NPTEL Video Course - Mathematics - NOC:Algebra-II

Subject Co-ordinator - Prof. Amritanshu Prasad, Prof. S. Viswanath

Co-ordinating Institute - Institute of Mathematical Sciences

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 30 - Characterization of Galois extensions
Lecture 31 - Linear Independence of Characters
Lecture 32 - Solved problems (Week 4)
Lecture 33 - Artinâ s Theorem - Part 1
Lecture 34 - Artinâ s Theorem - Part 2
Lecture 35 - Finite Galois Extensions
Lecture 36 - The fundamental theorem of Galois Theory - 1
Lecture 37 - The fundamental theorem of Galois Theory - 2
Lecture 38 - Solved problems (Week 5)
Lecture 39 - Cyclotomic extensions
Lecture 40 - Irreducibility of the cyclotomic polynomial
Lecture 41 - Application: Constructibility of regular n-gons.
Lecture 42 - Insolvability of the general quintic - Part 1
Lecture 43 - Insolvability of the general quintic - Part 2
Lecture 44 - Insolvability of the general quintic - Part 3
Lecture 45 - What is category theory (and why is it important)?
Lecture 46 - Definition of a category
Lecture 47 - Monomorphisms, epimorphisms, and isomorphisms
Lecture 48 - Categories: First Problem Session
Lecture 49 - Initial and Terminal Objects
Lecture 50 - Products and Coproducts
Lecture 51 - Categories: Second Problem Session
Lecture 52 - Functors
Lecture 53 - The Category of Categories
Lecture 54 - Natural Transformations
Lecture 55 - Functor Categories
Lecture 56 - Categories: Third Problem Session
Lecture 57 - Adjunction
Lecture 58 - Categories: Fourth Problem Session
Lecture 59 - Tensor products of Z-modules
Lecture 60 - Free abelian groups and quotient groups
Lecture 61 - Construction of the tensor product
Lecture 62 - Problem session
Lecture 63 - Tensor product of R-modules
Lecture 64 - Functoriality of the tensor product
Lecture 65 - Bimodules
Lecture 66 - Tensor products of bimodules
Lecture 67 - Tensor products of modules over commutative rings
Lecture 68 - Extension of scalars

Lecture 69 - Problem session - tensor products of vector spaces
Lecture 70 - Some Properties of the tensor product
Lecture 71 - F-algebras
Lecture 72 - Composition Series
Lecture 73 - Schreierâ s Theorem
Lecture 74 - Ascending and Descending Chain Conditions
Lecture 75 - Existence of Jordan-Holder Series
Lecture 76 - The Jordan-Holder Theorem
Lecture 77 - Examples related to the Jordan-Holder Theorem
Lecture 78 - The Jordan-Holder Theorem for Groups
Lecture 79 - Indecomposable Modules
Lecture 80 - Direct Sum Decompositions
Lecture 81 - Decomposition as a sum of Indecomposables
Lecture 82 - The Endomorphism Ring of an Indecomposable Module
Lecture 83 - Krull-Schmidt Theorem
Lecture 84 - Krull-Schmidt Examples