|  |  |
| --- | --- |
| **Program: Bachelor of Management Studies (2023-24)** | **Semester: II** |
| **Course: Quantitative Models in Business** | **Course Code:** |
| **Teaching Scheme** | **Evaluation Scheme** |
| **Lecture (Hours per week)** | **Practical**  | **Tutorial** | **Credits** | **Continuous Assessment (CA)**  | **Semester End Examinations (SEE)**  |
| **02** | **Nil** | **Nil** | **02** | **20** | **30** |
| **Learning Objectives** |
| 1. To provide knowledge regarding important quantitative models used for analytical thinking.
2. To understand importance of statistics in real life situations and use various forecasting techniques to plan and implement Business ideas.
 |
| **Course Outcomes:** |
| After completion of the course, learners would be able to: 1. Understand & Interpret quantitative models along with enhanced decision-making using concepts of dispersion & correlation.
2. Apply various forecasting techniques to different real-life situations, work and Business Situations.
 |
| **Pedagogy:** |
| 1. Business Applications of quantitative techniques studied would be discussed in class.
2. Problems given to students would be to test concepts and reasoning. Problems involving detailed calculations/ simplifications will be avoided.
3. Adaptive teaching methods.
 |
| **Outline of Syllabus:**  |
| **Module** | **Description** | **No of Hours** |
| 1. | **Introduction to Quantitative models in Business & Correlation Analysis** | 15 |
| **2.** | **Forecasting Techniques** | 15 |
| **Total** | **30** |
| **PRACTICALS** | **-** |

|  |
| --- |
| **Detailed Session Plan:** |
| **Module** | **Module Content** | **Module wise Pedagogy Used** | **No. of Hours** |
| **Module I** | **Introduction & purpose of Quantitative models in Business****Type of Quantitative models Basics –** Forecasting, Linear programming & Decision analysis (Concept only**)**  **4 types of Quantitative analysis –** Descriptive, Correlational, Causal-Comparative/ Quasi Experimental, Experimental (Concept only)**Applications of Quantitative models** **Correlation Analysis*** Karl Pearson’s Coefficient of Correlation - Properties and Calculations; Concept of Probable Error and testing whether r is significant or not.
* Spearman’s Rank Correlation Coefficient
* Regression Analysis - Linear Regression Equations – Statement, Properties, Uses, Calculations
 | Classroom sessions with computational thinking. | 15 (5+5+5) |
| **Module II** | **Forecasting Techniques*** **Time Series**- Components, Seasonal Variation and Cyclical Variation, Difference between Seasonal Variation & Cyclical Variation, Least Squares Method, Moving Average Method (3 yearly & 4 yearly)
* **Index Numbers**- Introduction, Meaning, Uses of Index Numbers, Laspeyre’s, Paasche’s, Dorbish-Bowley, Fisher Index Number and other key index numbers.

Consumer Price Index/ Cost of Living Index Number * Econometric models – Concept only
* Delphi method – Concept only
 | Classroom sessions with computational thinking. | 15(6+6+3) |

|  |
| --- |
| **Reference Books:**1. Business Mathematics , D. C. Sancheti and V. K. Kapoor , Sultan Chand & Sons, 2006,
2. Mathematics for Business Economics: J. D. Gupta, P. K. Gupta and Man Mohan, Tata Mc‐ Graw Hill Publishing Co. Ltd., 1987
3. Schaum Series STATISTICS , Murray Spiegel, Larry Stephens, Mc Graw Hill
4. Operations Research, Gupta and Kapoor ,S. Chand & Sons Co.
5. Statistical Methods, S.G. Gupta, S. Chand & Sons Co.
6. Business Mathematics & Statistics, B Aggarwal, Ane Book Pvt. Limited
7. Statistics for management, Richard Levin, David S. Rubin, Sanjay Rastogi /Masoos Husain siddiqui. Pearson Publication
8. Mathematics & Statistics, Ajay Goel & Alka Goel., Taxmann’s Publication
9. Quantitative Techniques of Decision Making, Anand Sharma, Himalaya Publishing House
10. Business Statistics Using Excel & SPSS, Nick Lee & Mike, SAGE
11. Business mathematics and statistics, V.R.Nikam, (Chandralok Prakashan)
 |

## Total Marks allotted: 50 marks

## Details of Continuous Assessment (CA)

40% of the total marks per course.

Marks allotted for CA is **20 marks.**

Breakup of the 20 Marks is as follows:

|  |  |  |
| --- | --- | --- |
| **Continuous Assessment** | **Details** | **Marks** |
| **Component 1 (CA-1)**  | Internal class test (online or offline)* 2 Class tests will be taken for each course
* Marks scored will be computed as the Average of the marks scored by the learner in the 2 Class tests carrying 10 Marks each
 | **10 marks** |
| **Component 2 (CA-2)** | Presentations/Project Work/ Viva-Voce/ Book Review/ Field visit & its presentations/ Entrepreneurship Fair/ Documentary filming/ Assignments/ Group Discussions Etc. | **10 marks** |

## b) Details of Semester End Examination (SEE)

60% of the total marks per course.

Marks allotted for SEE is **30 Marks.**

Duration of examination will be **One Hour.**

**QUESTION PAPER FORMAT**

 All Questions are compulsory

|  |  |  |  |
| --- | --- | --- | --- |
| **Question Number** | **Description** | **Marks** | **Total Marks** |
| **Q1.** | **Answer any 2 from the following** (Module I)a.b.c. | 5 Marks\*2 | 10 |
| **Q2.** | **Answer any 2 from the following:** (Module II)a.b.c. | 5 Marks\*2 | 10 |
| **Q3.** | **Answer any 2 from the following:** (Module I&II)a.b.c. | 5 Marks\*2 | 10 |
|  | **TOTAL MARKS** |  | **30** |



Signature Signature

(Program Chairperson & Vice Principal) (Principal)