

# TEACHING LESSON PLAN

## B.Com I Semester(Industry Integrated) -2017-18

### SUBJECT: BUSINESS MATHEMATICS

#### MODULE –1: BASIC MATHEMATICAL CONCEPTS

UNIT/ SESSION / HOURS (TIME REQUIRED)	TOPICS FOR STUDENT PREPARATION (INPUT)	PROCEDURE (PROCESS)	LEARNING OUTCOME (OUTPUT)	ASSESSMENT
<b>10 Hours</b>	a) Equations – Linear, Quadratic and Simultaneous b) Ratios and Proportions c) Percentage d) Profit and Loss	a) Explanation of various terms b) List of formulae c) Basic Laws d) Applications in business and commerce. e) Problems and solutions.	a) Knowledge of the various terms used. b) To solve Linear, Quadratic and Simultaneous Equations c) To calculate Ratios and Proportions d) To Calculate Percentages e) To calculate Profit or Loss and Profit or Loss % f) Problems on the above	a) Assignments b) Working out on boards c) Oral Test d) Written Test e) MCQ

#### MODULES –2 and 3: INTEREST AND ANNUITIES

UNIT/ SESSION / HOURS (TIME REQUIRED)	TOPICS FOR STUDENT PREPARATION (INPUT)	PROCEDURE (PROCESS)	LEARNING OUTCOME (OUTPUT)	ASSESSMENT
<b>20 Hours</b>	a) Simple Interest b) Compound Interest c) Concept of Time Value of Money d) Doubling Period (Rule of 72 and 69)	a) Explanation of various terms b) List of formulae c) Basic Laws	a) Knowledge of the various terms used. b) To Calculate SI, CI, FV of a	a) Assignments b) Student working out sums on board. c) Oral Test

	<ul style="list-style-type: none"> <li>e) Annuity Immediate</li> <li>f) Future Value of Annuity</li> <li>g) Loan amortization schedule</li> <li>h) Capital Recovery Factor</li> <li>i) PV of growing annuity</li> <li>j) Annuity Due</li> <li>k) PV of Perpetuity</li> <li>l) Deferred Annuity Intra-year Compounding and discounting</li> <li>m) Effective Vs Stated Rate</li> </ul>	<ul style="list-style-type: none"> <li>d) Applications in business and commerce.</li> <li>e) Problems and solutions.</li> </ul>	<p>Single Amount, Doubling Period, Growth Rate, PV of a single amount, PV of uneven series, Annuity immediate, FV of Annuity, PV of Annuity, loan amortization schedule, PV of growing Annuity, Annuity due, PV of perpetuity, Deferred Annuity Intra-year compounding and discounting, Effective Vs Stated Rate</p>	<ul style="list-style-type: none"> <li>d) Written Test</li> <li>e) Develop an Amortization Table for Loan Amount – EMI Calculation.</li> <li>f) MCQ</li> </ul>
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**MODULE –4: Bills of Exchange and Conversion of Foreign Currency**

<b>UNIT/SESSION/HOURS (TIME REQUIRED)</b>	<b>TOPICS FOR STUDENT PREPARATION (INPUT)</b>	<b>PROCEDURE (PROCESS)</b>	<b>LEARNING OUTCOME (OUTPUT)</b>	<b>ASSESSMENT</b>
<b>08 Hours</b>	<ul style="list-style-type: none"> <li>a) Meanings of Bills of Exchange, Face Value of Bills, True Present Worth, True Discount Value, Date of Drawing, Banker's gain, Banker's discount of a bill, foreign currency, direct and indirect quotes.</li> <li>b) Problems on the above.</li> </ul>	<ul style="list-style-type: none"> <li>a) Explanation of various terms</li> <li>b) List of formulae</li> <li>c) Basic Laws</li> <li>d) Applications in business and commerce.</li> <li>e) Problems</li> </ul>	<ul style="list-style-type: none"> <li>a) Knowledge of the various terms used.</li> <li>c) To Calculate Face Value of Bills, True Present Worth, True Discount</li> </ul>	<ul style="list-style-type: none"> <li>a) Assignments</li> <li>b) Student working out sums on board.</li> <li>c) Oral Test</li> <li>d) Written Test</li> </ul>

		and solutions.	Value, Date of Drawing, Banker's gain, Banker's discount of a bill, foreign currency, direct and indirect quotes.	
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**MODULE –5: Learning Curve**

UNIT/ SESSION/ HOURS (TIME REQUIRED)	TOPICS FOR STUDENT PREPARATION (INPUT)	PROCEDURE (PROCESS)	LEARNING OUTCOME (OUTPUT)	ASSESSMENT
<b>10 Hours</b>	a) Meanings of Learning Curve, Learning Curve Ratio, Linear Equations. b) Forecasting of cost and its impact on profit using Learning Curve. c) Problems on the above.	a) Explanation of various terms b) List of formulae c) Basic Laws d) Applications in business and commerce. e) Problems and solutions.	a) Knowledge of the various terms used. b) To Calculate Learning Curve Ratio. c) Forecasting of cost and its impact on profit using Learning Curve.	a) Assignments b) Student working out sums on board. c) Oral Test d) Written Test

