Dipti Gupta **09002051**
Chemical Engineering **UG Third Year (B.Tech.)**
Indian Institute of Technology, Bombay **Female**
DOB: 08/12/90

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2012	5.90
Intermediate/+2	CBSE	DPS BOKARO	2008	89.00
Matriculation	CBSE	DAV kathara	2006	92.60

RESEARCH INTEREST

Research areas of chemical Reaction Engineering & catalysis .Other interests: Environmental atmospheric air quality.

Relevant courses undertaken:-

- Chemical reaction Engineering .
- Material Science

PROJECTS UNDERTAKEN

➢ **INDIAN EXPLOSIVES LTD** *(May-June 2010)*

- Studied the steps involved in production of explosives using Ammonium nitrate ,Furnace oil, Lakspol .
- The method of production is based on emulsification.
- Gassing is done for increasing the density of explosives.
- Static mixer is used for gassing which allows to mix sodium nitrite with other raw materials properly.
- Choking of static mixer used for manufacturing explosives was very frequent. Studied reasons for this frequent choking and analysed various strategies to reduce it.

➢ **REACTOR DESIGN FOR PRODUCING FORMALDEHYDE**
Prof Sanjay M Mahajani, Dept. Of Chemical Engineering *(Sep-Nov 2011)*

- Successfully Completed the project for Reactor Design for the production of Fomaldehyde.
- Concepts Involved are Mole Balance, Energy Balance (Nonadiabiatic),isothermal, Pressure drop.

➢ **FINDING CHEMICAL KINETICS FOR ESTERIFICATION USING CATALYST AMBERLYST** (Dec 2011-present)

- Completed the project for finding out the chemical kinetics & Residence Time distribution for Esterification using Packed Bed Reactor and Catalyst amberlyst 15.
- My main aim was to find out the rate controlling step for the reaction. i.e to check whether External mass transfer ,Internal Diffusion,or Surface Reaction is controlling the Reaction using Mears criteria & Weiz-Prater criteria.
- Other part is to fit the experimental result into various Models Such as Compartment Model,Two Parameter Model for finding out Dead & Bypass volume of the Reactor.

➢ **PROJECT ON SCILAB**
Prof Manibhusan IIT Bombay *(Feb-April 2011)*

- Successfully completed the Coding Project for solving ODES .
- Methods used are Discretization using Flinite Difference Method and to figure out the order of error propagated in the result.
- Other Method was Lagrange Interpolation to know the interpolating Polynomial.

➢ **CS 101 UNIQUE IDENTIFICATION PROJECT**

- Successfully completed the project for preparing Unique ID.
- Using c++, identification was to be done using Fingerprints for each & every person in institute.
- This identification is used in library, attendance system .

POSITION OF RESPONSIBLTY

➢ **UDAAN WELFARE, VOLUNTEER**

- Working as a Volunteer for UDAAN WELFARE ORGANISATION.
- UDAAN is a NGO which works for infusing Practical & Creative knowledge among students .
- Animations & toys are used for illustrating the Mathematics & Science Equations easily.

➢ **TEACHING ASSISTANT(MA 106, LINEAR ALGEBRA)**

- Scored AA grade in Linear Algebra and selected by iit Bombay as a Teaching Associate for Linear Algebra with Prof Manoj Kumar keshari (IIT Bombay).
- My work is to conduct tutorials, to prepare Examination Papers and to conduct Exams.
- Curriculum includes Vector spaces ,Linear dependence, Orthogonal properties, Rank, Dimensions of a Matrix.

SOFTWARE SKILLS

- Advanced c/c++ coding. Scilab and Matlab
- Comfortable with COMSOL software

RELEVANT COURSES UPTO DECEMBER 2011

- Fundamentals of heat and mass transfer- Concepts of conduction, convection & Radiation. Design of Heat exchanger ,cooling tower.
- Fluid mechanics - Momentum & Energy Balance, Boundary Layers ,Friction Losses ,Potential(inviscid flows)
- Thermodynamics - Fugacity coefficient,Azeotropy, Modified Raoult's Law,Non Ideal solutions.
- Chemical reaction Engineering.- Mole Balance, Energy Balance (Adiabiatic, isothermal,Nonadiabiatic & Nonisothermal, RTD using Tracer.
- Numerical analysis.- - linear algebraic equations, Non Linear Equations, ODEs, PDEs, ODE-IVP Techniques.

MATHEMATICS COURSES

- Multivariable calculus
- Linear Algebra
- Differential equations
- Complex number

EXTRACIRRICULAR ACTIVITIES

- Participated in Dancing competition in FRESHIZAA & won 3rd position.
- Won 1st Prize in Film making Competition.
- Member of Group Rural Activities. Being a part of this Group I got an opportunity to visualize the problems and miseries existing in rural areas. Visited and interacted with people of Village "HIVRE BAZAAR" which is self sustainable & pollution free .
- Other interests: Dance, social service ,painting & other arts.