(Theory/Practical Questions) A,B	15 Marks
Q.4	Answer the following(Theory/Practical Questions) A,B	15 Marks
Q.5	Answer the following(Theory/Practical Questions) A,B	15 Marks
Q.6	Answer the following(Theory/Practical Questions) A,B	15 Marks

Note

1. The Semester End Assessment should be conducted after completing 100% of syllabus of the course/s
2. The question papers shall be framed so as to ensure that no part of the syllabus is left out of study by a student.
3. The question paper shall be balanced in respect of various topics outlined in the syllabus.
4. Equal Weightage is to be given to all the modules
5. All questions shall carry equal marks with internal choice within the question
6. 15 marks question must be subdivided into 8 marks + 7 marks, 10 marks + 5 marks and 5 marks + 5 marks + 5 marks. Internal options may be given wherever necessary.
7. Use of simple calculator is allowed in the examination.
8. Wherever possible more importance is to be given to the practical problems/case study.