TEK CHAND

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ACADEMIC QUALIFICATIONS

YEAR	DEGREE/CERTIFICATE	INSTITUTE	CPI/%
2014 - Present	BT/MT Chemical Engineering	Indian Institute of Technology Kanpur	**PG: 8/10** | **UG: 6.8/10**
2013	Senior Secondary Class XII, RBSE	Astha Academy School, Sikar	**79.20%**
2011	Higher Secondary Class X, RBSE	Shree Ram School, Sikar	**83.67%**

SCHOLASTIC ACHIEVEMENTS

- Qualified JEE-Main 2014 with **98.27 Percentile** and Qualified JEE-Advanced 2014 with **95.7 Percentile**
- Secured AIR 1852 in Graduate Aptitude Test in Engineering **(GATE)** 2017 in chemical engineering conducted by IIT Guwahati

INTERNSHIP

CFD Analysis of a Rotary Disc Contactor with Perforation (CSIR-Indian Institute of Petroleum, Dehradun) *May'17-July'17*

Objective	• Prediction and Validation for a Pilot-Scale Rotating Disk Contactor by **CFD–PBM** Simulation
Approach	• The two phase flow field of RDC extraction column with perforations was simulated by CFD in **FLUENT 17.0** • The **Euler–Euler** approach incorporated with the **realizable k–ε model** was used for two-phase simulation • Compared with traditional methods. The species transport model was also solved to estimate axial mixing
Accomplishment	• A pilot-scale RDC was simulated by the CFD– PBM. With perforations discs are better than opaque discs • The predictive CFD–PBM approach is a highly efficient method for the design of extractors

MASTER'S THESIS

Development of Handheld Device for measurement of Micro and Macro Nutrients Concentration in Soil *May'18-Present*

Supervisor: Dr. Jayant K. Singh, Professor, Department of Chemical Engineering, IIT Kanpur

- Developed soil testing mobile application in the **ionic framework** and a **Bluetooth device** using membrane separation for NPK
- Developed an ion selective membrane to detect particular ions of NPK from soil sample and developing for others ions
- Created an LCD Touchpad controlling device using **NEXTION** and **Arduino** as a substitute for mobile phone for users
- Upgrading the same device with the new infrared spectroscopy technology with the help of **Matlab** and **Arduino IDE**

PROJECTS UNDERTAKEN

Process Design & Control of Maleic Anhydride Production *Aug'17-Nov'17*

Mentor: Dr. Nitin Kaistha, Professor, Department of Chemical Engineering, IIT Kanpur

- Simulated **Maleic Anhydride** production process using commercial software like **Aspen HYSYS** or **Aspen Plus**
- Identified feasible flowsheet and optimized it with respect to dominant degree of freedom to get **99.9**% purity in the product
- Implemented process to process heat integration to maximize energy efficiency saving of **28%** of original cost
- Analyzed profitable operating conditions and created a plant for wide process control of the process

Developed a Program for Obtaining Phase Equilibria for Binary Mixtures *Jan'18-Apr'18*

Mentor: Dr. Jayant K. Singh, Professor, Department of Chemical Engineering, IIT Kanpur

- Developed a computer program for measuring thermodynamic properties at high and low pressure phase equilibria in **Matlab**
- **NRTL, Wilson, Van Laar** and **Margules** models are used to calculate thermodynamic properties by ϕ–γ and ϕ–ϕ approach
- Validated experimental data with simulation data and analyzed suitable model for a binary mixture using different models

Power Generator *Aug'15-Nov'15*

Mentor: Dr. Arvind Kumar, Department of Mechanical Engineering, IIT Kanpur

- Conceptualized and fabricated a Power Generator by various manufacturing processes like turning, milling, grinding, drilling
- The model converts rotational energy to electrical energy (constant D.C. current) which is further used to charge a mobile

Prototype of London Eye *Jan'16-Apr'16*

Mentor: Dr. Krishanu Biswas, Professor, Department of Material Science and Engineering, IIT Kanpur

- Fabricated London Eye miniaturized model using various manufacturing processes like sheet metal forming, welding and casting
- The model consists of miniature hollow capsules which can rotate about their own axis

Natural Convection in a Narrow Rectangular Enclosure *Jan'17-Apr'17*

Mentor: Dr. Malay K. Das, Department of Mechanical Engineering, IIT Kanpur

- Developed discretized governing equations of heat transfer using stream function-vorticity approach
- Verified the results by allowing solution to reach a steady state

Making Herb Infused Olive-Oil

Mentor: Dr. Animangsu Ghatak, Professor, Department of Chemical Engineering, IIT Kanpur

- Synthesized flavored olive oil using olive oil, garlic, black pepper

POSITIONS OF RESPONSIBILITY

Senior Executive, Hospitality, Techkriti'16

- Helped in smooth functioning of festival by providing assistance to the participants and solving their queries
- Invited, received, guided and arranged accommodation for **3500** participants from all over India before and during the festival
- Provided special assistance to the group of **30** participants from **Nepal** and **Sri Lanka**

Teaching Assistant, Fluid Mechanics & Rate Processes (ESO 204A) *Aug'18-Present*

Instructor: Dr. Raghvendra Singh, Department of Chemical Engineering, IIT Kanpur

- Evaluate assignments and the quizzes of the course Fluid Mechanics & Rate Processes (ESO 204A)
- Attend lectures and manage the attendance of 300+ students in the same course

RELEVANT COURSES

Introduction To ChE And Process Calculation	Thermodynamics	Heat Transfer & Its Applications
Fluid Mechanics And Its Application	Chemical Process Industries	Mass Transfer & Its Applications
Chemical Reaction Engineering	Process Control	The Structure & Rheology Of Complex Fluids
Thermodynamics Of Fluids And Fluid Mixtures	Chemical Engineering Design	Fund. Of Colloid & Interface Sci. & Tech.
Fundamental Of Computing	Introduction To Economics	Macroeconomics
Introduction To Machine Learning	Chemical Engineering Thermodynamics	NATURE AND PROPERTIES OF MATERIALS
Computational Fluid Dynamics	Process Engg. Principles In Micro. Fabrication	Mathematical Methods In Chemical Engineering
Introduction To Electrical Engineering		Computational Methods In Engineering

TECHNICAL SKILLS

- **Engineering Tools and packages**: Autodesk Inventor, AutoCAD, ASPEN PLUS, HYSYS, Simulink, ANSYS, NEXTION
- **Mathematical Analysis Packages**: Matlab, Octave, tecplot, Origin, POLYMATH
- **Web:** TypeScript, JavaScript, CSS, HTML, Angular, SQL
- **Programming Languages**: C, C++ , Python, Node.js , JSON, Ionic 3, ARDUINO

EXTRA-CURRICULAR ACTIVITIES

Sports	• Participated in various sports in **JOSH (**Annual Intra IIT sports competition) every year at IIT Kanpur • Trained and disciplined with National Cadet Corps (NCC) for one year at IIT Kanpur and was conferred '**A**' certificate • Participated in the SLR Rifle shooting workshop conducted by 2 U P CTR NCC Kanpur
Cultural	• Organized a number of events for Institute's Hindi Sahitya Sabha club • Volunteer in India Haat in Antaragni, 2014 • Participated in Structure making competition in Galaxy (Annual Intra IIT cultural competition) 2015 and 2016
Social	• Participated in blood donation camp organized by Rotary Club Kanpur in IIT Kanpur • Testing of soil by ***BHU PARIKSHAK*** and providing all information about soil health nearby IIT Kanpur villages