

**[Open Electives for the Students other than Faculty of Science]**  
**OE-101 MTS : Basic Mathematics- I**

Course type: OE(T)

No. of Credits: 02

---

**Course Objectives:**

1. To understand basic concepts of Mathematics.
2. To be able to use the language, symbols, and notation of Mathematics.
3. To develop Mathematical curiosity and acquire skills in problem solving.
4. To develop an appropriate understanding of how to use mathematics in real-world problems.
5. To cultivate the right understanding and regain numerical aptitude.
6. To develop a logical approach toward analytical approach data.

**Course Outcomes:** The student will able

1. To understand the concepts of numbers and integers and able to develop skills in basic operations of integers to cultivate the right understanding and regain numerical aptitude.
2. To understand concepts of H.C.F. and L.C.M. of numbers, square root and cube Root and ability to apply in real-world problems.
3. To understand concepts of ratio, proportion, percentage and be able to cultivate the right understanding regaining numerical aptitude.
4. To understand concepts of average, profit and loss develop a logical approach toward analytical approach to real-world problems
5. To provide a platform for the students to build the fundamentals of Basic Mathematics for competitive examination preparation strategy
6. To establish a framework for the students to help acquire the knowledge and expertise necessary to secure employment opportunities in the government sector

**Course Content**

**Unit 1: Integers** **(12 Hours)**

- 1.1 Introduction to number system, Basic operations of integers
- 1.2 Highest Common Factor (H.C.F.) and Least Common Multiple (L.C.M.)
- 1.3 Square root and cube Root

**Unit 2: Ratio, Proportion and Percentage** **(08 Hours)**

- 2.1 Introduction to ratio and proportion
- 2.2 Finding ratio and proportion
- 2.3 Types of ratios

**Unit 3: Average****(04 Hours)**

3.1 Introduction to average

3.2 Finding the average

**Unit 4: Profit and Loss****(06 Hours)**

4.1 Introduction to profit and loss

4.2 Finding profit and loss

**Reference Book:**

Quantitative Aptitude for Competitive Examination by Dinesh Khattar, Pearson India Education Services Pvt. Ltd., Fourth Edition.

\*\*\*\*\*

**OE-102 MTS: Applied Mathematics - I****Course type: OE(P)****No. of Credits: 02(P)**

---

**Course Objectives:**

1. To develop a strong understanding of Geometry.
2. To become Master of basic operations on numbers in different way.
3. To gain proficiency in working with Profit and loss.
4. To acquire a solid foundation of trigonometry.
5. To learn the simulation of data.
6. To develop problem-solving skills by applying operations.

**Course Outcomes:** The student will be able to

1. Enhance mathematical reasoning and critical thinking.
2. Easily present the data graphically.
3. Have the knowledge of geometrical shapes and their equations.
4. Have Skills of comparison through diagrams and charts.
5. Got the business ability.
6. Achieve the techniques of finding area and volume.

## Course Content

### **Unit 1: Mensuration (08 Hours)**

Perimeter of circle, triangle, square and rectangle. Area of circle, square, rectangle and triangles. Surface area of cylinder, sphere, cube and cuboid. Volume of cube, cuboid, sphere, hemisphere, cylinder and cone.

### **Unit 2: Trigonometry (08 Hours)**

Degree and radian, Trigonometric ratios and identities, Angle of elevation and depression, Height and distance problems.

### **Unit 3: Arithmetic (08 Hours)**

Arithmetic Mean, Geometric Mean, Harmonic Mean, Ratio, Proportion, Percentage, Profit and Loss, Partnership, Brokerage, (True) Discount, Simple and Compound Interest, Time and Work, Distance

### **Unit 4: Data Interpretation (06 Hours)**

Tabulation, missing data problem. Graphs and Charts - Table, Line, Bar and Pie.

#### **Reference Books:**

1. Objective Arithmetic, R S Aggarwal, S. Chand & Company Ltd.
2. Business Mathematics, S. K. Sharma and G. Kaur, Sultan Chand & Sons.
3. Business Mathematics-II Edition Q. Zameerddin, V. K. Khanna, S K Bhambri.

\*\*\*\*\*

## **OE-103 MTS : Business Mathematics- I**

**Course type: OE(T)**

**No. of Credits: 02**

---

#### **Course Objectives:**

1. To provide solid Mathematical Foundation for B. Com Students in Business and Finance.
2. To help the students for various mathematical topics with Practical Business Application.
3. To enhance problem solving Skills and ability for Academic and Professional Success.
4. To make students understands mathematics behind commerce and Management..
5. To foster conceptual Clarity and Confidence in Mathematical Competence.

