



**S. R. D. S. P. Mandal's**  
Shri Pancham Khemraj Mahavidyalaya,  
Sawantwadi-416510  
(Autonomous)  
Affiliated to University of Mumbai



## **SYLLABUS FOR VSC**

**Name of the Programme: B. Com.**

**Board of Studies in Mathematics**

**Name of the Course (Semester - I)**

**Commercial Mathematics - I**

**Name of the Course (Semester - II)**

**Commercial Mathematics - II**

**To be implemented from Academic Year**

**2026-2027**

**Syllabus for Semester I & Semester II**

**Reference: GR dated 20<sup>th</sup> April, 2023 for Credit Structure of UG**



**University of Mumbai**  
**S. R. D. S. P. Mandal's**  
**SHRI PANCHAM KHEMRAJ MAHAVIDYALAYA**  
**SAWANTWADI**  
**(An Autonomous College)**  
**DIST: SINDHUDURG- 416 510, MAHARASHTRA**  
**DEPARTMENT OF MATHEMATICS**

Syllabus

| Sr. No. | Heading                              | Particulars                              |
|---------|--------------------------------------|------------------------------------------|
| 1.      | Title of the Program                 | B. Com. (Advanced Accountancy /Commerce) |
| 2.      | Eligibility for Admission            | H. S. C. with Commerce Stream            |
| 3.      | Passing Marks                        | 40%                                      |
| 4.      | Ordinance/Regulations (if any)       | -                                        |
| 5.      | No. of Years/Semesters               | 3 Years/ Six Semesters                   |
| 6       | Level                                | UG                                       |
| 7       | Pattern                              | Semester                                 |
| 8       | Status                               | Revised                                  |
| 9       | To be implemented from Academic Year | 2026-2027                                |

Date:

HoD,  
Dept. of Mathematics

**S. R. D. S. P. Mandal's**  
**Shri Pancham Khemraj Mahavidyalaya, Sawantwadi (Autonomous)**

| <b>Sr. No.</b> | <b>Name of the Faculty</b>       | <b>Category</b> | <b>Designation</b> |
|----------------|----------------------------------|-----------------|--------------------|
| 01             | Dr. Vishwas Pandurang Sonalkar   | 12.5 (1)        | HoD/ Chairman      |
| 02             | Miss. Tanvi Dilip Shinde         | 12.5 (2)        | Member             |
| 03             | Miss. Chinmay Anil Salgaonkar    |                 | Member             |
| 04             | Dr. Kishor D. Kucche             | 12.5 (3)        | Member             |
| 05             | Dr. Jervin Zen Lobo              |                 | Member             |
| 06             | Dr. Shridhar Krishna Pawar       | 12.5 (4)        | Member             |
| 07             | Asst. Prof. Sagar Balavant Patil | 12.5 (5)        | Member             |
| 08             | Miss. Shreya Shripad Bhagwat     | 12.5 (6)        | Member             |
| 09             | Dr. Subhash Ishwar Unhale        | 12.5 (7)        | Member             |

### **Credit Structure of the Course (Sem I & II)**

| <b>Semester</b>           | <b>Course Code</b> | <b>Title of the Course</b> | <b>Category</b> | <b>Number of Credits</b> |
|---------------------------|--------------------|----------------------------|-----------------|--------------------------|
| <b>I<br/>(Level 4.5)</b>  | <b>COMVSC104</b>   | Commercial Mathematics I   | <b>VSC</b>      | <b>2</b>                 |
| <b>II<br/>(Level 4.5)</b> | <b>COMVSC204</b>   | Commercial Mathematics II  | <b>VSC</b>      | <b>2</b>                 |

### **TEACHING PATTERN FOR SEMESTER - I AND SEMESTER - II**

1. One lecture per week.
2. One Tutorial per week per batch.
3. Credits = Theory 1 Credit + Tutorial 1 Credit.

**SYLLABUS FOR VOCATIONAL SKILL COURSE (VSC)**  
**TITLE OF THE COURSE: COMMERCIAL MATHEMATICS - I**

**CREDIT STRUCTURE**

| <b>Semester</b>                | <b>Course Code</b> | <b>Title of the Course</b>                | <b>Type</b>   | <b>Credits</b> |
|--------------------------------|--------------------|-------------------------------------------|---------------|----------------|
| <b>I</b><br><b>(Level 4.5)</b> | <b>COMVSC104</b>   | <b>COMMERCIAL</b><br><b>MATHEMATICS-I</b> | <b>Theory</b> | <b>02</b>      |

**Course Objectives (CO):**

- To familiarize students with the concepts of commission, brokerage, discount, and partnership, and their applications in real-life scenarios.
- To enable students to understand the calculation methods for commission, brokerage, trade discount, cash discount, and profit/loss sharing in partnerships.
- To introduce students to the concepts of shares, including face value, market value, dividend, equity shares, preferential shares, and bonus shares.
- To equip students with the knowledge and skills to solve problems related to the calculation of net income in mutual funds and the averaging of prices under Systematic Investment Plans (SIPs).