**MODULE –6: Introduction to Differentiation**

UNIT/ SESSION/ HOURS (TIME REQUIRED)	TOPICS FOR STUDENT PREPARATION (INPUT)	PROCEDURE (PROCESS)	LEARNING OUTCOME (OUTPUT)	ASSESSMENT
<b>12 Hours</b>	a) Meanings of Functions, Derivatives. b) Standard Forms, sum and product of two functions. c) Application of Differentiation d) Secondary derivatives and Maxima and minima. e) Applications in Commerce – Cost functions, Revenue functions, Profit function, Break-even point.	a) Explanation of various terms b) List of formulae c) Basic Laws d) Applications in business and commerce. e) Problems	a) Knowledge of the various terms used. b) Calculation of Sum and Product of two functions, Cost functions, Revenue	a) Assignments b) Student working out sums on board. c) Oral Test d) Written Test

	f) Problems on the above.	and solutions.	functions, Profit function and Break-even Point. c) To solve problems on the above.	
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## Step 2- LESSON PLAN PREPARATION HOURLY WISE

**Subject Name: MATHEMATICS FOR MANAGERS**

**Lecture hours: 60**

**Objective: to enable students to have a grasp of simple arithmetical calculations relating to topics on Commerce and Economics**

Sl. No	UNIT & OBJECTIVES	No. of Lecture Hours	Methodology/Instr uctional techniques	Evaluation/ learning confirmation
<b>Module I</b>	<b>Basic Mathematical Concepts:</b> Objective: To understand the Basics of Mathematics and its application.	<b>10</b>		
1.	Simple Equations	1	Lecture, Problems and Solutions	Question and Answer
2.	Quadratic Equations	1	Lecture, Problems and Solutions	Question and Answer
3.	Quadratic Equations	1	Lecture, Problems and Solutions	Question and Answer
4.	Simultaneous Equations	1	Lecture, Problems and Solutions	Question and Answer
5.	Simultaneous Equations	1	Lecture, Problems and Solutions	Question and Answer

6.	Ratios and Proportions	1	Lecture, Problems and Solutions	Question and Answer
7.	Ratios and Proportions	1	Lecture, Problems and Solutions	Question and Answer
8.	Percentages	1	Lecture, Problems and Solutions	Question and Answer
9.	Profit and Loss with Discounts	1	Lecture, Problems and Solutions	Assignment
10.	Revision Test	1	Revision	Test/ Assignment/ Students working sums on the board
<b>Module 2 and 3</b>	<b>Interest and Annuities</b> Objective: To understand the basics of Simple Interest, Compound Interest, Time Value of Money and its applications in Accounts, Finance and Economics.	<b>20</b>		
1.	Simple Interest and Problems on Simple Interest	1	Lecture, Problems and Solutions	Question and Answer
2.	Simple Interest and Problems on Simple Interest	1	Lecture, Problems and Solutions	Question and Answer
3.	Simple Interest and Problems on Simple Interest	1	Lecture, Problems and Solutions	Question and Answer
4.	Compound Interest and Problems on Compound Interest	1	Lecture, Problems and Solutions	Question and Answer
5.	Compound Interest and Problems on Compound Interest	1	Lecture, Problems and Solutions	Question and Answer
6.	Compound Interest and Problems on Compound Interest	1	Lecture, Problems and Solutions	Question and Answer
7.	Laws of Logarithm and its application in Compound Interest calculations	1	Lecture, Problems and Solutions	Question and Answer

8.	Future Value of a Single Amount	1	Lecture, Problems and Solutions	Question and Answer
9.	Rule of 72 and 69 – Doubling Period	1	Lecture, Problems and Solutions	Question and Answer
10.	Present Value of a Single Amount	1	Lecture, Problems and Solutions	Question and Answer
11	Present Value of a Single Amount	1	Lecture, Problems and Solutions	Question and Answer
12	Future Value of Annuities	1	Lecture, Problems and Solutions	Question and Answer
13	Future Value of Annuities	1	Lecture, Problems and Solutions	Question and Answer
14	Preparation of Loan Amortization Schedule	1	Lecture, Problems and Solutions	Question and Answer
15	Preparation of Loan Amortization Schedule	1	Lecture, Problems and Solutions	Question and Answer
16	Present Value of growing Annuity	1	Lecture, Problems and Solutions	Question and Answer
17	Problems on Deferred Payments	1	Lecture, Problems and Solutions	Question and Answer
18	Problems on Perpetuity	1	Lecture, Problems and Solutions	Question and Answer
19	Revision	1	Revision	Test/ Assignment/ Students working sums on the board
20	Revision	1	Revision	Test/ Assignment/ Students working sums on the

