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UG Fourth Year (B.Tech.)
Male
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Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2011	9.20
Intermediate/+2	ISC-2008	Loyola School Trivandrum	2008	97.00
Matriculation	ICSE-2006	Loyola School Trivandrum	2006	87.85

Research Interests

- Heat Transfer, Thermodynamics , HVAC, Energy Modelling and Integration, Renewable Energy Technologies

Research Projects

Exergy and Energy Analysis of Cycles for Geothermal Energy Utilization (May 2011-Ongoing)
Guide: *Prof. Ibrahim Dincer, Faculty of Engineering and Applied Science, UOIT, Oshawa, Canada*

- Analysing binary geothermal planets running ***sub-critical*** and ***trans-critical*** Organic Rankine Cycles, ***trans-critical*** CO2 cycles and ***trilateral*** flash cycles
- Comparing performances of direct, single-flash and double-flash steam cycles with binary plants.
- Experiments on an R-134a Exhaust heat fired ORC is under way.

Novel Wire Fin Heat Exchanger for Enhanced Performance under Frosting Conditions (Mar 2011-Ongoing)
Guide: *Prof. M V Rane, Heat Pumps Lab, Mechanical Engineering Department, IIT-Bombay*

- ***Improved performance as frost forms*** on the heat exchanger under low temperature conditions.
- Applications of the novel design include,
  - ***Evaporators*** of heat pumps in low ambient air conditions
  - ***Food-Processing,*** for example, by selectively freezing water, separating it from mixtures
  - ***Phase change thermal storage*** devices, like ice banks, eutectic storage tanks etc.
- Application for an ***Indian Patent*** of the device is being processed now.

Liquid Desiccant based Solar Multi Utility Air Conditioning Device (Sep 2010-Ongoing)
Guide: *Prof. M V Rane, Heat Pumps Lab, Mechanical Engineering Department, IIT-Bombay*

- Designed, simulated and tested the ***Desiccant Regenerator***, ***Water Heater*** and ***Drinking Water*** producing component of the 3-tonne Solar Air-Conditioner.
- Experimentation on the ***dehumidifier***, ***regenerator*** and ***collector*** components of the system is underway.
- Application for an ***Indian Patent*** of the device is being processed now.

Alignment of Nanowires using a Micro-Fluidic Channel (May 2010-July 2010)
Guide: *Prof. S G Mhaisalkar, Energy Research Institute, Nanyang Technological University, Singapore*

- ***Grew*** and ***Aligned*** Nanowires and Nanotransistors onto substrates using the principles of Micro-fluidics.
- Learnt techniques like Ellipsometry, Lithography, Scanning Electron Microscopy, Field Emission Microscopy, Functionalized Ion Beam, Atomic Force Microscopy, Vapour Deposition, X-Ray Diffraction.

Experimentation on Solar Concentration Collectors (Dec 2009-Jan 2010)
Guide: *Prof. J K Nayak, Energy Sciences and Engineering Department, IIT Bombay*

- Calibrated and set up measurement and data collecting devices; and helped perform the experiment.
- *Analysed* the data and compared the performance of 2 different concentrating solar collector designs.
- Determined the *Efficiency–Fluid Temperature* relation of a *Parabolic Dish* Solar Concentrating Collector.