**Course Outcomes:** After completion of the course, students will be able to:

- Differentiate between commission and brokerage and apply appropriate calculation methods in various scenarios.
- Understand the concepts of trade discount, cash discount, and their implications on profit and loss calculations in business transactions.
- Gain a comprehensive understanding of shares, including their types, valuation methods, and implications for investors.
- Develop proficiency in averaging prices under SIPs and understand its significance in long-term investment strategies.

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MODULE 1:</b> | <b>COMMISSION, BROKERAGE, DISCOUNT AND PARTNERSHIP (10 HOURS)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                  | <p>(i) Commission &amp; Brokerage:<br/>Commission, Rate of Commission, Brokerage, Rate of Brokerage.<br/>Total sales value, Gross amount, Net amount.</p> <p>(ii) Discounts &amp; Partnership:<br/>Discount, Trade Discount, Cash Discount.<br/>Profit &amp; Loss Concepts: Cost Price, Selling Price, Marked Price, Profit, Loss, % Profit, % Loss. Partnership.</p> <p>(iii) Mixture of Discount &amp; Profit:<br/>A real-life selling scenario may involve: Marked Price, Discount, Final Selling Price, Profit or Loss on CP:</p> <ul style="list-style-type: none"> <li>Calculate CP, MP and SP after discount.</li> </ul> |
| <b>MODULE 2</b>  | <b>SHARES AND MUTUAL FUNDS (5 HOURS)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  | <p>(i) Shares:<br/>Share, Stock, Face Value, Market Value. Dividend, Total Dividend, Dividend Yield %. Types of Shares: Equity Shares, Preference Shares, Bonus Shares. Factors Affect Share Price Movement.</p> <p>(ii) Mutual Funds<br/>Mutual Fund, N.A.V (Net Asset Value), Discount broker, Full service broker, MIS, CNC and NRML product type, Entry Load, Exit Load, Dividend, Net Gain, SIP.</p>                                                                                                                                                                                                                       |

#### **Tutorials for COMVSC104:**

|           |                                             |
|-----------|---------------------------------------------|
| <b>1.</b> | Commission.                                 |
| <b>2.</b> | Brokerage.                                  |
| <b>3.</b> | Discount, Trade Discount and Cash Discount. |
| <b>4.</b> | Profit and Percentage Profit.               |
| <b>5.</b> | Loss and Percentage Loss.                   |
| <b>6.</b> | Sharing of Profit in Partnership.           |

|     |                                                            |
|-----|------------------------------------------------------------|
| 7.  | Sharing of loss in Partnership.                            |
| 8.  | Mixture of discount and profit.                            |
| 9.  | Cost Price, Market Price and Selling Price after discount. |
| 10. | Shares (face value and market value).                      |
| 11. | Dividend calculations.                                     |
| 12. | Equity shares and Preferential shares.                     |
| 13. | Mutual Fund without considering Entry/Exit Load.           |
| 14. | Mutual Fund with Entry and Exit Load.                      |
| 15. | Bonus Shares. Factors Affect Share Price Movement.         |

### **Recommended Books:**

1. M. Wilson, Business Mathematics, Himalaya Publishing House, 3<sup>rd</sup> edition, 2025.
2. R. Jayaprakash Reddy, Y. Mallikarjuna Reddy, A textbook of Business Mathematics, A. P. H. Publishing Corporation, First edition ,2012.

### **Reference Books:**

1. S. K. Khandelwal, Business Mathematics and Statistics, International Book House Pvt. Ltd., New Delhi, First edition, 2012.
2. K. L. Sehgal, Business Mathematics, Himalaya Publishing House, First edition, 2021.

## SYLLABUS FOR VOCATIONAL SKILL COURSE (VSC)

### TITLE OF THE COURSE: COMMERCIAL MATHEMATICS -II

#### CREDIT STRUCTURE

| Semester         | Course Code | Title of the Course          | Type   | Credits |
|------------------|-------------|------------------------------|--------|---------|
| I<br>(Level 4.5) | COMVSC204   | COMMERCIAL<br>MATHEMATICS-II | Theory | 02      |

#### Course Objectives (CO):

- To understand the principles of simple and compound interest and their applications in financial calculations.
- To introduce students to fundamental real functions and their role in economic modelling.
- To explore key economic concepts such as demand, supply, total revenue, and average revenue, and understand their mathematical representations.
- To develop graphing skills for linear equations, linear inequalities, and other relevant economic functions.
- To equip students with the tools to formulate and solve linear programming problems with up to two variables.

