

VINOD KUMAR BALAKRISHNAN

vbalak3@uic.edu | +1 3123915637

Chicago, IL 60612 | <https://www.linkedin.com/in/vinod-kumar-99308726/>

Professional Experience

KCG COLLEGE OF TECHNOLOGY

Assistant Professor- Sr Gr

Chennai, India

June. 2017 – May. 2019

- Led many student projects on Polymer Composites and Aerodynamics.
- Responsible for conducting mini project challenge to inspire students to do innovative student projects.
- Developed microvascular polymer composites using Resin Film Technique.
- Collaborated with Research and Development Establishment (Engineers), Pune, India in developing Self-Healing Composites.
- Handled subjects like Thermodynamics, Mechanics of Machines, Kinematics of machines, Theory of machines, Airframe Maintenance, Aero Engines.
- Handled Thermodynamics, Aerodynamics and Aircraft systems Laboratory.
- Class advisor for third year students of undergraduate level.

ANNA UNIVERSITY

Research Scholar

Chennai, India

Jan. 2015 – May. 2017

- Fabrication of Polymer Composite using Vacuum Assisted Resin Transfer Molding Technique (VARTM) and Resin Film Infusion (RFI).
- Carried out Electrospinning of PVDF/DMF solution to produce PVDF Nanofibers and characterize it to find its various properties.
- Carried out XRD and SEM analysis of different coatings.
- Studied Advanced Techniques of Material Characterization like FTIR, DSC, DMA, XRD.
- Carried out Tribology testing of Alumina/nanomaterial composite on a pin on disc.
- Carried out various functionalization of CNT.

KCG COLLEGE OF TECHNOLOGY

Assistant Professor

Chennai, India

July 2011 – Dec. 2014

- Led many student projects on Polymer Composites and Aerodynamics.
- Developed Piezo fiber embedded Glass fiber composite to Energy harvesting purposes.
- Handled subjects like Thermodynamics, Mechanics of Machines, Aero Engine and Airframe Maintenance, Fluid Mechanics, Total Quality Management.
- Handled Thermodynamics, Aerodynamics and Aircraft systems Laboratory.

GOJAN SCHOOL OF BUSINESS AND TECHNOLOGY

lecturer

Chennai, India

May 2010 – April. 2011

- Led student projects on Polymer Composites.
- Handled subjects like Heat Transfer, Mechanics of Machines, Fluid Mechanics, Total Quality Management.
- Handled Aircraft systems Laboratory.

Research Experience

Multiscale Mechanics and Nanotechnology Laboratory/**University of Illinois at Chicago**

Chicago, IL

Research Assistant

Sep. 2019 – present

- To predict the effect of the inter-nozzle distance at the nosepiece on the probability of the fiber-fiber touching in flight, especially for small distances.
- To predict the least possible inter-nozzle distance at which losses due to the fiber-fiber touching in flight would be statistically tolerable under given conditions.
- To account for the solidification considerations to elucidate whether the fibers stick when touching each other in flight.
- To model polymer jet solidification and fiber formation under different meltblowing conditions.

- To predict the effect of the inter-nozzle distance on the laydown structure, as well as to predict roping, fly and lint formation.
- To predict the effect of the air flow field attenuation on the delay of the bending instability.
- To validate the numerical results using experimental observations of the degree of roping for a high density die.

Anna University

Chennai, India

Research Scholar

Jan. 2015 – May. 2017

- Fabrication of Polymer Composite using Vacuum Assisted Resin Transfer Molding Technique and Resin Film Infusion.
- Carried out Electrospinning of PVDF/DMF solution to produce PVDF Nanofibers and characterize it to find its various properties.
- Carried out Tribology testing of Alumina/nanomaterial composite on a pin on disc.

Education

Ph.D., Mechanical Engineering | University of Illinois Chicago

expected May. 2023

M.E., Aeronautical Engineering | Hindustan University, India

April. 2010

B.Tech., Mechanical Engineering | University of Kerala, India

May. 2006

Skills and Interests

Computer: Fortran, Matlab, C++, Unigraphics, Catia, Solid works, Microsoft Office.

Technical: DSC, SEM, VARTM, RFI, XRD, Electrospinning, Aircraft system Maintenance.

Languages: English (proficient), Malayalam (native), Hindi (proficient), Tamil (proficient).

Interests and Affiliations: Indian Music, Carnatic Dance, Cricket, Reading political and Economic Books.

Conference Presentations, Trainings and Additional Experiences

- 1 refereed conference presentations at International conference.
- Workshop training on thermodynamics, Dynamic analysis of Composites and Smart materials.
- Served as Coordinator for Mini Project Challenge at KCG College of Technology