Divyansh Natani
Chemical Engineering
Indian Institute of Technology, Bombay

190020043
B.Tech.
Gender: Male
DOB: 21-10-2001

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2023	null
Intermediate	CBSE	Subodh Public School, Jaipur	2018	95.20%
Matriculation	CBSE	Subodh Public School, Jaipur	2016	9.6

Pursuing a **Minor** degree in Department of **Computer Science and Engineering**

Scholastic Achievements

- Currently holding **Department Rank 2** among **137** Chemical Engineering undergraduates *('21)*
- Achieved **Academic Proficiency** (AP Grade) for exceptional performance in **Introduction to Numerical Analysis** (1 out of 171) and **Computational Method Lab** (4 out of 158) *('20)*
- Achieved **99.82 percentile** in Joint Entrance Exam Main among **1,100,000+ candidates** *('19)*
- Secured **AIR 134** in National Entrance Screening Test among **60,000+** candidates *('18)*

Key Projects

Cooling System in high processing CPUs | Course Project *(Jan'21-May'21)*
Project Guide: Prof. P Sunthar, Department of Chemical Engineering, IIT Bombay

- Analyzed **liquid** and **air based** cooling system in CPUs and played role of **Generator** in team of 8
- Used heat and mass transfer equations to **compare cooling efficiency** and overall cost of both system
- Modified mass-flow-rate of liquid cooling & proposed hybrid cooling system for **20% higher efficiency**

S.A.S.H.A - Smart Artificial System with Home Automation *(Mar'20-Jun'20)*
Institute Technical Summer Project

- Created a **multi-feature**, security-enabled telegram **Chatbot** capable of controlling electric appliances along with general conversation using Natural Language Processing, jokes, news and weather reports
- Developed a **website** for setting up house-appliances, live-tracking, assist user with basic commands
- Reduced **20% energy consumption** by introducing **Green House Mode** and **Night Mode** features

Phase Diagrams and Allotropic Transformations | Course Project *(Jan'21-Mar'21)*
Project Guide: Prof. Jhumpa Adhikari, Department of Chemical Engineering, IIT Bombay

- Analyzed Phase Transitions, Solubility of metals in 2-phase system & summarized results in a report
- Determined physical properties of **5+ Iron Allotropes** from Temprature-Composition phase diagram

Numerical Methods to Solve Differential Equations | Course Project *(Nov'20-Dec'20)*
Project Guide: Prof. Sarika Mehra, Department of Chemical Engineering, IIT Bombay

- Solved **non-linear Van-der-Pol** equation using 4th order Adam-Bashforth and Adam-Moulton method
- Found **stability conditions** on step-size and validated using **ode23** and **ode23s** solvers in MATLAB

The Onset of Turbulence in Pipe Flow | Course Project *(Aug'20-Sept'20)*
Project Guide: Prof. G Kumarswamy, Department of Chemical Engineering, IIT Bombay

- Critically analyzed a research paper titled The Onset of Turbulence in Pipe Flow*(2011)* by K Avila
- Summarized the outcome of paper in report on turbulence as a **Spatial Proliferation** of chaotic domains

Client-Server Based Interoperable GIS System | Course Project *(Jan'21-May'21)*
Project Guide: Prof. S Durbha, CSRE, IIT Bombay

- Developed an **AJAX-Driven** Interoperable web application using JavaScript and hosted on Geoserver
- Processed OGC standardized **SOAP** & **REST**-based geospatial web services like **WMS, WFS** & **SOS**

TicPic - Movie Ticket Reservation System *(Jun'17-Mar'18)*
School Project

- Created a dummy movie & event ticket booking system with **30+ interactive GUI** using Java
- Used **MySQL** to manage **dynamic seat booking**, payment & ticket cancellation and **admin panel**

Piezo-materials based Tech Startup | Course project *(Aug'20-Dec'20)*
Project Guide: Prof. R Jaswa & Prof. A Rao, DSSE, IIT Bombay

