

ALGEBRA - II

**PROF. S VISWANATH**

Department of Mathematics
The Institute of Mathematical Sciences, Chennai

PROF. AMIRTANSHU PRASAD

Department of Mathematics
The Institute of Mathematical Sciences, Chennai

TYPE OF COURSE : Rerun | Core | PG

COURSE DURATION : 12 Weeks (24 Jan' 22 - 15 Apr' 22)

EXAM DATE : 24 Apr 2022

PRE-REQUISITES : Algebra I (highly recommended)

COURSE OUTLINE :

Second part of Foundational PG level course in algebra, suitable for M.Sc and first year PhD students in Mathematics.

ABOUT INSTRUCTOR :

Prof. S Viswanath is a Professor in the department of Mathematics. He did his M.Sc (Integrated), Mathematics, IIT Kanpur, 1999, Ph.D, Mathematics, UC Berkeley, 2004. He teaches Algebra I, II & Lie Algebras. His research interests are Lie algebras and their representations, Algebraic combinatorics

Prof. Amritanshu Prasad is a Professor in the department of Mathematics. He did his B.Stat., Indian Statistical Institute, Kolkata, 1995, M.S., The University of Chicago, 1996 & Ph.D., The University of Chicago, 2001. His research interests are Combinatorics, Representation Theory, Harmonic Analysis & Automorphic Forms

COURSE PLAN :

Week 1: Fields, equations, extensions

Week 2: Ruler and compass constructions,

Week 3: Finite Fields

Week 4: Galois Theory - 1

Week 5: Galois Theory - 2

Week 6: Categories, functors, natural transformations - 1

Week 7: Categories, functors, natural transformations - 2

Week 8: Tensor products of modules

Week 9: Jordan-Holder theorem

Week 10: Krull-Schmidt theorem

Week 11: Semisimple rings, Artin-Wedderburn theorem

Week 12: Multilinear Algebra