#### **Course Outcomes:** The student will able

1. To understand the Concepts of Ratio, Proportion, Percentage and Partnership.
2. To apply the mathematical concepts to solve real-world financial problems.
3. To analyse the equated monthly instalments (EMI) for loans and mortgages.
4. To evaluate the simple and compound interest for various financial instruments.
5. To create their own models related to Finance and can solve them.
6. To remember the computation of Dividend and Return on Investment in shares.

## Course Content

### Unit 1: Ratio, Proportion, Percentage (15 Hours)

- 1.1 Introduction to Ratios and Proportions, Applications of Ratios and Proportions, Percentages and its Applications.
- 1.2 Concept of Commission and Brokerage, Types of Commission, Partnership, Practical applications.

### Unit 2: Interest and Dividend (15 Hours)

- 2.1 Simple interest and compound Interest.
- 2.2 Equated Monthly Instalments (EMI), EMI on reducing balance, EMI on flat and floating rate of interest.
- 2.3 Concept of shares and dividends, Types of Shares, Problems on dividend and return on investment on shares.

#### Reference Book:

1. Practical Business Mathematics by S. A. Bari, New Literature Publishing Company, New Delhi, India.
2. Mathematics for Commerce by K. Selvakumar, Notion Press, Chennai, India.
3. Business Mathematics with Applications by Dinesh Khattar and S. R. Arora, S. Chand Publishing, New Delhi, India.
4. Fundamentals of Business Mathematics by M. K. Bhowal, Asian Books Pvt. Ltd, New Delhi.
5. Business Mathematics by D.C. Sancheti and V. K. Kapoor, Sultan Chand and Sons.
6. Business Mathematics by J. K. Singh, Himalaya Publishing House.

\*\*\*\*\*

## OE-151 MTS: Basic Mathematics - II

Course type: OE(T)

No. of Credits: 02

---

#### Course Objectives:

1. To be able to use the language, symbols and notation of Mathematics.
2. To develop Mathematical curiosity.
3. To help them acquire skills in solving problems.
4. To develop an appropriate understanding of how to use mathematics in real-world problems.
5. To cultivate the right understanding and regain numerical aptitude.
6. To develop a logical approach toward analytical approach data.

**Course Outcomes:** The student be will able

1. To understand the concepts of Time, Work and Wages also be able to logical approach towards analytical approach data of real word problem
2. To understand concepts of Linear Equations and ability to solve examples in finding Age in past and future.
3. To understand concepts of Simple and Compound Interest and to develop Mathematical Competence.
4. To understand concepts of Mensuration and able to develop Mathematical competence in solving Problems.
5. To provide a platform for the students to build the fundamentals of Basic Mathematics for competitive examination preparation strategy.
6. To establish a framework for the students to help acquire the knowledge and expertise necessary to secure employment opportunities in the government sector.

## **Course Content**

**Unit 1: Time, Work and Wages** **(12 Hours)**

- 1.1 Introduction to Time, Work and Wages
- 1.2 Finding Time and Amount of Work
- 1.3 Finding Speed, Distance and Time
- 1.4 Finding Speed of Boats and Stream

**Unit 2: Problems on Ages** **(06 Hours)**

- 2.1 Introduction to Linear Equations
- 2.2 Finding Age Some Years Ago, Present Age and Age Some Years hence

**Unit 3: Simple Interest and Compound Interest** **(06 Hours)**

- 3.1 Introduction to Simple Interest and Compound Interest
- 3.2 Finding Simple Interest
- 3.3 Finding Compound Interest

**Unit 4: Mensuration** **(06 Hours)**

- 4.1 Introduction to the Concept of Mensuration
- 4.2 Finding Area, Perimeter, and Some Basic Facts
- 4.3 Introduction to Solids and Cubes
- 4.4 Finding Surface Area and Volume

**Reference Book:**

Quantitative Aptitude for Competitive Examination by Dinesh Khattar, Pearson India Education Services Pvt. Ltd., Fourth Edition.

\*\*\*\*\*

**OE-152 MTS: Applied Mathematics - II**  
**Title : Introduction to MS Excel**

Course type: OE(P)

No. of Credits: 02(P)

---

**Course Objectives:** This course aims on

1. Basic Essential Computing skills companies are looking for.
2. Hands-on Practical Knowledge.
3. Boosting their resume.
4. Providing an edge over other applicants in the competitive job market.
5. Providing valuable experience and confidence.
6. Heightening their earning potential.