				board
<b>Module 4</b>	<p>Bills of Exchange and Conversion of Foreign Currency.</p> <p>Objective: To understand the basics of Bills of Exchange and Foreign Currency conversions.</p>	<b>8</b>		
1.	Introduction to Bills of Exchange. Meaning of Banker's Present Worth, True Present Worth, and Discounted Value of the Bill, True Discount, Banker's Discount and Banker's Gain.	1	Lecture	Question and Answer
2.	Problems on Banker's Present Worth, True Present Worth, Discounted Value of the Bill, True Discount, Banker's Discount and Banker's Gain.	1	Lecture, Problems and Solutions	Question and Answer
3.	Banker's Present Worth, True Present Worth, Discounted Value of the Bill, True Discount, Banker's Discount and Banker's Gain.	1	Lecture, Problems and Solutions	Question and Answer
4.	Banker's Present Worth, True Present Worth, Discounted Value of the Bill, True Discount, Banker's Discount and Banker's Gain.	1	Lecture, Problems and Solutions	Question and Answer
5.	Banker's Present Worth, True Present Worth, Discounted Value of the Bill, True Discount, Banker's Discount and Banker's Gain.	1	Lecture, Problems and Solutions	Question and Answer
6.	Banker's Present Worth, True Present Worth, Discounted Value of the Bill, True Discount, Banker's Discount and Banker's Gain.	1	Lecture, Problems and Solutions	Question and Answer
7.	Banker's Present Worth, True Present Worth, Discounted Value of the Bill, True Discount, Banker's Discount and Banker's Gain.	1	Lecture, Problems and Solutions	Question and Answer
8.	Revision	1	Revision	Test/ Assignment/ Students working sums on the board

<b>Module 5</b>	Learning Curve Objective: Understanding the Meaning of Learning Curve and its applicability in Accounts, Finance and Economics.	<b>10</b>		
1.	Introduction to Learning Curve and Calculation of Learning Curve Ratio.	1	Lecture, Problems and Solutions	Question and Answer
2	Calculation of Learning Curve Ratio.	1	Lecture, Problems and Solutions	Question and Answer
3	Determination of Labour Cost under Table Method and Formula Method	1	Lecture, Problems and Solutions	Question and Answer
4	Determination of Labour Cost under Table Method and Formula Method	1	Lecture, Problems and Solutions	Question and Answer
5	Determination of Labour Cost under Table Method and Formula Method	1	Lecture, Problems and Solutions	Question and Answer
6	Learning Curve Equation and Problems thereon	1	Lecture, Problems and Solutions	Question and Answer
7	Learning Curve Equation and Problems thereon	1	Lecture, Problems and Solutions	Question and Answer
8	Learning Curve Equation and Problems thereon	1	Lecture, Problems and Solutions	Question and Answer
9	Revision	1	Revision	Test/ Assignment/ Students working sums on the board
10	Revision	1	Revision	Test/ Assignment/ Students working sums on the board
<b>Module 6</b>	Introduction to Differentiation	<b>12</b>		



	Objective: To understand the application of Differentiation in Commerce and to solve simple problems on Cost Functions, Revenue Functions, Profit Functions and Break-even Point.			
1.	Introduction to Constants and Variables	1	Lecture	Question and Answer
2.	Introduction to Functions and Types of Functions	1	Lecture	Question and Answer
3.	Introduction to Differentiation	1	Lecture	Question and Answer
4.	Standard Formulae, Functions and Differentials	1	Lecture	Question and Answer
5.	Rules of Differentiations	1	Lecture, Problems and Solutions	Question and Answer
6.	Problems on Differentiations	1	Lecture, Problems and Solutions	Question and Answer
7.	Problems on Differentiations	1	Lecture, Problems and Solutions	Question and Answer
8.	Quotient Rule	1	Lecture, Problems and Solutions	Question and Answer
9.	Introduction and problems on Maxima and Minima	1	Lecture, Problems and Solutions	Question and Answer
10.	Introduction and problems on Application of Differentiation	2	Lecture, Problems and Solutions	Question and Answer
12.	Revision	1	Revision	Test/ Assignment/ Students working sums on the board

**Note 1:** First three modules are the portions for the Mid Term Test

**Note 2:** CIA will be conducted post completion of each module.

**TEXT BOOKS:**

Sl. No.	Author's Name	Name of the Textbook
1	Dr. Dorai Raj	Business Mathematics
2	Dr. A.K. Arte & R.V. Prabhakar	A Textbook of Business Mathematics
3	Saha	Mathematics for Cost Accountants
4	M. Wilson	Business Mathematics
5	J.K.Singh	Business Mathematics

**REFERENCES:**

Sl. No.	Author's Name	Name of the Textbook
1	Zamirudding Khanna	Business Mathematics
2	Sanchethi& Kapoor	Business Mathematics
3	Soni	Business Mathematics