NPTEL Video Course - Mathematics - NOC:Introduction to Commutative Algebra

Subject Co-ordinator - Prof. A.V.Jayanthan

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Review of Ring Theory
Lecture 2 - Review of Ring Theory (Continued...)
Lecture 3 - Ideals in commutative rings
Lecture 4 - Operations on ideals
Lecture 5 - Properties of prime ideals
Lecture 6 - Colon and Radical of ideals
Lecture 7 - Radicals, extension and contraction of ideals
Lecture 8 - Modules and homomorphisms
Lecture 9 - Isomorphism theorems and Operations on modules
Lecture 10 - Operations on modules (Continued...)
Lecture 11 - Module homomorphism and determinant trick
Lecture 12 - NakayamaÂ s lemma and exact sequences
Lecture 13 - Exact sequences (Continued...)
Lecture 14 - Homomorphisms and Tensor products
Lecture 15 - Properties of tensor products
Lecture 16 - Properties of tensor products (Continued...)
Lecture 17 - Tensor product of Algebras
Lecture 18 - Localization
Lecture 19 - Localization (Continued...)
Lecture 20 - Local properties
Lecture 21 - Further properties of localization
Lecture 22 - Intergral dependence
Lecture 23 - Integral extensions
Lecture 24 - Lying over and Going-up theorems
Lecture 25 - Going-down theorem
Lecture 26 - Going-down theorem (Continued...)
Lecture 27 - Chain conditions
Lecture 28 - Noetherian and Artinian modules
Lecture 29 - Properties of Noetherian and Artinian modules, Composition Series

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Lecture 30 - Further properties of Noetherian and Artinian modules and rings
Lecture 31 - Hilbert basis theorem and Primary decomposition
Lecture 32 - Primary decomposition (Continued...)
Lecture 33 - Uniqueness of primary decomposition
Lecture 34 - 2nd Uniqueness theorem, Artinian rings
Lecture 35 - Properties of Artinian rings
Lecture 36 - Structure Theorem of Artinian rings
Lecture 37 - Noether Normalization
Lecture 38 - Hilberts Nullstellensatz
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