#### Course Outcomes:

- Calculate simple, compound interest for various scenarios and to compute EMIs using both reducing balance and flat interest systems.
- Determine the present and future values of annuities and apply this knowledge to financial decision-making.
- Understand the relationships between demand, supply, and market equilibrium, and interpret them using mathematical models.
- Develop graphing skills to visually represent economic relationships and analyze their implications.
- Formulate linear programming problems and apply appropriate techniques to find optimal solutions, facilitating efficient resource allocation and decision-making.



| <b>MODULE I) FUNCTIONS IN ECONOMICS AND LPP</b>                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>(10 HOURS)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
| <p>(i) Concept of real functions: constant function, linear function, quadratic function.</p> <p>(ii) Concept of Demand, Supply, Total Revenue, Average Revenue.</p> <p>(iii) Concept of Total Cost, Average Cost and Profit function. Equilibrium Point.</p> <p>(iv) Sketching of graphs of linear equation <math>Ax + By + C = 0</math> and linear inequalities. Mathematical Formulation of Linear Programming Problems up to 2 variables.</p> |  |
| <b>MODULE II) INTEREST AND ANNUITY</b>                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| <b>(5 HOURS)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| <p>(ii) Simple Interest and Compound Interest, Compounded more than once a year.</p> <p>(iii) Annuity, Immediate and due, Present value, Future value of an Annuity.</p> <p>(iv) Equated Monthly Instalments (EMI) using reducing balance &amp; flat interest system.</p>                                                                                                                                                                         |  |

### **Tutorials for COMVSC204:**

|            |                                                                     |
|------------|---------------------------------------------------------------------|
| <b>1.</b>  | Identifying and Graphing Constant, Linear, and Quadratic Functions. |
| <b>2.</b>  | Analysing Demand and Supply Functions.                              |
| <b>3.</b>  | Calculating Total Revenue and Average Revenue.                      |
| <b>4.</b>  | Calculating Total Cost and Average Cost.                            |
| <b>5.</b>  | Determining Profit Functions and Market Equilibrium Points.         |
| <b>6.</b>  | Sketching Graphs of Linear Equations ( $Ax + By + C = 0$ ).         |
| <b>7.</b>  | Sketching Graphs of Linear Inequalities ( $C \neq 0$ and $C = 0$ ). |
| <b>8.</b>  | Mathematical Formulation of 2-Variable Linear Programming Problems. |
| <b>9.</b>  | Solving LPP for Maximization and Minimization under Constraints.    |
| <b>10.</b> | Calculating Simple Interest, Rates, and Time Periods                |

|            |                                                                    |
|------------|--------------------------------------------------------------------|
| <b>11.</b> | Calculating Compound Interest, Rates, and Time Periods.            |
| <b>12.</b> | Advanced Compound Interest with Multiple Compounding Periods.      |
| <b>13.</b> | Differentiating Between Annuity Immediate and Annuity Due.         |
| <b>14.</b> | Calculating Present Value and Future Value of Annuities.           |
| <b>15.</b> | EMI Calculations using Reducing Balance and Flat Interest Methods. |

### **Recommended Books:**

1. M. Wilson, Business Mathematics, Himalaya Publishing House, 3<sup>rd</sup> edition, 2025.
2. R. Jayaprakash Reddy, Y. Mallikarjuna Reddy, A textbook of Business Mathematics, A.P.H. Publishing Corporation, First edition, 2012.

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2. K. L. Sehgal, Business Mathematics, Himalaya Publishing House, First edition, 2021.

## EXAMINATION PATTERN FOR SEMESTER – I AND SEMESTER – II

### Continuous Internal Evaluation (CIE): 20 Marks

| Sr. No. | Particulars        | Marks           |
|---------|--------------------|-----------------|
| 01      | One Class Test     | 10 Marks        |
| 02      | Home Assignment    | 05 Marks        |
| 03      | Tutorial Note book | 05 Marks        |
|         | <b>Total</b>       | <b>20 Marks</b> |

### Semester End Examination (SEE): 30 Marks

| <b>Duration: 1 Hour</b> |                                                                                                                  | <b>Marks: 30</b> |
|-------------------------|------------------------------------------------------------------------------------------------------------------|------------------|
| Q. 1 A)                 | Attempt Any Two (Out of Three):<br>(a) Question on Unit I<br>(b) Question on Unit I<br>(c) Question on Unit I    | 10 Marks         |
| Q. 2 A)                 | Attempt Any Two (Out of Three):<br>(a) Question on Unit I<br>(b) Question on Unit I<br>(c) Question on Unit I    | 10 Marks         |
| Q. 3 A)                 | Attempt Any Two (Out of Three):<br>(a) Question on Unit II<br>(a) Question on Unit II<br>(b) Question on Unit II | 10 Marks         |
|                         | <b>Total</b>                                                                                                     | <b>30 Marks</b>  |