

PROFORMA FOR NEW COURSE

1.	Title of the Course	Representation Theory
2.	Course Number	MA6038
3.	Status of the Course	Elective
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 Mathematics and Statistics
8.	To take effect from	July 2020
9.	Prerequisite	CoT
10.	Whether approved by the Department	Yes
11.	Course Objective: To introduce basic concepts of representation theory of finite groups over complex numbers. To classify irreducible representations of symmetric groups via permutation representations.	
12.	Course Content: Definition and examples of representations of a group, sub representations, irreducible representations, complete reducibility (Maschke's theorem), tensor product of two representations, character of representation, Schur's lemma, orthogonality of characters, decomposition of the regular representation, permutation representation, semistandard Young tableaux, Robinson-Schensted-Knuth correspondence, classification of irreducible representations of symmetric group.	
13.	Text book(s): 1. Prasad A , <i>Representation Theory</i> , 1st Edition, Cambridge (2015). 2. Serre J P , <i>Linear Representations of Finite Groups</i> , 1st Edition, Springer (1977).	
14.	Reference(s): 1. Fulton W and Harris J , <i>Representation Theory</i> , 1st Edition, Springer (2004). 2. Fulton W , <i>Young Tableaux</i> , 1st Edition, Cambridge University Press (1996). 3. Musili C , <i>Representations of Finite Groups</i> , 1st Edition, Hindustan Book Agency (1993). 4. Sagan B , <i>The Symmetric Group</i> , 2nd Edition, Springer (2001).	