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| **Program: Bachelor of Management Studies (2023-24)** | **Semester I** |
| **Course: Financial Mathematics** | **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** |
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| **Learning Objectives:** |
| 1. To equip the student with a broad-based knowledge of mathematics in business.
2. To understand the concepts of basic financial calculations as well as applications of profit and loss in business.
3. To understand annuities and calculate EMI.
4. To understand the relevance of interpolating values & Decision-making criteria’s under uncertainty.
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| **Learning Outcomes:** |
|  At the end of the course module, the students should be able to:1. Interpret Financial Mathematical concepts such as Annuities, Sinking funds, Loans EMI etc.
2. Adapt and use the concept of Interpolation and Decision-making criteria’s.
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| **Pedagogy** |
| The objective of the course is to encourage students to learn and to appreciate the use of Mathematics. Hence,1. Business Applications of mathematical techniques studied would be discussed in class.
2. Short case studies would either be discussed in class or given to students as assignments.
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| **Outline of Syllabus:**  |
| **Module** | **Description** | **No of Hours** |
| 1. | **Elementary Financial Mathematics** | 15 |
| 2. | **Ratio, Proportion & Percentage, Interpolation & Decision Theory** | 15 |
| **Total** | **30** |
| **PRACTICALS** | **-** |

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| **Session Outline:** |
| **Module** | **Module Content** | **Module wise Pedagogy Used** | **Duration of Module** |
| Module I | **Elementary Financial Mathematics****Profit & Loss**Terms, Formulae, Trade discount, Cash discount, Problems with Cost price, selling price, Trade discount, Cash discount, Commission & BrokerageSimple and Compound InterestAnnuity-Present and future value, sinking fundsAppreciation & Depreciation of AssetsEquated Monthly Installments (EMI) – Flat interest rate & Amortization table | Classroom sessions with computational thinking. | 15 (5+10) |
| Module II | **Ratio, Proportion & Percentage**Basics concepts & sums related to Profit and loss varied proportions**Numerical Analysis [Interpolation]**Introduction and concept: Finite differences – forward difference operator – Newton’s forward difference formula with simple examples, Backward Difference Operator. Newton’s backward interpolation formula with simple examples, Lagrange’s Interpolation**Decision Theory**Basic concept, Sums based on Decision under Uncertainty – Maximax, Maximin, Minimax, Minimin, Laplace & Hurwitz Criteria  | Classroom sessions with computational thinking. | 15 (6+6+3) |

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| **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)
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## 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:

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| **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

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| **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)