Manish Kumar **manish31aero@gmail.com**
Aerospace Engineering **PH: 9167516405**
Indian Institute of Technology Bombay **M.Tech**
Specialization: **AEROSPACE PROPULSION**

Examination	University	Institute	Year	CPI / %
Post-Graduation	**IIT Bombay**	**IIT Bombay**	**2014**	**8.91**
B.Sc (hons) Physics	**University of Delhi**	**Bhasakaracharya College**	**2011**	**63.00**
BE (Aeronautical)	**Aeronautical society of India**		**2012**	**57.25**
Intermediate/+2	**CBSE New Delhi**	**Govt. Boys. Sr. Sec School**	**2007**	**76.40**
Matriculation	**CBSE New Delhi**	**Govt. Boys. Sr. Sec School**	**2005**	**73.16**

OBJECTIVE

To work with maximum potential in a challenging and dynamic environment, with an opportunity of working with diverse group of people as a team and use my skills in the best possible way to achieve company goals

KEY ACADEMIC PROJECTS AND SEMINARS

M.Tech Dissertation [Guide: Prof. A.M. Pradeep]

Title: "*CFD and Experimental investigation of industrial Gas Turbine exhaust diffuser with struts*"

A collaborative group project between **SEIMENS** and **IIT Bombay** [May '013 – present]

- Aim is to **optimize the performance** by analysis of junction flow in gas turbine exhaust diffuser and geometry modification
- Investigating the experimental results and computational result to enhance the performance by geometry modifications of the supporting struts
- Geometry modelling, grid generation, and numerical simulations is being done for various velocity profiles of gas turbine exhaust in GAMBIT and ANSYS CFX

M.Tech Seminar [Guide: Prof. A.M. Pradeep]

Title: "*Effect of tip leakage flow in axial flow compressor*" [July- Oct'012]

- Studied various configurations of tip clearance flow in axial flow compressor
- Compared the effect of tip leakage flow in axial flow compressor for various tip gap sizes
- Understood the various active control mechanisms for tip leakage flow losses

BE Project [Jan- May'012]

Title: "*Computational study of forced convection in pipe using ANSYS FLUENT*"

- Aim was to investigate the 2-D steady forced convection on laminar and turbulent flow
- Studied the pressure, velocity, temperature, and Nusselt number distribution
- Validated the computational results with experimental data

COURSE PROJECTS

High pressure turbine design

- Detailed aerodynamic design and modelling of single stage high pressure turbine for given inlet conditions and performance requirements

Subsonic intake design

- Designed and modelled a subsonic intake for large subsonic passenger airliner
- Boeing 777 aircraft specification was chosen for the design of the intake

Un-ducted contra-rotating propeller design

- Detailed design was carried out using propeller theories and propeller charts

- Carried out aerodynamic and geometric design of a contra-rotating propeller for a given flight condition of Antonov 70 aircraft specifications

Gas Dynamics

- **Analysis of flow inside shock tube**: Developed a code in C programming by analytical method for flow inside a shock tube and analyzed the variation of flow properties across normal shock and expansion wave

Turbulence and Combustion Modelling

- **Turbulent channel flow:** Analyzed the turbulent channel flow using k-ε model in FLUENT
- **Simulation of bluff body flame:** Simulated 2-D axisymmetric combustion flame in FLUENT and the computational results validated with experimental results

KEY COURSE STUDIED

- Aerodynamics of Compressor and Turbine
- Aerodynamics of Aerospace Vehicle
- Computational Fluid Dynamics
- Design of Power plant for Aircraft
- Introduction to Flight
- Aircraft Propulsion
- Aerospace Propulsion
- Turbulence and Combustion Modelling
- Gas Dynamics
- Aviation fuel and combustion

SCHOLASTIC ACHIEVEMENTS

- Recipient of Principal's **trophy** for being the school **topper**
- Secured **merit certificate** in social science talent search examination 2004-2005
- Awarded certificate for successful demonstration of a science model in a science exhibition by **Directorate of Education Delhi**
- Awarded certificate for Sanskrit debate completion by Delhi Sanskrit Academy 2004-2005

POSITION OF RESPONSIBILITIES

Teaching Assistant [Jan'013- present]

- Demonstrated propulsion lab experiment "Nozzle specific thrust and efficiency measurement" to around 70 undergraduate and 9 postgraduate students of aerospace engineering
- Conducted viva-voce, quizzes, and examinations for evaluation of lab experiments
- Worked under Prof. R.K Pant and Prof. S.P Mahulikar and carried out literature survey relevant to research work. [July'012-Nov'012]

Student companion [July'013 - present]

- Selected member of Institute Student Companion Program IIT Bombay.
- Working as student companion for M.Tech 2013 batch of Aerospace Propulsion.
- Organized department orientation program for fresher's and act as a mentor for the new entrants.

SOFTWARE SKILLS

- **Software packages:** CFX, FLUENT, GAMBIT, ICEM CFD, CATIA V5
- **Operating system:** Windows, Linux.
- **Office tools:** Word, Excel, PowerPoint**,** LATEX
- **Programming languages:** C, MATLAB

EXTRA CURRICULAR ACTIVITIES

- Actively participated in the **National Service Scheme** activities during 2009-2010.
- **Active organizer** of Aviation Day-2012 celebration jointly organized by Nehru Science Center, IIT Bombay and The Aeronautical Society of India