**Dr. Vishal Ahlawat**
Assistant Professor,
Mechanical Engineering
**Email:** vahlawat2015@kuk.ac.in
**Contact:** +91-9896580055
**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 (Sonepat), 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.

## Research

## Areas of Research Interest:

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

## Research Publications (National/International Journals and Proceedings)

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

## Book Chapters

Simranjeet Kaur, Anjali Joshi, **Vishal Ahlawat**, Kriti Gupta**,** Carbon nanotubes in agriculture: Revolutionizing crop enhancement through nanotechnology, Carbon Nanotubes in Agriculture: Nanomaterial-Plant Interactions, 2025, Pages 237-266, Academic Press.

**Vishal Ahlawat**, Parinam Anuradha, Sunil Nain, Sanjay Kajal, Praveen Tewatia, Mukesh Kumar, Assessment of Optimum Automotive Brake Friction Formula by Entropy-VIKOR Technique, Multi-Criteria Decision Modelling, 2021, CRC Press.

## 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 in India)

*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 in India)

*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)*

## Advisor in the National Level Competitions

i. Faculty advisor for the design and development of Multi-Vegetable Transplanter in "Technology Innovation Forum for Agricultural Nurturing (TIFAN)-2023 & 2024" SAEINDIA national level competition.
ii. Faculty Advisor for the design and development of 4×4 off-road vehicle of team "WOLF/WOLF-2.0/WOLF-3.0" of SAE Collegiate Club UIET, KUK in BAJA SAEINDIA & ATVC-2024/2025/2026 national level Competitions.

## 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.

## 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: 23

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.

## 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.

## Membership/Coordinator in Institute Committees/Projects

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 2023-24 onwards.
iv. President and Convener, Institution’s Innovation Council (IIC), UIET, KUK 2019-20 onwards.