

## NIRMA UNIVERSITY

<b>Institute:</b>	<b>Institute of Commerce</b>
<b>Name of Programme:</b>	<b>Bcom (Hons.) Programme</b>
<b>Course Code:</b>	
<b>Course Title:</b>	<b>Mathematics – II</b>
<b>Course Type:</b>	<b>Introductory Course</b>
<b>Year of introduction:</b>	<b>2022 (Semester-II)</b>

L	T	Practical component				C
		LPW	PW	W	S	
2	1	0	0	0		3

### Course Learning Outcomes (CLO):

At the end of the course, students will be able to:

- Demonstrate use of appropriate mathematical tools in various business scenarios. BL-2
- Analyze business related problems and articulate possible solutions. BL-4
- Interpret the obtained results in context to managerial aspects. BL-5

### Syllabus:

**Total Teaching hours: 30**

Unit	Syllabus	Teaching hours
<b>I</b>	<b>Differential Calculus</b> <ul style="list-style-type: none"> <li>• Introduction to differentiation and basic concepts.</li> <li>• Differentiation using first principle, Derivatives of standard functions (without proof), Rules of differentiation.</li> <li>• Chain rule, Logarithmic differentiation, and Differentiation of Implicit function.</li> <li>• Differentiation at a given point.</li> <li>• Higher order derivative.</li> <li>• Partial derivatives, Higher order partial derivatives (upto second order)</li> </ul>	08
<b>II</b>	<b>Applications of Differentiation</b> <ul style="list-style-type: none"> <li>• Concepts of total, average and marginal functions of Cost, Revenue, Profit and its applications.</li> <li>• Increasing and Decreasing function.</li> <li>• Critical points.</li> <li>• Extrema's of a function by first order derivative test and second order derivative test.</li> </ul>	06
<b>III</b>	<b>Integral Calculus</b> <ul style="list-style-type: none"> <li>• Introduction to integration and basic concepts.</li> <li>• Integrals of some standard functions (without proof), Rules of Integration.</li> </ul>	09

	<ul style="list-style-type: none"> <li>• Integration by substitution.</li> <li>• Integration by parts.</li> <li>• Definite integrals and its properties.</li> <li>• Integrals as area and Applications of integration.</li> </ul>	
<b>IV</b>	<b>Matrices and System of Linear Equations</b> <ul style="list-style-type: none"> <li>• Introduction to Matrices, Type of matrices.</li> <li>• Matrix operations (up to order 3).</li> <li>• Determinants of a square matrix, Minor and Cofactor.</li> <li>• Transpose, Adjoint and Inverse of a matrix up to order 3.</li> <li>• System of linear equations: Cramer's rule, Solution of system of linear equations using matrix inversion method.</li> <li>• Applications of matrices.</li> </ul>	07

Self Study:	
Suggested Readings/ References:	<ul style="list-style-type: none"> <li>• Allen, R.G.D. Mathematical Analysis for Economists, Macmillan Press.</li> <li>• Chiang, A.C' Fundamental Methods of Mathematical Economics, Tata McGraw Hill.</li> <li>• Jacques, I. Mathematics for Economics and Business, Pearson.</li> <li>• Kapoor, V. K. Business Mathematics, Sultan Chand &amp; Sons.</li> <li>• Qazi., Khanna, V. K. &amp; Bhambri, S. K. Business Mathematics, Vikas Publishing House Pvt Ltd.</li> <li>• Raghavachari, M. Mathematics for Management-An Introduction, Tata McGraw Hill.</li> <li>• Renshaw, G. Maths for Economics, Oxford University Press.</li> <li>• Sancheti, D. C. &amp; Kapoor, V. K., Business Mathematics, Sultan Chand &amp; Son.</li> <li>• P. Mariappan, Business Mathematics, Pearson.</li> <li>• Stewart, J., Clegg, D. K., &amp; Watson, S., Calculus: early transcendentals. Cengage Learning.</li> <li>• Thomas Jr, G. B., Weir, M. D., Hass, J., Heil, C., Thomas' Calculus Early Transcendentals, Pearson.</li> <li>• Strang, G., Linear algebra and its applications. Belmont, CA: Thomson, Brooks/Cole.</li> </ul>
Suggested List of Experiments:	
Suggested Case List:	

L = Lecture, T = Tutorial, P = Practical, C = Credit

w.e.f. academic year 2022 - 23 and onwards