**Course Outcomes:** The student will be able to

1. Create, save and print worksheets
2. Create formulas
3. Use functions for SUM, AVERAGE, MIN, and MAX
4. Use the function for IF
5. Format cells using many of the formatting tools
6. Present the Data Graphically

### **Course Content**

**Practical 1: The Excel environment**

Navigating a worksheet  
Spreadsheet terminology  
Getting help

**Practical 2: Entering and editing data**

Entering and editing text and values  
Entering and editing formulas  
Saving and updating workbooks

**Practical 3: Modifying a worksheet**

Moving and copying data  
Moving and copying formulas  
Inserting and deleting ranges, rows, and columns  
Cell comments

**Practical 4: Using functions**

Entering functions  
AutoSum  
Other common functions

### **Practical 5: Formatting**

Text formatting  
Row and column formatting  
Number formatting  
Conditional formatting  
Additional formatting options

### **Practical 6: Printing**

Preparing to print  
Page Setup options  
Printing worksheets

### **Practical 7: Charts**

Chart basics  
Column Chart  
Pie Chart  
Bar Chart  
Pai Chart  
Line Chart

### **Practical 8: Case Study**

Modifying existing worksheet  
Use shortcut keys  
Create and email worksheet

### **Practical 9: Review Basics**

Downloading from Account Reconciliation  
The Excel environment  
The Sparkline  
The Trendline

### **Practical 10: Subtotal Functions**

Create an outline and consolidate data  
Create subtotals in a list  
Use multiple subtotal functions- SUBTOTAL, SUMIF  
Create custom views to save different sets of worksheet display and print settings

### **Practical 11: Range names and Filter date**

Define and apply cell and range names  
Use names in Formulas  
Filter data based on complex criteria  
Use conditional filters  
Copy filtered results to another range

### **Practical 12: Pivot Tables**

Prepare data in a table format and name the table  
Create a PivotTable for analysing  
Use the Download Actuals page in Account Reconciliation as example  
Modify or re-arrange fields

**Practical 13: Selected Functions**

Using IF and SUMIF functions to calculate a value based on specified criteria  
Use ROUND function to round off numbers  
Use VLOOKUP to find values in worksheet data  
Use HLOOKUP

**Practical 14: Simulation**

Scatter  
Area  
Stock  
Surface  
Radar

**Practical 15: Applications**

Applications of Ms-excel  
business analysis  
data entry and storage  
data analysis  
accounting and budgeting

**Reference Book:**

Beginning Excel 2019 by Noreen Brown; Barbara Lave; Hallie Puncochar; Julie Romey;  
Mary Schatz; Art Schneider; and Diane Shingledecker  
Open Oregon Educational Resources

\*\*\*\*\*

**OE-153 MTS: Business Mathematics - II**

Course type: OE(T)

No. of Credits: 02

---

**Course Objectives:**

1. To develop a strong foundation in fundamental mathematical concepts.
2. To apply mathematical techniques to solve real world business problems.
3. To understand the application of ascertaining profit and loss from business transactions
4. To apply linear programming as a decision making tool in business scenarios.
5. To nurture the principles of linear programming and formulate linear programming problems for decision making in business situations.

**Course Outcomes:** The student be will able

1. To understand the Concepts of Concepts of Profit and Loss.
2. To apply the mathematical concepts to solve real world financial problems.
3. To analyse the meaning of LPP, Objectives, and Functions.
4. To evaluate the formulation of LPP towards maximizing profits and minimizing cost.



5. To create their own models related to finance and can solve them.
6. To remember the computation of optimal solution.

## **Course Content**

### **Unit 1: Profit and Loss** **(10 Hours)**

- 1.1 Concepts of Cost Price and Selling Price.
  1. Calculation of Profit, Loss and Discount, List Price and Marked Price.
  2. Application of Profit and Loss in practical problems.

### **Unit 2: Linear Programming Problems** **(20 Hours)**

- 2.1 Concept of LPP, Objective Function, Decision variables, Constraints
- 2.2 Formulation of LPP: Maximization of Profits, Minimization of Cost
- 2.3 Graphical method
- 2.4 Alternate optimal solution, Infeasible solution, Unbounded solutions.
- 2.5 Concept of redundant constraint.

### **Reference Book:**

1. Practical Business Mathematics by S. A. Bari, New Literature Publishing Company, New Delhi, India.
2. Mathematics for Commerce by K. Selvakumar, Notion Press, Chennai, India.
3. Business Mathematics with Applications by Dinesh Khattar and S. R. Arora, S. Chand Publishing, New Delhi, India.
4. Fundamentals of Business Mathematics by M. K. Bhowal, Asian Books Pvt. Ltd, New Delhi.
5. Business Mathematics by D.C. Sancheti and V. K. Kapoor, Sultan Chand and Sons.
6. Business Mathematics by J. K. Singh, Himalaya Publishing House.

\*\*\*\*\*