

Dr. Vishal Ahlawat

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Mechanical Engineering

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**University Institute of Engineering and Technology
Kurukshetra University, Kurukshetra (Haryana)**



Education

- i Ph.D. in Mechanical Engineering (*Title: Development and Optimization of Asbestos-Free Automotive Brake Friction Composites*), U.I.E.T., Kurukshetra University, Kurukshetra (India), 2020.
- ii M. Tech. (CAD) *with honours* in Mechanical Engineering, Deen Bandhu Chhotu Ram University of Science and Technology (DCRUST), Murthal (Sonapat), 2009.
- iii B.E. *with honours* in Mechanical Engineering, Shri Baba MastNath Engineering College, Maharshi Dayanand University (MDU), Rohtak, 2007.

Work Experience

- i Assistant Professor, Department of Mechanical Engineering, P.D.M. Engineering College, Bahadurgarh (Haryana) *from* 5th September, 2009 to 30th April, 2011.
- ii Assistant Professor, Department of Mechanical Engineering, U.I.E.T., Kurukshetra University, Kurukshetra, 4th May, 2011 to till date.

Courses Delivered

Design of Machine Elements, Industrial Tribology, Mechanics of Solids, Product Design and Development, Advanced Mechanics of Solids, IDEA workshop.

Research

Areas of Research Interest:

Tribology of Composites, Brake Friction Materials, Lubrication and Lubricants, Materials Characterization, Bio-Implant Materials, Optimization Techniques.

Research Publications and Book Chapters (National/International Journals and Proceedings)

<https://scholar.google.com/citations?user=MEwNxAEAAAAJ&hl=en>

Patents Granted and Designs Registered

Patent I

Title: Solar System for Controlling the Moisture in Fruits, Vegetable, Seed

Inventors: Dr. Sunil Nain, Dr.Sanjay Kajal, **Dr. Vishal Ahlawat**, Dr. Anuradha Parinam

Patent Application No/Patent No: 202111010011/377289

Date of Grant: 10.03.2021

Patent II

Title: Eco-Friendly Brake Friction Composite Using Waste Materials and Brake Pad Manufactured Thereof

Inventors: **Dr. Vishal Ahlawat**, Dr Sanjay Kajal, Dr. Sunil Nain, Dr. Parinam Anuradha, Dr Upender Dhull
Patent Application No/Patent No: 202111060446 A/465143
Date of Grant: 02.11.2023

Patent III

Title: Multi-Vegetable Transplanter
Inventors: **Dr. Vishal Ahlawat**, Dr Sanjay Kajal, Dr. Sunil Nain, Dr. Parinam Anuradha, Dr Upender Dhull et al.
Patent Application No/Patent No.: 202311038168/559564
Date of Grant: 04.02.2025

Design-I (Accepted and Registered)

Design Number: 387474-001
Name of Article: Multi-Vegetable Transplanter
Notification Date: 09/02/2024
Class: 15-03-Agricultural and Forestry Machinery

Design-II (Accepted and Registered)

Design Number: 387491-001
Name of Article: Sapling tray of a Multi-Vegetable Transplanter
Notification Date: 26/04/2024
Class: 15-03-Agricultural and Forestry Machinery

Products Developed

- i. Planetary ball milling machine
- ii. Vibratory sieve shaker
- iii. Brake friction materials curing machine
- iv. Eco-friendly, sustainable and cost effective brake pads for off-road vehicle
- v. Design and development of brake pad test rig (*ongoing*)

SAE Student Teams Advisor

- i. Faculty advisor of Team SOWERTACT (Agricultural Implement Design & Development Team) of SAE Collegiate Club UIET, KUK represents UIET KUK in Technology Innovation Forum for Agricultural Nurturing (TIFAN)-National Level Competition.
- ii. Faculty Advisor of Team WOLF (for 4×4 off-road vehicle) of SAE Collegiate Club UIET, KUK represents UIET KUK in BAJA SAEINDIA & ATVC-National Level Competitions.
- iii. Faculty Advisor of Team Aderbolt (designing, building, and testing Uncrewed Aerial Systems (UAS)) of SAE Collegiate Club UIET, KUK represents UIET KUK in Aerothon-National Level Competition.

Awards and Recognitions

- i. Awarded as **Best Faculty Advisor** in the National level Aravalli Terrain Vehicle Championship, INFI LEAGUE MOTORSPORTS held from 20-24 March, 2024.
- ii. Awarded with **Best Researcher Award: Patents** for the year 2025 by Kurukshetra University, Kurukshetra in September 2026.

