



Gautam Agrawal
Electrical Engineering
Indian Institute of Technology, Bombay

08007008
UG Final Year (B.Tech.)
Male
DOB: 3rd March 1990

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2011	8.85
Intermediate/+2	Central Board of Secondary Education	Kendriya Vidyalaya Mankhurd	2008	94.40
Matriculation	Central Board of Secondary Education	Kendriya Vidyalaya Mankhurd	2006	90.40

Scholastic Achievements

- Awarded the **DAAD-WISE scholarship** for a summer research internship at ISFH, Germany (2011)
- Secured **All India Rank 158** in IIT-JEE 2008 out of over 3,20,000 students (2008)
- Secured **State Rank 23** and **All India Rank 317** in AIEEE 2008 out of over 8,00,000 students (2008)
- Awarded **Silver Medal** at **40th International Chemistry Olympiad** held at Budapest, Hungary; one of 4 students selected to represent India out of 35,000 students through a 3-stage selection process (2008)
- Secured **All India Rank 1** in National Cyber Olympiad out of over 7000 students (2008)
- Placed in **top 1%** out of 35,000 students in National Standard Examination in Physics (2008)
- Awarded Certificate of Merit in Green Olympiad conducted by TERI, India (2004 & 2005)

Projects in Micro-Electronics & Renewable Energy

B.Tech Thesis Project: Design of Si-Nanowire Array Optoelectronic Diodes (Aug '11 - Present)

Guide: Prof. Anil Kottantharayil, Electrical Engineering, IIT Bombay

- Analyzed the optical absorption characteristics of various configurations of Si-nanowire arrays for use in photodetectors and solar cells using Sentaurus TCAD

Internship Project: Conductive Boundary Solar Cell Simulation Software – CoBoGUI (May '11 - July '11)

Guide: Dr. Thorsten Dullweber, Institut für Solarenergieforschung (ISFH), Hameln/Emmerthal, Germany

- Expanded the CoBoGUI software to be able to solve for various solar cell geometries like point contacted Passivated Emitter Rear Contact (PERC) and Back Contact Back Junction (BCBJ) solar cells in 2D and 3D
- Work resulted in wider scope of use of the software and enhanced its agreement with the real world data

Simulation of Crystalline Silicon Solar Cells (Guide: Prof. Anil K.G., EE, IIT-B) (May '10 - July '10)

- Developed a solar cell model with and without surface texturing to study its effects on improving efficiency
- Simulated the model in Sentaurus TCAD achieving efficiencies of 13% and 18%, without and with texturing

Comparative Analysis of LED vs. T8 Lighting for Hostel 8 (Guide: Prof. A. Ganesh, ESE, IIT-B) (Nov '10)

- Compared the Life Cycle Cost & emissions of LED vs. T8 tubelights for different lighting needs in Hostel 8

Electrical Energy Flow Analysis of IITB Printing Press (Guide: Prof. A. Ganesh, ESE, IIT-B) (Mar '10)

- Performed an analysis of the electricity consumption of various equipments in the IITB printing press

Wind Turbine Market Analysis (Guide: Prof. H. Gundimeda, HSS, IIT Bombay) (Oct '09)

- Conducted an analysis of the past, present and future trends in wind turbine manufacturing market
- Analyzed the market structure, market share and level of competition

Projects in Robotics & Electronic Design

Autonomous Grid Navigating Swarm Robots (May '09 - Jan '10)

- Designed a pair of autonomous grid navigating robots which coordinate to transport blocks placed randomly on a grid to the required locations in the shortest possible time

Amphibious ATV robot*(Oct '08-Jan '09)*

- Designed a 8-channel wireless remote controlled amphibious All Terrain Vehicle robot for Techfest '09
- Implemented the steering using a differential mechanism having 4 wheels with paddles and 2 propellers

Multi-Drop Telephony System (Guide: Prof. P. C. Pandey, EE, IIT-B)*(Jan '11 - April '11)*

- Designed and implemented a cheaper distributed system having the features of intercom, call transfer and remote control of devices for decentralized applications than conventional electronic exchange systems

Frequency Counter & Duty Cycle Measuring Circuit (Guide: Prof. M.B. Patil, EE, IIT-B)*(Feb '10-Apr '10)*

- Implemented a discrete digital IC based design to measure frequency and duty cycle of square waves of frequencies up to 100kHz with a response time of less than 2 seconds

Math & Coding Projects**Intelligent Trading System** (Guide: Prof. V.M. Gadre, EE, IIT-B)*(Jan '10 - Apr '10)*

- Analyzed and predicted future trends and cycles in financial markets using signal processing concepts
- Implemented a program in C++ to test the analysis on real world data from stock markets

Electrical Circuit Solver (Guide: Prof. A. Ranade, CSE, IIT Bombay)*(July '08 - Nov '08)*

- Developed an electrical circuit solver in C++ using nodal analysis and Gaussian elimination to solve DC resistive networks and AC RLC networks along with a graphical user interface (GUI) using the SPRITE library

Minor in Energy : Courses Covered

Introduction to Renewable Energy Technologies	Energy Management
Solar PV : Fundamentals, Technologies and Applications	Energy Resources, Economics & Environment
Conservation of Energy in Buildings (ongoing)	

Achieved 'AA' grade in the completed courses. Also, studying the course "Advanced Concepts in Solar Cells".

Extra Curriculars : Languages, Robotics, Social Work and Quizzing

- Learning **German** language at IIT-B
- Awarded "**Best Design Prize**" in wireless remote controlled robotic car racing competition organized by Technic, Technical Club of IIT Bombay in 2008
- Qualified for the **National Finals** of A.N.T.Z., the swarm robotics competition held at Techfest 2010, IIT Bombay by virtue of being in the top six teams in the qualification rounds
- Taught a class of 30 underprivileged students for one year for 3 hours per week at Campus School, IIT-B
- Awarded **2nd position** amongst the students of 800 schools in KVS National Science Quiz 2007
- Secured **1st position** amongst the students of 50 schools in Metals and Materials Quiz 2007 conducted by Indian Institute of Metals, Mumbai Chapter

Positions of Responsibility**Hostel Mess Councilor***(April '10- April '11)*

- Awarded **Hostel Organizational Colour** for outstanding service to the hostel during the tenure
- Managed a team of 2 secretaries and 26 mess workers and oversaw a budget over INR 50,00,000
- Introduced a mess card system to better regulate serving of mess food
- Developed an online feedback system and organized online mess referendums

Hostel Mess Secretary*(August '09-Mar '10)*

- Introduced extra items for vegetarians and non vegetarians like McDonalds Burgers and KFC Fried Chicken
- Initiated a takeaway system during breakfast and a rotating two-week menu

Coordinator of Mood Indigo 2009 (Asia's Largest College Cultural Festival)*(March '09-Dec '09)*

- Co-conceptualized the "Art Arena" consisting of 6 workshops and 12 exhibitions and interactive sessions
- Lead Coordinator of 3 workshops and coordinated with the corresponding artists, participants and volunteers