



SHIVAJI UNIVERSITY, KOLHAPUR-416 004. MAHARASHTRA

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दुरध्वनी (ईपीएबीएक्स) २६०९००० (अभ्यास मंडळे विभाग- २६०९०९४)

फॅक्स : ००९१-०२३१-२६९१५३३ व २६९२३३३.e-mail:bos@unishivaji.ac.in

Ref./SU/BOS/Comm/6312

Date:- 22/06/2018

The Principal
All Affiliated (Commerce) Colleges/ Institutions,
Shivaji University, Kolhapur.

Subject: Regarding syllabi and equivalence of B.Com. Part- I (Sem. I & II)
Choice Based Credit System (CBCS), degree programme under
the Faculty of Commerce & Management.

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the university authorities have accepted and granted approval to the revised syllabi and equivalence of B.Com. Part-I (Sem. I & II) Choice Based Credit System (CBCS) under the Faculty of Commerce & Management.

1	Business Communication	9	Hindi
2	Micro Economics	10	Urdu
3	Management Principles & Applications	11	Kannada
4	Financial Accounting	12	Business Mathematics
5	Principles of Marketing	13	Insurance
6	History of Civilization	14	Geography
7	Marathi	15	Foreign Trade
8	Global Finance		

This revised syllabi and equivalence shall be implemented from the academic year 2018-2019 (i.e. from June 2018) onwards. A soft copy containing the syllabus is attached herewith and it is also available on university website www.unishivaji.ac.in. (Online Syllabus).

The question papers on the pre-revised syllabi of above mentioned course will be set for the examinations to be held in October /November 2018 & March/April 2019. These chances are available for repeater students, if any.

You are therefore, requested to bring this to the notice of all Students and Teachers concerned.

Thanking you,

Yours faithfully,

Dy. Registrar

Encl: As above

Copy to;

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|---|--|---|-----------------|
| 1 | Dean, Faculty of Commerce & Management | } | for information |
| 2 | Chairman, BOS under Faculty of Commerce & Management | | |

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|----|--------------------------------|---|---------------------------------------|
| 3 | Appointment Section | } | for information and necessary action. |
| 4 | P.G. Admission Section | | |
| 5 | B.Com. Section | | |
| 6 | Affiliation Section (U.G./P.G) | | |
| 7 | Computer Centre | | |
| 8 | Eligibility Section | | |
| 9 | Distan Education | | |
| 10 | P.G.Seminer Section | | |

SHIVAJI UNIVERSITY, KOLHAPUR.



Estd 1962
NAAC 'A' Grade
Syllabus For
Bachelor of Commerce
B.Com. Part-I
CBCS Pattern
Business Mathematics
Sem-I & Sem-II

Introduced from June 2018 and Onwards

(Subject to the modifications will be made from time to time)

B.Com. Part- I
Semester – I (CBCS Pattern)
Business Mathematics Paper-I
 (Algebra And Commercial Arithmetic)
Generic Elective Course
To be implemented from June - 2018

Unit No.	Title of the unit	No. of Lectures
1	Progression	15
	1.1 Introduction. 1.2 Definition: Sequence, Arithmetic Progression (A.P.). 1.3 General term (n^{th} term) of an A.P., Sum of the first ' n ' terms of an A. P. and simple examples. 1.3.1 Examples based on the application of Arithmetic Progression to Business. 1.4 Definition : Geometric Progression (G.P.). 1.5 General term (n^{th} term) of an G.P., Sum of the first ' n ' terms of an G. P. and simple examples. 1.5.1 Examples based on the application of Geometric Progression to Business.	
2	Matrices and Determinants	15
	2.1 Introduction. 2.2 Definition of Matrix 2.3 Types of matrices : Rectangular matrix, Row matrix, Column matrix, Square matrix, Diagonal	

	<p>matrix, Scalar matrix, Unit matrix(Identity matrix), Upper triangular matrix, Lower triangular matrix, Null matrix (Zero matrix).</p> <p>2.4 Algebra of matrices : Equality of matrices, Addition and Subtraction of matrices. Scalar multiplication of a matrix, Multiplication of matrices Transpose of a matrix and examples.</p> <p>2.5 Minor, cofactor, Adjoint, Inverse of a square matrix. Finding inverse of a matrix by using adjoint method.</p> <p>2.6 Determinants of second and third order. Determinant of a square matrix, Singular and non – singular matrix. Properties of determinants (without proof), Examples.</p> <p>2.6.1 Cramer's rule, Solution of system of linear equations by cramer's rule.</p>	
3	Ratio, Proportion, Percentage and Interest	15
	<p>3.1 Introduction.</p> <p>3.2 Ratio and Proportion.</p> <p>3.2.1 Simple and compound proportion.</p> <p>3.2.2 Simple examples on ratio and proportion.</p> <p>3.3 Percentage, simple examples.</p> <p>3.4 Interest: Simple Interest, Compound Interest</p> <p>3.4.1 Simple examples based on simple and compound interest.</p>	

	3.5 Annuity : Types of annuity, Present value of an annuity, Future value of an annuity. Examples	
4	Linear Programming Problems (L. P. P.)	15
	4.1 Introduction. 4.2 Definition: Linear Programming, Objective function, Decision variables, Constraints. 4.3 Formulation of L.P.P (Two variables only) 4.4 Definition: Solution to L.P.P., Feasible solution, optimal solution. 4.5 Solution of L.P.P. by graphical method. (cases having no solution, multiple solutions, unbounded solution) Examples.	

