1.	Title of the Course	Mathematical Physics II
2.	Course Number	PH5202
3.	Status of the Course	Core
4.	Structure of Credits	3-0-0-3
5.	Offered To	PG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Physics
8.	To take effect from	July 2020
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	**Course Objective:** To equip students with a mathematical background that require to describe the physical phenomena by introducing the essentials of integral transforms, complex analysis, and group theory.	
12.	**Course Content:** Integral transforms: Laplace and Fourier transforms, Parseval theorem, convolution theorem and its applications; complex analysis: complex variables, analytic functions of a complex variable, Cauchy-Riemann conditions, power series, Cauchy integral theorem, conformal mapping, singularities, residue theorem, contour integration, analytic continuation, multiple-valued functions, branch points and branch cuts; Group theory: elements of group theory, discrete and continuous groups (Lie groups), generators, representations, character tables and the orthogonality theorem.	
13.	**Text book(s):** 1. Arfken G, Weber H and Harris F, *Mathematical Methods for Physicists: A Comprehensive Guide*, Academic Press (2013). 2. Spiegel M R, Lipschutz S and Spellman D, *Schaums Outlines Series: Complex Variables*, McGraw-Hill (2009).	
14.	**Reference(s):** 1. Balakrishnan V, *Mathematical Physics with Applications, Problems and Solutions*, Ane Books (2017). 2. Dass T and Sharma S K, *Mathematical Methods in Classical and Quantum Physics*, Universities Press (1998). 3. Riley K F, Hobson M P and Bence S J, *Mathematical Methods for Physics and Engineering*, Cambridge University Press (2006).	