

## Curriculum Plan: Generic VI (Maths) II Year (Semester III) Differential Equation (2021-22)

<p><b>Teacher Profile:</b> <b>Sanjay Kumar</b> Department of Mathematics Kalindi College, University of Delhi, Delhi- 110008 Mobile: +91-8800982887 E- mail: <a href="mailto:skmpushkar@gmail.com">skmpushkar@gmail.com</a></p>		<p><b>Marks Distribution</b></p>	<b>Theory</b>	75 Marks
			<b>Internal Assessment</b>	Assignments 10 Marks
				Class- Test 10 Marks
				Attendance 5 Marks
			<b>Practical</b>	50 Marks
			<b>Total Marks</b>	150
	<p><b>Classes Assigned</b></p>	<b>Lectures</b>	4 per week	
		<b>Practical Groups</b> ( per week per Student)	4 per week	
<b>Reference</b>	<b>[1]</b>	Kreyszig, Erwin. (2011). Advanced Engineering Mathematics (10th ed.). Wiley India.		
	<b>[2]</b>	Myint-U, Tyn and Debnath, Lokenath (2007). Linear Partial Differential Equations for Scientist and Engineers (4thed.). Birkhäuser Boston. Indian Reprint.		
	<b>[3]</b>	Ross, Shepley. L. (1984). Differential Equations (3rd ed.). John Wiley & Sons.		
<b>Section</b>	<b>Week</b>	<b>Topic</b>		
Session 1	1 <sup>st</sup> week Aug, 16 <sup>th</sup> – 21 <sup>th</sup> , 2021	First order exact differential equations, integrating factors and rules to find integrating factors.		
	2 <sup>nd</sup> week Aug, 23 <sup>th</sup> – 28 <sup>nd</sup> , 2021	Linear equations and Bernoulli equations, Orthogonal trajectories and oblique trajectories.		
Session 2	3 <sup>rd</sup> week Aug, 31 <sup>st</sup> – Sep 4 <sup>th</sup> , 2021	Second order differential equations: Homogeneous linear equations of second order.		
	4 <sup>th</sup> week Sep, 6 <sup>th</sup> - 11 <sup>th</sup> , 2021	Linear equations and Bernoulli equations, Orthogonal trajectories and oblique trajectories.		
	5 <sup>th</sup> week Sep, 13 <sup>th</sup> – 18 <sup>th</sup> , 2021	Wronskian and its properties; Solving, differential equation by reducing its order.		
	6 <sup>th</sup> week Sep, 20 <sup>th</sup> – 25 <sup>th</sup> , 2021	Linear homogenous equations with constant coefficients, Linear non-homogenous equation.		
Session 3	7 <sup>th</sup> week Sep, 27 <sup>th</sup> – Oct 1 <sup>th</sup> , 2021	Method of undetermined coefficients, Method of variation of parameters.		
	8 <sup>th</sup> week Oct, 4 <sup>th</sup> - 9 <sup>th</sup> , 2021	Cauchy Euler equations; Simultaneous differential equations.		
	9 <sup>th</sup> week Oct, 11 <sup>th</sup> - 16 <sup>th</sup> , 2021	Partial differential equations: Basic concepts and definitions. Mathematical problems.		
	10 <sup>th</sup> week Oct, 18 <sup>th</sup> - 23 <sup>th</sup> , 2021	First order equations: Classification, Construction, Geometrical interpretation; Method of characteristics.		
Session 4	11 <sup>th</sup> week Oct, 25 <sup>th</sup> - 30 <sup>th</sup> , 2021	General solutions of first order partial differential equations.		
	12 <sup>th</sup> week Nov, 1 <sup>st</sup> – 6 <sup>th</sup> , 2021	Canonical forms and method of separation of variables for first order partial differential equations.		

	13 <sup>th</sup> week Nov, 8 <sup>nd</sup> - 13 <sup>th</sup> , 2021	Classification of second order partial differential equations. Reduction of canonical forms.	
	14 <sup>th</sup> week Nov, 15 <sup>th</sup> - 20 <sup>th</sup> , 2021	Second order partial differential equations with constant coefficients, General solutions.	
Session 5	15 <sup>th</sup> , 16 <sup>th</sup> week Nov, 22 <sup>rd</sup> – Dec 7 <sup>th</sup> , 2021	Revision and assignment Problems	