

MATH 424  
Galois Theory of Linear Differential Equations  
METU Mathematics Department

Titles of Videos:

- 1) Math 424-2021.03.15.1: Topological spaces, definitions and examples
- 2) Math 424-2021.03.15.2: Continuous maps, base of a topology, comparison of topologies
- 3) Math 424-2021.03.17.1: Product and Quotient Topologies-1
- 4) Math 424-2021.03.22.1: Quotient Topologies-2
- 5) Math 424-2021.03.22.2: Quotient Topologies-3, Definition of Homotopy, Rotation Number of an Immersion-1
- 6) Math 424-2021.03.24.1: Rotation Number of an Immersion-2, Free Groups-1
- 7) Math 424-2021.03.29.1: Free Groups and Group Presentation
- 8) Math 424-2021.03.29.2: Fundamental Group of Surfaces
- 9) Math 424-2021.03.31.1: Definition of the Fundamental Group-1
- 10) Math 424-2021.04.05.1: Definition of the Fundamental Group-2
- 11) Math 424-2021.04.05.2: Definition of Covering Space, Examples
- 12) Math 424-2021.04.07.1: Fundamental Group of the Circle, Path Lifting and Homotopy Lifting-1
- 13) Math 424-2021.04.12.1: Fundamental Group of the Circle, Path Lifting and Homotopy Lifting-2
- 14) Math 424-2021.04.12.2: Fundamental Group of the Circle, Path Lifting and Homotopy Lifting-3
- 15) Math 424-2021.04.14.1: Properties of the Fundamental Group and Some Applications
- 16) Math 424-2021.04.19.1: Simply Connected Spaces and Homotopy Equivalence of Spaces
- 17) Math 424-2021.04.19.2: Fundamental Groups of Product Spaces and of Higher Dimensional Spheres
- 18) Math 424-2021.04.21.1: Seifert Van Kampen's Theorem and Some Computations
- 19) Math 424-2021.04.26.1: Subgroup Corresponding to a Covering Space and the Number of Sheets of a Covering Space
- 20) Math 424-2021.04.26.2: Lifting Criterion for a Covering Space-1
- 21) Math 424-2021.04.28.1: Lifting Criterion for a Covering Space-2 and Uniqueness of Lifting
- 22) Math 424-2021.05.03.1: Construction of the Universal Covering Space-1
- 23) Math 424-2021.05.03.2: Construction of the Universal Covering Space-2
- 24) Math 424-2021.05.05.1: Existence and Uniqueness of Coverings Corresponding to the Subgroups
- 25) Math 424-2021.05.17.1: Classification of Covering Spaces
- 26) Math 424-2021.05.17.2: Deck Transformations and Normal (Galois) Covering Spaces

- 27) Math 424-2021.05.24.1: Covering Spaces of the Real Line with Double Origin, Existence-Uniqueness of Solutions of Linear Differential Equations on Simply Connected Domains in the Complex Plane
- 28) Math 424-2021.05.24.2: Existence-Uniqueness of Solutions of Linear Differential Equations on Simply Connected Domains in the Complex Plane, Invariant Ring of Continuous Functions
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- 30) Math 424-2021.05.31.1: Complex Structures on Surfaces-Riemann Surfaces
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- 32) Math 424-2021.06.02.1: Differential Equations (on Complex Domains and Their Universal Coverings)
- 33) Math 424-2021.06.07.1: Elementary Methods of Solving Differential Equations-1
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