

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Complex Analysis

Subject Co-ordinator - Prof. Pranav Haridas

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Field of Complex Numbers  
Lecture 2 - Conjugation and Absolute value  
Lecture 3 - Topology on Complex plane  
Lecture 4 - Topology on Complex Plane (Continued...)  
Lecture 5 - Problem Session  
Lecture 6 - Isometries on the Complex Plane  
Lecture 7 - Functions on the Complex Plane  
Lecture 8 - Complex differentiability  
Lecture 9 - Power Series  
Lecture 10 - Differentiation of power series  
Lecture 11 - Problem Session  
Lecture 12 - Cauchy-Riemann equations  
Lecture 13 - Harmonic functions  
Lecture 14 - Möbius transformations  
Lecture 15 - Problem session  
Lecture 16 - Curves in the complex plane  
Lecture 17 - Complex Integration over curves  
Lecture 18 - First Fundamental theorem of Calculus  
Lecture 19 - Second Fundamental theorem of Calculus  
Lecture 20 - Problem session  
Lecture 21 - Homotopy of curves  
Lecture 22 - Cauchy-Goursat theorem  
Lecture 23 - Cauchy's theorem  
Lecture 24 - Problem Session  
Lecture 25 - Cauchy Integral Formula  
Lecture 26 - Principle of analytic continuation and Cauchy estimates  
Lecture 27 - Further consequences of Cauchy Integral Formula  
Lecture 28 - Problem session  
Lecture 29 - Winding number

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- Lecture 30 - Open mapping theorem
- Lecture 31 - Schwarz reflection principle
- Lecture 32 - Problem session
- Lecture 33 - Singularities of a holomorphic function
- Lecture 34 - Pole of a function
- Lecture 35 - Laurent Series
- Lecture 36 - Casorati Weierstrass theorem
- Lecture 37 - Problem Session
- Lecture 38 - Residue theorem
- Lecture 39 - Argument principle
- Lecture 40 - Problem Session
- Lecture 41 - Branch of the Complex logarithm
- Lecture 42 - Automorphisms of the Unit disk
- Lecture 43 - Phragmen Lindelof method
- Lecture 44 - Problem Session
- Lecture 45 - Lifting of maps
- Lecture 46 - Covering spaces
- Lecture 47 - Bloch's theorem
- Lecture 48 - Little Picard's theorem