Scholastic Achievements

- Currently ranked **9**(out of 100 students) in Electrical Engineering(Dual Degree Program) *(2022)*
- Secured **All India Rank 662**(out of **150000** candidates) in the **JEE Advanced** examination *(2021)*
- Secured **99.84** percentile(out of **1.0** million candidates) in the**JEE Mains** examination *(2021)*
- Secured **99.94 percentile**(out of **192,000** candidates) in the **Maharashtra-CET** examination *(2021)*
- Secured **100 percentile** in the Mathematics Section of the **Maharashtra-CET** examination *(2021)*
- Scored **383/450** marks in the **BITSAT** examination conducted by BITS Pilani *(2021)*
- Won **Silver Medal** in the **Homi Bhabha Bal Vaidnyanik Spardha** examination *(2018)*
- Secured **School Rank 1** in the **IMO Olympiad** conducted by the Science Olympiad Foundation *(2017)*

Key Projects

Bubble Trouble | CS 101 Course Project *(2021)*
Guide: *Prof. Parag K. Chaudhary(Department of Computer Science & Engineering IIT Bombay)*

- Designed a video game(*Bubble Trouble*) in **C++** using **efficient libraries** to analyze the score and time variables
- Utilized **Object Oriented Programming** to instantiate the shooter and the bubble objects and added graphics
- Implemented **3** levels of difficulty and a user friendly interface to enhance the gaming experience

ALU Design | Digital Circuits Lab *(2022)*

- Designed an ALU using Behavioral and Structural Modelling and ran RTL simulation on Quartus
- Implemented the design on a Xenon Board and verified it using ScanChain

Word Detector | Digital Circuits Lab *(2022)*

- Designed a Word Detector Circuit using a Mealy Finite State Machine model and D-flip flops
- Programmed the model using VHDL and ran RTL Simulations on Quartus to verify the design
- Implemented the design on a Xenon Board and used Scanchain to verify the success of the model

EnB Entrepreneurship Project | E-Cell IIT Bombay *(2021)*

- Analysed the assets available to a rural village *Khoste* and inspected methods to efficiently utilize them
- Envisioned Khoste as a potential tourist attraction and ideated various aspects of the same
- Designed a business model to sustainably develop the village by taking into account existing infrastructure and additional requirements to compete with existing tourist hubs

Technical Skills and Experience

Programming Skills

Python	• Modelled the **'Mark and Recapture'** method using **NumPy** and **Matplotlib** libraries • Designed a **Probabilistic System** to model Data Packet Transmissions based on geometric distribution of packet arrival and packet departure random variables • Designed a model to estimate and plot the data population average of a large population
C++	• Developed a Banking Transaction System using structs to model the Bank and User • Designed and implemented a Fast Exponentiation Algorithm to reduce computational time
VHDL	• Designed an ALU using Behavioral and Structural Modelling and implemented the design on a Xenon Board and verified the design using RTL Simulation and Scanchain • Developed an Universal Shifter to shift the input bits by a certain specified amount(input) • Designed a Sequence Generator using an FSM and D-flip flops through structural modelling

Other Skills

ME119	• Completed a semester long course on Technical Drawing • Drew the Orthographic and Isometric views of real world objects having complex geometries
GNURadio	• Modelled time signals as discrete systems on GNURadio and analysed their waveforms • Designed a program to play a given tune with specified frequencies and time duration

Computer Science & Engineering Minor

- Examined the fundamentals of the **5** layer networking model exploring each layer in detail
- Studied coding schemes such as **BPSK, QPSK, QAM-256** and so on, along with line coding schemes such as **RZ and NRZ, Manchester Coding and Differential Manchester Coding**
- Analysed the **Cyclic Redundancy Check** algorithm and explored **Galois Field Theory** and its applications in error detection
- Studied the **Standard Ethernet CSMA/CD Protocol (IEEE 802.3)** and designed an algorithm to model a malicious node in an Ethernet LAN
- Mastering **Socket Programming** and implementing it to build an ARQ on top of UDP sockets

Key Courses Undertaken

Electrical	Analog Electronics ǀ Digital Systems ǀ Digital Circuits Lab ǀ Power Engineering ǀ Signal Processing ǀ Probability and Random Processes ǀ Introduction to Electrical Engineering
Tech	Computer Networks (Minor) ǀ Computer Programming and Utilization ǀ Calculus I ǀ Calculus II ǀ Differential Equations ǀ Linear Algebra ǀ Complex Analysis ǀ Basics of Electricity & Magnetism ǀ Quantum Physics and Application
Others	Biology ǀ Engineering Graphics and Drawing ǀ Chemistry ǀ Economics

Extra-Curriculars

- Completed **1** year of **professional** Weightlifting training under **NSO** (National Sports Organisation) *(2021)*
- School representative in Inter-School Chess Tournaments *(2017)*
- Was among the team of 5 people which secured the **3rd** position in the **SARC Crypt Hunt** *(2021)*
- Completed multiple dance courses under the Shiamak Dawar Dance Academy *(2017)*
- Completed multiple Judo Courses and was awarded a Blue Belt *(2017)*