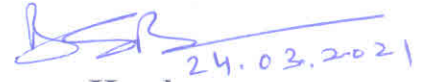


**Notice**

This is to inform to all concerned that the Department of Mathematics is offering the following Open Elective Course in II<sup>nd</sup> Semester under Choice Based Credit System for PG students. Interested students may contact Dr Maitri Verma (E-mail: [maitri.verma9@gmail.com](mailto:maitri.verma9@gmail.com), Contact No.- 09451896588) for further details.

Course Code	Course Title	Maximum Marks		Credit
		End Semester	Internal	
MAM-206	Mathematical Modeling	70	30	04

  
24.03.2021  
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Department of Mathematics


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B.B.A. University, Lucknow

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**Unit 1**

Introduction to Mathematical Modeling: modeling process, Classifications of mathematical models, Characteristics and limitations of mathematical models, Some simple illustrations. Basic concepts of ordinary differential equations; Mathematical modeling through differential equations, linear growth and decay models, Nonlinear growth and decay models.

**Unit 2**

Mathematical modeling through systems of ordinary differential equations of first order: Mathematical models in population dynamics and epidemics, Mathematical Modeling through second order differential equations: Mathematical Modeling of planetary motion, circular motion, motion of satellites, etc.

**Unit 3**

Mathematical modeling through difference equations, Basic theory of linear difference equations with constant coefficients, Mathematical modeling through difference equations in population dynamics, economic and finance.

**Unit 4**

Mathematical modeling through linear programming, Linear programming models in Transportation and assignment, Mathematical modeling through non-linear programming.

**REFERENCES:**

1. J. N. Kapur, Mathematical Modeling, Wiley Eastern, 1988.
2. D. N. Burghes, Mathematical Modeling in the Social Management and Life Science, Ellis Horwood and John Wiley, 1988.
3. F. Charlton, Ordinary Differential and Difference Equations, Van Nostrand, 1989.

  
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