

ANVAY JOSHI

Department of Electrical Engineering
Third Year Undergraduate at IIT Kanpur

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Academic Qualifications

Year	Degree/Certificate	Institute	CPI/%
2022 - Present	B.Tech (Electrical Engineering)	Indian Institute of Technology Kanpur	9.2/10.0
2022	Class XII (HSC)	Pace Junior Science College, Powai	93%
2020	Class X (CBSE)	Kendriya Vidyalaya IIT Bombay, Mumbai	96.8%

Academic Achievements

- Recipient of the **Academic Excellence Award** at IIT Kanpur for being in **top 10%** of the institute at the end of first year
- **All India Rank 949**, in **Joint Entrance Examination (JEE) Advanced 2022** among 150,000 shortlisted candidates in India
- **All India Rank 1597**, in **Joint Entrance Examination (JEE) Main 2022** among 1 million candidates in India
- **All India Rank 49**, in **IISER Aptitude Test (IAT) 2022** among 30,000 candidates all across the country

Key Projects

Wide-Band Low Noise Amplifier (LNA) | *Supervisor: Prof. Imon Mondal, IITK* 📧 May'24-ongoing

- **Objective:** Design an LNA having a bandwidth of **1-8GHz** and noise figure below **3dB** using **28nm** technology on **Cadence**
- This **unique** LNA design breaks the **trade-off** between noise figure and impedance matching, without hampering its stability
- Tuned aspect ratio and biasing of **8 MOSFETs** to build a current mirror and an amplifying stage, achieving a gain of **13 dB**

Numerical Modelling of Temperature Variation | *Supervisor: Prof. Gourabananda Pahar, IITK* 📧 Dec'23-Jun'24

- Developed understanding of **implicit** and **explicit** methods for solving system of PDEs and various parameters in **heat equation**
- Utilised above methods to model temperature variation in a **1D rod** with time under given boundary conditions, on **MATLAB**
- Extended model to a **2D heat plate**, and **enhanced** its **accuracy** by varying diffusion coefficient spatially and with temperature

Formula Student Electric Vehicle | **IITK Motorsports** | *Faculty Advisor: Prof. Manjesh K. Singh, IITK* Mar'23-Feb'24

- Participated in manufacturing and assembly of **IITK's first formula EV**, as a member of the **electronics subsystem** team
- Conducted extensive research on sensors and switches crucial for **driver safety**, selecting the **best options** within constraints
- Used **Altium designer** to create schematics and develop PCB layouts, relevant to tractive and shutdown system of EV

Vision Forge | **Electrical Engineering Association Project, IITK** 📧 Dec'23-Jan'24

- Simulated combinational and sequential circuits using **verilog HDL**, and generated signal waveforms on GTKWave software
- Implemented a **car parking system** in verilog, having sensors for vehicle detection, and a password for gate access
- Utilised **image processing tools** of the **openCV** library to **detect edges** of coins in an image on Google Colab

Remote Control Car | **TA212 Course Project** | *Course Instructor: Prof. Shantanu Bhattacharya, IITK* Aug'23-Nov'23

- Built a miniature **real-life car** with steering mechanism, transmission system and differential gearbox using lathe and 3D printer
- The two motors used for its movement were controlled using an **Arduino UNO**, **bluetooth module**, and a **motor controller**

Cannon Cart with Castle | **TA211 Course Project** | *Course Instructor: Prof. Shashank Shekher, IITK* Jan'24-Apr'24

- Led a team of **10** members to build a **working model** of cannon, having a complex shooting mechanism and 3 degrees of freedom
- Designed each component on **Fusion 360** and employed various manufacturing processes such as casting, welding and brazing

Technical Skills

Softwares : Cadence, Altium, Fusion 360, AutoCAD **Programming Languages** : C, Verilog, MATLAB, Python, L^AT_EX

Positions Of Responsibility

Secretary | Music Club, IIT Kanpur May'23 - Apr'24

- Performed with music club band in Mantra Competition at **Mood Indigo**, IITB's cultural festival, and managed crew logistics
- Conducted a comprehensive 8-session workshop for **teaching violin** to campus community and underprivileged children

Student Guide | Institute Counselling Service, IIT Kanpur Jul'23 - May'24

- **Mentored** 5 freshman undergraduates and assisted the institute counselling service in organising orientation of **1200** freshers

Relevant Courses

**Secured Exceptional Grade*

Electronics	Electrical Engineering	Computing and Physics	Mathematics
Introduction to Electronics Analog Electronics	Introduction to Electrical Engg* Signals, Systems and Networks Control System Analysis	Fundamentals of Computing Computational Methods in Engg Classical Electrodynamics	Probability and Statistics Introduction to Linear Algebra Ordinary Differential Equations

Extracurricular Achievements

- Playing **Violin** for over **13 years** and successfully passed **Grade VI Violin exam** conducted by Trinity School of Music, UK
- Participated in Athletics events of Inferno, inter-hostel sports competition and won **Bronze** medal in 800m and 4x400m relay
- Secured **runner up** in robo-building competition hosted by Zephyr Toys and Hindustan Times and was awarded **Rs 50,000**