- Prototyped a **Business Model Canvas** for a Piezo-electricity based tech-startup which works on products generating electricity from pressure applied and utilising it for footpaths and floorings
- Examined fundamentals of creating & sustaining **business growth** & **marketing strategy** in our model

Position of Responsibilities

Core Group Member | **Web and Tech Head** | **51st Mood Indigo** *(Apr'21-Present)*
Asia's largest college cultural festival | Net Worth: xx million | Footfall: 146,000+ | Events: 240+

- Spearheading a 2-tier team of **150+** volunteers to enhance the visitor experience through tech innovation
- Created and maintaining all the web interfaces and technical services at Mood Indigo comprising over **25+** web pages, **5+** portals, **2+** interactive games and user-friendly iOS and Android apps
- Prototyping a series of **10+ interactive** tech installations enhancing real-time visitor engagement
- Piloting the digitization of fest to generate high-value data and enhance operations using **QMS** & **RFID**

Key Initiatives:

- Introduced a pre-fest MI App, a one-stop solution for all MI activities to boost outreach by **20%**
- Increased workshops & competitions registration applications by **120%** through innovative portal design
- Developing an Online Food Coupons system to streamline distribution, and saving **800+ man-hours**
- Instituting a Workforce Management app for enhance operations to boost productivity by **30%**

Convener | **Web and Coding Club** *(May'20-Mar'21)*
Part of 10 member team organising 20+ activities in institute to promote coding culture

- Mentored **300+ students** to build a personal hosted website and a Food Delivery App on Django
- Designed a **Java** based HTML-**Script-Generater** of weekly-newsletter reducing creation time by **70%**
- Revamped club's social media publicity plans with **200% y-o-y increase** in audience participation
- Created **5+** Web development articles for 'Code in Quarantine' event **engaging 700+ students**

Technical Skills

- **Softwares:** AutoCAD(2D), SolidWorks, Android Studio LaTeX, Autodesk
- **Programming Languages:** C/C++, Java, Python, SQL, MATLAB, HTML, CSS, JavaScript, jQuery
- **Frameworks:** Jekyll, BootStrap, Django, Angular, Flutter, Git, Nginx, Linux

Courses Undertaken

- **Chemical Engineering Courses:** Chemical Reaction Engineering*, Mass Transfer I*, Solid Mechanics*, Chemical Engineering Thermodynamics I & II, Introduction to Transport Phenomena, Introduction to Chemical Engg, Process Fluid Mechanics, Heat Transfer
- **Computer Science and Maths:** Design & Analysis of Algorithms*, Data Structure & Algorithms, Computer Networks, Computer Programming & Utilization, Introduction to Numerical Analysis, Introduction to Data Analysis, Linear Algebra, Calculus, Differential Equation, Computational Methods Lab, Advances in Geospatial Standards, Interoperability and Knowledge Discovery
- **Other Courses:** Intro to Electrical and Electronics Circuits*, Introduction to Biology, Cellular and Molecular Biology, Quantum Physics and Application, Basics of Electricity & Magnetism, Engineering Graphics & Drawing, Economics, Introduction to Entrepreneurship

* to be completed by Autumn '21

Extra Curricular Activities

- Represented hostel 9 & secured **4th position** in the inter-hostel radio play GC in a team of 5 *('21)*
- Completed a year long **NSO Keyboard** course and studied **Level-2** music theory *('19 - '20)*
- Organised events and coordinated activites for 2000+ students as **Deputy Head Boy** of school *('18)*
- Studied **French** up to intermediate level and secured 10 Grade in CBSE X board exam *('10 - '16)*
- Ranked **3rd** among **500+** students in **Essay Writing** organised by Airport Authority of India *('17)*
- Stood **Runner Up** among 50+ participants in City-Round of **Cryptic Crossword Contest** *('17)*