



ARSD College, University of Delhi

Model Course Handout/Lesson Plan

Course Name : BSc hons maths						
Semester	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
1	32351101	BMATH101: Calculus	0	0	4	2
Teacher/Instructor(s)		Anant Tiwari, Amit kumar				
Session		Odd Sem. 2022				

Course Description:

The primary objective of this course is to introduce the basic tools of calculus and geometric properties of different conic sections which are helpful in understanding their applications in planetary motion, design of telescope and to the real world problems. Also, to carry out the hand on sessions in computer lab to have a deep conceptual understanding of the above tools to widen the horizon of students' self experience.

List of Experiments:

Details of the Lab Course		
Session	Name of Experiment	Contact Hours
1	Plotting the graphs of the following functions: Observe and discuss the effect of changes in the real constants a , b and c on the graphs.	8
2	Plotting the graphs of polynomial of degree 4 and 5, and their first and second derivatives, and analysis of these graphs in context of the concepts covered in Unit 1.	8
3	Sketching parametric curves, e.g., trochoid, cycloid, epicycloid and hypocycloid.	4
4	Tracing of conics in Cartesian coordinates.	4
5	Obtaining surface of revolution of curves.	4
6	Graph of hyperbolic functions.	4
7	Computation of limit, Differentiation, Integration and sketching of vector-valued functions.	4
8	Complex numbers and their representations, Operations like addition, multiplication, division, modulus. Graphical representation of polar form.	8
9	Find numbers between two real numbers and plotting of finite and infinite subset of \mathbb{R} .	4
10	Matrix operations: addition, multiplication, inverse, transpose; Determinant, Rank, Eigenvectors, Eigenvalues, Characteristic equation and verification of the Cayley-Hamilton theorem, Solving the systems of linear equations.	8
Total		56 hours
Suggested Books:		
Sl. No.	Name of Authors/Books/Publishers	Year of Publication/ Reprint
1.	Anton, Howard, Bivens, Irl, & Davis, Stephen (2013). Calculus (10th ed.). John Wiley & Sons Singapore Pte. Ltd. Indian Reprint (2016) by Wiley India	2013/2016

	<i>Pvt. Ltd. Delhi.</i>	
2.	<i>Prasad, Gorakh (2016). Differential Calculus (19th ed.). Pothishala Pvt. Ltd. Allahabad.</i>	2016
3.	<i>Strauss, Monty J., Bradley, Gerald L., & Smith, Karl J. (2007). Calculus (3rd ed.). Dorling Kindersley (India) Pvt. Ltd. (Pearson Education). Delhi. Indian Reprint 2011.</i>	2011
4.	<i>Thomas, Jr. George B., Weir, Maurice D., & Hass, Joel (2014). Thomas' Calculus (13th ed.). Pearson Education, Delhi. Indian Reprint 2017.</i>	2014/2017

Evaluation Scheme:

No.	Component	Duration	Marks
1.	Internal Assessment		25
	• Quiz/Viva		
	• Observation & Record		
	• Attendance		
	• Model Exam		
2.	End Semester Examination	3 hr	25