MAT 628 – Group Representation

Course Code & Number	Course Name	Credit Hours	Lec.	Lab.	Tut.	Prerequisites
MAT 628	Group Representation	4	3	0	1	MAT 623

Syllabus:

Group Representation: Definitions and examples, Equivalent Representations, Group Algebras, group algebras modules and submodules, Regular representation, Permutation Representation, Irreducible modules and completely reducible modules, Module homomorhisms and isomorphic modules, Mschke's theorem, Schur's Lemma and applications.

Group Characters: The Conjugacy class equation, Center of group algebra, Characters, Irreducible, regular and faithful Characters, Inner Products of Characters, The number of Irreducible Characters, Character tables, Row and column orthogonality relations of characters, Computing characters tables of small orders groups, Lifted characters, Finding linear characters by lifting, Tensor Product of representations and their characters, Characters of finite direct product of groups.

References

1. G. James and M. Liebeck; ***Representations and Characters of Groups***; 2nd Edition, Cambridge, 2001. **(Main Reference)**
2. M. Burrow; ***Representation Theory of Finite Groups***; Dover Publications, 2011.
3. L. Dornhoff; ***Group Representation theory - Part A: Ordinary Representation Theory***; Marcel Dekker 1971.