REAL ANALYSIS I

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TYPE OF COURSE : New | Core | UG
COURSE DURATION : 12 weeks (20 Jul' 20 - 9 Oct' 20)
EXAM DATE : 18 Oct 2020

PRE-REQUISITES : 12th Standard Mathematics
INTENDED AUDIENCE : UG Students of Mathematics, the Sciences or Engineering
INDUSTRIES APPLICABLE TO : Google, DeepMind, Microsoft Research

COURSE OUTLINE : This is an introductory course on Real Analysis designed for undergraduate students of Mathematics. The only pre-requisite is a knowledge of Calculus at high school level so students of the Sciences or Engineering who want a deeper understanding of Calculus or want to pursue subjects such as Theoretical Physics, Computational Complexity, Statistics, etc. would also benefit from this course

ABOUT INSTRUCTOR : Prof. J. Jaikrishnan is an Assistant Professor at IIT Palakkad. He specializes in Complex Analysis.

COURSE PLAN :
- Week 1: Introduction, Set Theory and Logic
- Week 2: The Real Numbers as an Ordered Field
- Week 3: Completeness of the Reals and Consequences
- Week 4: Sequences and Series
- Week 5: Sequences and Series continued
- Week 6: A Taste of Topology
- Week 7: Limits and Continuity
- Week 8: Continuity and Topological Properties
- Week 9: Differentiation and Basic Properties
- Week 10: Differentiation Continued and Definition of Riemann Integral
- Week 11: The Fundamental Theorem of Calculus
- Week 12: Uniform Convergence, Power Series and Taylor Series