

Ambedkar University Delhi

Course Outline

Winter Semester (January-May 2018)

School:	Undergraduate Studies			
Programme with title:	BA (Honours) Mathematics			
Semester to which offered:	VI semester			
Course Title:	Mathematical Modelling			
Credits:	4 Credits			
Course Code (new):	SUS1MA541			
Course Code (old):	M17 & M18 (iii)			
Type of Course:	Compulsory	No	Cohort	BA (H) Mathematics
	Elective	yes	Cohort	other than BA (H) Mathematics

For SUS only (Mark an X for as many as appropriate):

1. Foundation (Compulsory)
2. Foundation (Elective)
3. Discipline (Compulsory)
4. Discipline (Elective) X
5. Elective X

Course Coordinator and Team: Kranti Kumar (CC), Balchand Prajapati

Email of course coordinator: kranti@aud.ac.in

Pre-requisites: MA507 (M09) and MA510(M13)

Aim: The main objective of this course is to provide an introduction to modeling and simulation and how to deal with real life problems using different Mathematical perspectives.

Brief description of modules/ Main modules:

1. **Interacting Population Model and Phase Plane Analysis**
2. **Deterministic Dynamical Programming**
3. **Simulation**
4. **Lab Work Using MS-Excel**

References:

1. *Probability Models* by Wayne. L. Winston, India Edition, Cengage Learning, reprint 2009, ISBN-13: 978-81-315-0901-2
2. *Mathematical modelling with Case Studies A Differential Equations Approach Using Maple and matlab*, Second Edition (Special indian Edition), Belinda Barnes and Glenn Robert Fulford, CRC Press Taylor and Francis, ISBN-13: 978-1-4200-8348-4
3. Daniel P. Maki, Maynard Thompson, '*Mathematical Modeling with Computer Simulation*', India Edition, Cengage Learning, 2011 ISBN-13: 978-81-315-1286-9
4. J N Kapur, '*Mathematical Modeling*', New Age Publishers, 2005, ISBN: 81-224-0006-X

Assessment Details with weights:

Components	Weightage	Schedule
1. One Class Test	10%	Second week of February
2. Mid Semester Test	25%	As per AUD timetable
3. VIVA	10%	First week of April
4. End Semester Test	35%	As per AUD timetable
5. Tutorial Assessment /Lab Assessment	20%	Throughout the semester