Reviewer in International Journals/Conferences

- i Polymer Composites-WILEY
- ii Journal of Industrial Textiles-SAGE
- iii Materials Research Express-IOP
- iv Material Science and Engineering Technology-WILEY
- v Journal of Materials Research and Technology-ELSEVIER
- vi Heliyon-Cell Press
- vii FLAME-2018/2020-International Conference
- viii Qeios Publishing house
- ix Journal of Materials Engineering and Performance
- x Plastics, Rubber and Composites

PhD Supervision: 02 (Ongoing)

M. Tech. Dissertations Guided: 26

- i. Ajay Kumar, "Analysis and evaluation of product through design aspects using computational methodologies", 2013.
- ii. Pradeep Kumar, "Optimization of job shop scheduling problem by using genetic algorithm technique", 2014.
- iii. Charan Singh, "Parametric optimization and wear behavior of fiber reinforced polyester composites", 2014.
- iv. Vijay Kumar, "Optimization of performance characteristics in turning EN-16 steel alloy using taguchi approach", 2014.
- v. Aman Beniwal, "Experimental investigation of mechanical properties of kans grass fiber reinforced polyester composites", 2015.
- vi. Pankaj Kumar, "Experimental analysis and evaluation of extreme pressure and anti-frictional properties of engine lubricants", 2015.
- vii. Abhinav Kumar, "Experimental investigation of mechanical properties of walnut shell particles (WNSP) reinforced polyester composites", 2016.
- viii. Malkit Gir, "Experimental study of tribological behavior of kans grass fiber reinforced polyester composites", 2016.
- ix. Manish Kumar, "Experimental analysis of tribological properties of Walnut shell powder (WNSP) reinforced polyester composites", 2017.
- x. Ankit Kumar, "Experimental Investigation of friction and wear characteristics of an eco-friendly saucer shell/grewia optiva brake friction materials", 2017.
- xi. Vishal Sharma, "Analysis of the effect of sliding velocity and walnut shell powder (WNSP) content on tribological properties of polyester composites", 2017.
- xii. Praveen Kumar Tewatia, "Exploring walnut shell powder as friction modifier in brake friction composites", 2019.
- xiii. Arun Kaushik, "Development and performance evaluation of quartz/walnut shell powder based brake friction composites", 2019.
- xiv. Ujjal Jajuha, "Exploring abrasive character of saucer shell powder for brake friction materials application", 2019.
- xv. Rajesh Punia, "Biocompatibility, antimicrobial and mechanical characterization of newly synthesized bio-ceramics", 2019.
- xvi. Ujjwal Yadav, "Tribo-performance assessment of saucer shell powder composite for brake friction materials application," 2020.
- xvii. Utkarsh Godwal, "Multiphase and multiscale numerical modelling of hydrogen porosity during solidification of aluminium alloys at high pressures," 2020.
- xviii. Nikhil Pandita, "Investigation of the effect of white ark shell powder on tribological performance of brake friction composite," 2021.

- xix. Aditya Kumar Sharma, “Investigation of the effect of fly ash particle size on tribo-performance of brake friction composite,” 2021.
- xx. Vivek Chauhan, “Investigation of tensile and tribological properties of rice straw powder reinforced PLA composites,” 2022.
- xxi. Prince, “Analysis of anti-frictional and anti-wear properties of mustard methyl ester (MME)/ Castor Methyl ester (CME) blends,” 2022.
- xxii. Yogesh, “Tribological performance assessment of agro-industrial-sea waste fillers based brake friction composites,” 2023.
- xxiii. Jatin Singal, “Aerodynamic Analysis of Unmanned Aerial Vehicle,” 2023.
- xxiv. Veer Munender Singh, “Effect of Bio-Char on Physico-Mechanical and Tribological Properties of Brake Friction Composites,” 2025.
- xxv. Ravneet Chhokar, “Tribological Performance Assessment of Calcined White Ark Shell Powder based Brake Friction Composites,” 2026.
- xxvi. Prince, “Comparative Tribo-Performance Analysis of Phenolic Friction Composites Cured using different Curing Methods,” 2026.

Professional and Other Memberships

- i. Member, Society of Automotive Engineers, SAEINDIA since 2022
- ii. Faculty Advisor, SAE Collegiate Club, UIET, KUK since 2022.
- iii. Member Secretary, Kurukshetra Community Incubation Centre (KCIC) Society, UIET, KUK since 2022.

Coordinator in Institutional Projects & Committees

- i. Co-coordinator of AICTE funded IDEA Lab (**Total Project Cost: 90 Lakh**)
- ii. Member of Board of Studies (UG/PG), ME Department, UIET, KUK, 2011 onwards.
- iii. Coordinator, Community Incubation Centre (CIC)/start-up cell, UIET, KUK 2023-25, Co-Coordinator 2025 onwards.
- iv. President and Convener, Institution’s Innovation Council (IIC), UIET, KUK 2019-2025, Co-Convener 2025 onwards.
- v. Deputy Coordinator, Kurukshetra University Technology Incubation Centre (KUTIC), KUK since 2025.