

# Rudresh Gade

BS-MS Student at IISER Pune

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## About Me

I am a motivated and research-oriented undergraduate student at IISER Pune, with a strong academic background and a deep passion for Number Theory, Graph Theory, and Spectral Analysis. My fascination with Number Theory arose from exploring numerical patterns and their surprising connections to various fields. Through research internships and academic projects, I have honed my analytical and problem-solving skills, further fueling my interest in advanced mathematical research. I have also explored algebraic graph theory, broadening my interests in this field. I am eager to pursue a Master's degree in Analytic Number Theory to deepen my expertise and contribute to innovative research.

## Education

- 2021–2026 **Bachelor and Master Dual Degree (BS-MS)**, *IISER Pune*, India  
CGPA: 7.9( current)
- 2021 **Senior Secondary (Class 12)**, *Shri Shivaji Science Junior College*, Nagpur, India  
Percentage: 92.2%
- 2019 **Matriculation (Class 10)**, *Somalwar Nikhalas High School*, Nagpur, India  
Percentage: 96.4%

## Research Projects and Experience

- January–Present **Analytic Number Theory**, *IISER Pune*, India  
2025 Semester Project supervised by Prof. Kaneenika Sinha, focused on the Non vanishing of Dirichlet series and weiner Ikehara theorem, contour method in Analytic Number Theory, etc.
- August–December 2024 **Analytic Number Theory**, *IISER Pune*, India  
Semester Project supervised by Prof. Kaneenika Sinha, focused on the Analytic proof of the Dirichlet Theorem for Prime Numbers.
- May–Present **Spectral Graph Theory**, *IISER Pune*, India  
2024 Research on algebraic connectivity of graphs and its applications, under the guidance of Prof. Anisa Chorwadwala.
- May–August 2024 **Homogeneous and Non-Homogeneous Complementary Beatty Sequences**, *Smith College*, USA  
Worked on the generalization of non-homogeneous complementary sequences under the guidance of Prof. Geremias Polanco.

- Jan–April 2024 **Spectral and Algebraic Graph Theory, IISER Pune, India**  
Semester project supervised by Prof. Chandrasheel Bhagwat, focused on the applications of Spectral Graph Theory.
- May–Aug 2023 **Stochastic Partial Differential Equations, VNIT Nagpur, India**  
Investigated stochastic PDEs and their behavior under Prof. Naga Raju Gande.

## Workshops and Conferences

- Jan 2024 **Conference on Combinatorial Game Theory, IIT Bombay, India**  
Attended Conference on Combinatorial games and their applications in combinatorial mathematics.

## Relevant Courses

### Mathematics:

- Fourier Analysis
- Cryptography
- Functional Analysis
- Probability
- Calculus of Manifolds
- Measure Theory
- Complex and Real Analysis
- Graph Theory
- Point Set Topology
- Ordinary Differential Equations
- Field and Galois Theory
- Rings and Modules
- Advanced Linear Algebra
- Group Theory
- Mathematical Finances

### Physics:

- Gravitation
- Non-Linear Dynamics
- Group Theory in Physics
- Classical Mechanics
- Statistical Mechanics
- Thermodynamics
- Quantum Physics

## Technical Skills

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|-----------------------|-----------------------------|
| Scientific Writing    | LaTeX, Microsoft Word       |
| Programming Languages | Python, MATLAB, Mathematica |
| Operating Systems     | Windows, Linux              |
| Presentations         | Microsoft PowerPoint        |

## Honors and Awards

- 2021 **INSPIRE Fellowship (Govt. of India):** Awarded by the Department of Science and Technology for outstanding academic potential.

- 2021 IISER Aptitude Test (AIR: 129): Secured top rank in the IISER entrance exam.
- 2021 JEE Advanced (AIR: 3913): Ranked in India's top engineering entrance examination.
- 2021 JEE Mains (AIR: 6105): Ranked in India's top engineering entrance examination.

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## Extracurricular Activities

- 2023 **Integration Bee Organiser, IISER Pune, India**  
Core Team member responsible for organizing and contributing to the success of the Integration Bee competition organised under Maths Club.
- 2023 **Mimamsa Science Quiz, IISER Pune, India**  
Team member responsible for organizing and contributing to the success of the nationwide science quiz competition.
- 2022–2023 **DISHA Abhyasika Club Volunteer, IISER Pune, India**  
Led tutoring sessions for underprivileged children, improving their understanding of mathematics and science.
- 2022–2023 **Vidya Bhavan Teaching Volunteer, Udaipur, India**  
Volunteered teaching class 12<sup>th</sup> Mathematics to the underprivileged students of rural areas of Udaipur and Chittorgarh in India.

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## Languages

- English Professional working proficiency
- Hindi Professional working proficiency
- Marathi Native proficiency
- German Beginner

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## Hobbies

Manga reading(One Piece), watching anime and movies, studying different working principles and application in electronics.