

## RISHABH KHANDELWAL

Fourth Year Chemical Engineering (Dual Degree)  
IIT Bombay  
Roll No: 09D02028  
Email: rk1891@iitb.ac.in

A-802, Godavari, Building No.17,  
Customs Colony, Mhada Complex  
Powai, Mumbai-400076

Examination	University	Institute	Year	CPI/%
Graduation	IIT Bombay	IIT Bombay	2011	9.12
Intermediate/+2	CBSE	Maheshwari Public School, Jaipur	2009	91.20
Matriculation	CBSE	Maheshwari Public School, Jaipur	2007	95.50

### ACADEMIC AWARDS AND ACHIEVEMENTS

- Ranked **2<sup>nd</sup>** in Dual Degree Batch (42 students) and **5<sup>th</sup>** in both B.Tech and Dual Degree batches (105 students)
- Awarded the National Talent Search Examination Scholarship (**NTSE 2007**) (**State Rank 9**)
- Secured **8<sup>th</sup> rank** in State Science Talent Search Examination (**SSTSE 2007**) in Rajasthan
- Amongst the **top 500** students of India to be selected for the final round of Kishore Vaigyanik Protsahan Yojana (**KVPY 2007**)
- Qualified the **1<sup>st</sup>** round of **Indian National Chemistry Olympiad** (2009)
- Awarded **certificate of Merit** from CBSE for being in the **top 0.1%** in Mathematics & Comp. Science in AISSE, 2007
- Awarded **certificate of Merit** from the school for securing **2<sup>nd</sup> position** in Class X
- Lead a **team of 4** in representing School in ‘**Going beyond live interaction with Astronaut Sunita Williams**’ in October 2007

### INTERNSHIPS AND PROJECTS

#### HINDUSTAN UNILEVER LIMITED, RESEARCH CENTRE, BANGALORE

(May 2011 – July 2011)

*Project Guide: Dr. Saurabh Shresth* (Senior Research Scientist, Unilever R&D Bangalore)

*Topic: Role of polymer and shear rate on floc strength*

- Carried out extensive literature survey on **sweep & bridging flocculation** using aluminum salts & polymer and the effects of polymer concentration & shear rate on the floc strength
- Determined the adsorption isotherm of polymer over kaolin using **UV Spectroscopy**
- Studied the role of polymer concentration and shear rate on the **floc strength** in a linear pipe with continuous turbulent mixing using **Malvern Mastersizer**
- Determined the **amount of residual polymer** at the end of flocculation for various polymer concentrations
- Examined the effect of polymer dosage on **filterability** and correlated it with the shear rate in filter pores
- Awaiting **research-paper publication** on my work

#### PROJECT BIOSYNTH

(May 2010 -Present)

*Guide: Prof. Sanjay Mahajani* (Department of Chemical Engineering, IIT Bombay)

It is a student's initiative to **setup a biodiesel production plant** at an institute level in India

##### As R&D manager:

- Leading a **team of 18 students** for conducting research on economical and environment- friendly process techniques in production of Biodiesel
- Conceptualized and designed** an experiment for acid neutralization in methanol using ion exchange resin
- Working on **developing a new protocol** for producing biodiesel from acid oil
- Also, involved in **the commissioning** of the plant and conducted **compression testing** of the distillation columns and Biodiesel storage tanks

##### As an Organizer:

- Conducted numerous lab runs and determined the **efficiency** of biodiesel production using different **feed stocks**
- Analyzed **Water Wash** and **Magnesol Wash** as a feasible option for purification of Biodiesel
- Led a group of 4 on **Quantification soap** from Biodiesel through titration
  - Phenolphthalein and Methyl Orange Indicator used
  - Quantified soap in post- trans esterified product of Pure Sunflower Oil and Waste Vegetable Oil
- Performed **Quality tests** on biodiesel like cloud point, flash point, oxidation stability and water content estimation

## MOLECULAR AND STATISTICAL THERMODYNAMICS - COURSE PROJECT

(Spring 2011)

*Guide Professor: Jhumpa Adhikari, Department of chemical engineering, IIT Bombay*

- Performed **Metropolis Monte Carlo simulations using C++ and MATLAB** on the two dimensional Ising model in the absence of an external magnetic field at different reduced temperatures to determine the expectation value of energy and magnetization per spin

## RASHTRIYA CHEMICAL FERTILISERS, CHEMBUR

(Spring 2010)

- Visited and analyzed the Sulphuric Acid Plant technology in the plant like Heat Exchangers , Reboilers, Absorption Towers and Water Cooling System
- Prepared a report and carried out material balance on the entire plant

## ADDITIONAL COURSES TAKEN

Pursuing a **Minor degree** in **SJM School of Management** Department:

- Accounting and Finance (Autumn 2010)
- Studied basics of Balance Sheet, Profit & Loss account, Cash Flow statements, Net Present Value, Internal rate of return
- Operations Management (Spring 2010)
- Studied basics of Assembly Line balancing , Managing variability and Supply Chain Management
- Project Management (Autumn 2011-Present)
- Studying various aspects of project management and methods of project selection

## POSITIONS OF RESPONSIBILITY

### DEPARTMENT ACADEMIC MENTOR, IIT BOMBAY

(2011-Present)

- Selected as one of the 12 mentors based on academic performance, extra-curricular activities and mentoring skills
- Mentoring **five 2<sup>nd</sup> year students** and addressing concerns ranging from adjustment issues to academic weakness

### SPORTS SECRETARY, HOSTEL 3, IIT BOMBAY

(2010-11)

- Led the hostel in **winning the Sports General Championship( 2010-11)** after a period of 11 years
- **Introduced Frisbee open** in the hostel, now an adopted trend in the hostel
- Responsible for forming and managing Hostel teams for various Inter Hostel General Championship events and in charge of all hostel sports activities and resources

### COORDINATOR, EVENTS, TECHFEST

(2011)

- Coordinated a team of 6 in the event ‘Lift off’ and handled over **150** teams
- **Devised and implemented** a procedure for smooth handling of the entire day-long event

### DEPUTY HEAD BOY, MAHESHWARI PUBLIC SCHOOL

(2007-08)

- As a Member of Student’s Council , acted as a bridge between students and authorities
- **Formulated and managed** the entire cultural calendar for the session

## EXTRA CURRICULAR ACTIVITIES

- Won **Bronze** in Lawn Tennis in **Inter IIT Sports Meet**, 2011
- **Winner**, Lawn Tennis Freshie Open, 2009
- Secured **3<sup>rd</sup>** position in Inter Hostel Tennis General Championship, 2010
- **Awarded PAF (Performing Arts Festival) special mention** for the significant contribution to the production team (April, 2010)
- Made a **remote-controlled car** for the competition **F1 Race** held in IIT Bombay, 2009
- Won prizes in various **science quiz contest** at Inter School levels

## OTHER INTERESTS

- Like to travel to new places and interact with people from different cultures and enjoy reading novels
- Possess a lot of interest in solving puzzles and riddles