SEMESTER- VI

MIC-07: Partial Differential equation

Course Outcomes

After the completion of the course, the student will be able to:

CO1: Formulate, classify and transform partial differential equations into canonical form.

CO2: Solve linear and non-linear partial differential equations using various methods; and apply these methods in solving some physical problems.

CO3: Apply Laplace transformation for solving PDEs.

MIC-07: Partial Differential Equation (3 credits) Full Marks-100		
Unit	**Topics to be covered**	**No. of Lectures**
1	Introduction to PDEs, Order and Degree of a PDE, Classification of partial differential equations (PDEs), formation and solution of PDEs, derivation of PDEs by elimination of arbitrary functions.	10
2	Linear partial differential equation of first order, Lagrange's solution of linear equation, Solution of partial differential equations using Charpit's method, solution of equations of the form f(p,q)=0, f(z,p,q)=0, f(x,p)=f(y,q) and z=px+qy+f(p,q) using Charpit's method.	10
3	Laplace transforms and its application to partial differential equations. Inverse Laplace transformations and its properties, convolutions.	10
	TOTAL	30

Book References:

1. Myint-U, Tyn& Debnath, Lokenath. (2007). Linear Partial Differential Equation for Scientists and Engineers (4th ed.). Springer, Third Indian Reprint, 2013.
2. Sneddon, I. N. (2006). Elements of Partial Differential Equations, Dover Publications. Indian Reprint.
3. M. D. Raisinghania, Ordinary and Partial Differential Equations, S. Chand Publication.
4. Peter J. Olver, Introduction to partial differential equations, Speringer
5. S.K. Pundir and R. Pundir, Advanced Partial Differential Equations (with boundary value problems), Pragati Prakashan.