*** (1) Non – programmable calculator is allowed.

Reference Books

- 1) **Comprehensive Business Mathematics**, Venna G. R. , New Age International (P) Limited Publishers, New Delhi.
- 2) **Text Book of Matrices**, Shantinayakan.
- 3) **Business Mathematics**, . Kumbhojkar G. V.
- 4) **Business Mathematics**, Soni R. S.
- 5) **Business Mathematics**, Kapoor V. K., Sancheti D. C.
- 6) **Operation Research**, J. K. Sharma.
- 7) **Business Mathematics**, B.Com. Part - I Published by Shivaji University, Kolhapur.

B.Com. Part- I
Semester – II (CBCS Pattern)
Business Mathematics Paper-II
(Calculus)
Generic Elective Course

Unit No.	Title of the unit	No. of Lectures
1	Functions Of Real Variables	15
	<p>1.1 Introduction.</p> <p>1.2 Linear, Quadratic, Exponential ($y = a^x$), Inverse functions and their graphs. Illustrative examples.</p> <p>1.3 Limit of Function.</p> <p>1.3.1 Definition of Limit, Standard limits.</p> <p>1.3.2 Algebra of limits: If $f(x)$ and $g(x)$ are two functions of x and k is any scalar, then</p> <p>(i) $\lim_{x \rightarrow a} [f(x) \pm g(x)] = \lim_{x \rightarrow a} f(x) \pm \lim_{x \rightarrow a} g(x).$</p> <p>(ii) $\lim_{x \rightarrow a} k f(x) = k \cdot \lim_{x \rightarrow a} f(x).$</p> <p>(iii) $\lim_{x \rightarrow a} [f(x) \cdot g(x)] = \lim_{x \rightarrow a} f(x) \cdot \lim_{x \rightarrow a} g(x).$</p> <p>(iv) $\lim_{x \rightarrow a} \frac{f(x)}{g(x)} = \frac{\lim_{x \rightarrow a} f(x)}{\lim_{x \rightarrow a} g(x)},$ provided $\lim_{x \rightarrow a} g(x) \neq 0.$</p> <p>(without proof)</p> <p>1.4 Simple examples.</p>	
2	Differentiation	15
	<p>2.1 Definition : Derivative of a function.</p> <p>2.2 Derivative of some standard functions from first</p>	

	<p>principle ($y = x^n$, $y = e^x$, $y = a^x$. $y = c$, where c is a constant function.</p> <p>2.3 Rules of Differentiation : Sum, Difference, Product and Quotient of two functions.</p> <p>2.3.1 Simple examples.</p> <p>2.4 Second order derivative and examples.</p>	
3	Integration	15
	<p>3.1 Integration - An antiderivative process.</p> <p>3.2 Standard Integrals.</p> <p>3.3 Algebra of integrals : If $f(x)$ and $g(x)$ are two integrable functions and k is any constant, then</p> <p>(i) $\int k \cdot f(x) dx = k \cdot \int f(x) dx$.</p> <p>(ii) $\int [f(x) \pm g(x)] dx = \int f(x) dx \pm \int g(x) dx$.</p> <p>3.3 Methods of integration : (i) Substitution method (ii) Integration by parts.</p> <p>3.3.1 Examples.</p> <p>3.4 Definite integrals and their properties, examples.</p>	
4	Application of Calculus in Business	15
	<p>4.1 Maxima and minima, Case of one variable involving second order derivative.</p> <p>4.2 Cost function, Average cost, Marginal cost, Revenue function, Profit function , Elasticity of demand.</p> <p>4.3 Consumer's surplus and producer's surplus.</p>	

	4.4 Examples based on (4.1), (4.2) and (4.3)	
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- *** (1) Non – programmable calculator is allowed.
 (2) For limit, derivative and integration – trigonometric functions should be omitted.

Reference Books

- 1) **Business Mathematics**, Venna G. R. , New Age International (P) Limited Publishers, New Delhi.
- 2) **Elements of Calculus**, Bhagvat and Pawate.
- 3) **Business Mathematics**, . Kumbhojkar G. V.
- 4) **Business Mathematics**, Soni R. S.
- 5) **Business Mathematics**, Kapoor V. K., Sancheti D. C.
- 6) **Differential Calculus** - Shantinakaran
- 7) **Integral Calculus** – Shantinakaran
- 8) **Business Mathematics** – Agarwal B. M.
- 9) **Business Mathematics**, B.Com. Part - I Published by Shivaji University, Kolhapur.

Equivalence in accordance with titles and contents of paper
(For CBCS pattern – Revised Syllabus)

Sr. No.	Title of old paper	Title of New paper
1.	Business Mathematics Paper- I (Sem I)	Business Mathematics Paper- I (Sem I) (Algebra And Commercial Arithmetic)
2.	Business Mathematics Paper- II (Sem II)	Business Mathematics Paper- II (Sem II) (Calculus)