

## Dr. Mohammad Talha

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**CONTACT** **School of Mechanical and Materials Engineering**

**INFORMATION** Indian Institute of Technology (I.I.T) Mandi  
Mandi, Kamand, Himachal Pradesh, 175 075, India  
Room: A11-04-39, North Campus  
E-mail: talha@iitmandi.ac.in  
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Mobile:+91-9805893924  
Webpage address: <https://www.mohammadtalha.com>

**CURRENT POSITION** **Associate Professor**, I.I.T Mandi, INDIA

**RESEARCH INTERESTS** Computational Solid Mechanics, Functionally Graded Materials and Structures, Composite Structures, Finite Element Method, Uncertainty Quantification in Composites, Porous Structure, Machine Learning in Structural Analysis and Design

**EDUCATION**

**Indian Institute of Technology**, Kharagpur, India

Ph.D., Aerospace Engineering, August 2012

- Thesis Topic: *An improved structural kinematics for nonlinear thermoelastic analysis of functionally graded plates with uncertain material properties*
- Thesis Advisor: Professor B N Singh, Ph.D, FIE

**Aligarh Muslim University**, Aligarh, India

Masters in Mechanical Engineering (Machine design), December 2006

- Thesis Topic: *Earthquake fault dynamics and prediction of large events*
- Thesis Advisor: Professor M F S Baig, Ph.D

**Aligarh Muslim University**, Aligarh, India

Bachelors in Mechanical Engineering, July 2003

**EXPERIENCE** **Associate Professor** March 2020 to Present

School of Mechanical and Materials Engineering,  
Indian Institute of Technology Mandi, India

**Visiting Guest Researcher** October 2022 to December 2022

Universit Technologie Belfort-Montbéliard, 90010 Belfort Cedex, France

**Guest Lecturer** 01 - 15 July 2023

School of Mechano-Electronic Engineering, Xidian University, China

**Assistant Professor** December 2013 to March 2020

School of Engineering,  
Indian Institute of Technology Mandi, India

**Assistant Professor** September 2012 to December 2013

International Institute for Aerospace Engineering and Management,  
Jain University, Bangalore, 562 112, India

**Teaching Assistant** Spring and Autumn Semester 2009 & 2010

Indian Institute of Technology Kharagpur, 721 302, India

**Assistant Professor**

February 2007 to January 2008

Maulana Azad College of Engineering and Technology  
Patna, 801 113, India

## AWARDS

- Featured among the **Top 2%** Scientists and Researchers of the World for the year 2022 – a joint exercise published by Stanford University and Elsevier.
- Received Best Paper award in the International Conference on Thermo-Fluids and System Design (ICTFSD 2022) held in Birla Institute of Technology, Mesra, Ranchi Jharkhand, India during March 22-23, 2022, The paper "Effect of graphene platelets reinforcement on vibration behavior of functionally graded porous arches under thermal environment".
- Received Best Paper award in the 3rd Asian Joint Symposium on Aerospace Engineering 2018 (AJSAE 2018) held in Gyeong-Ju, Korea during October 31 – November 3, 2018, hosted by The Society for Aerospace System Engineering (SASE), South Korea. The paper "Influence of microstructural defects on free vibration response of electrically actuated functionally graded panels".
- Received Best Paper award in the Recent Advances in Mechanical Engineering (International Conference) held in Delhi Technological University, Delhi, India, during October 14-15, 2016. The paper "Vibration response of finite element modeled FGM plate in thermal environment".
- Received Best Paper award in the 1st National Conference on Advances in Mechanical Engineering (NCAME) held in National Institute of Technology Delhi, India, during 16 March, 2019. The paper "Finite element modeling and analysis of coronary artery wall with plaque".
- Biography appeared in the 30th Pearl Anniversary Edition "Marquis Who's Who in the World 2013", USA, (2013).
- Recipient of International travel support through Ministry of Science and Technology, Department of Science and Technology, Govt. of India to Attend "The ASME 2011: Applied Mechanics and Materials Conference", May 30 - June 01, 2011, Chicago, IL, USA, (2011).
- Received the partial financial assistance through Indian Institute of Technology Kharagpur to Attend "The ASME 2011: Applied Mechanics and Materials Conference", May 30 - June 01, 2011, Chicago, IL, USA, (2011).
- Received certificate of participation for competing in the "Mahindra Satyam Aerospace Young Engineer Awards 2010", organised by Mahindra Satyam Integrated Engineering Solutions, Bangalore, INDIA, (2010).
- Best paper presentation award at Research Scholar Day Celebration (RSD-2010), at the Department of Aerospace Engineering, IIT Kharagpur. INDIA, (2010).
- National Doctoral Fellowship, at IIT Kharagpur, (April 2009 - March 2012)  
(Prestigious high value fellowship given to only 50 Ph.D candidates throughout the country annually by the All India Council for Technical Education (A.I.C.T.E), New Delhi, Government of INDIA)
- *Engineering design improvisation of packaging material leading to market friendly prototypes that retains fruit quality*, Himachal Pradesh state agricultural marketing board (HPSAMB), (Ongoing)

SPONSORED  
RESEARCH  
PROJECT

My role: **PI** from Engineering side, and Dr. Shayam Masakapalli (PI) from Biology side.

Phase I: 17,88,000/-, April 2021 to November 2022

Phase II: 30,00,000/-, Principally approved (July 2023 onwards)

- *Imperfection sensitivity analysis of graded structures featuring parameter uncertainties*” Aeronautics Research & Development Board, DRDO, Govt. of India, 21.12.2016 to 20.12.2018. (Completed)  
My role: **PI**  
Amount: 10,14,000/-
- *Nonlinear thermo-electro-elasticity analysis of geometrically imperfect functionally graded curved panels with material uncertainties*, Start Up Research Grant (Young Scientists) under SERB-DST, Govt of India, 01.08.2016 to 31.07.2019, (Completed)  
My role: **PI**  
Amount: 14,85,000/-
- *Non-linear shape & vibration control of functional graded structure using functional graded piezo-electric sectors and actuators*, Aeronautics Research & Development Board, DRDO, Govt. of India, 21.08.2017 to 20.08.2020, (Completed)  
My role: **Co-PI**  
Amount: 18,03,000/-
- *Determination of Mechanical and Biological Properties of Osteoporotic Bone for Indian Patients*, Under IIT Mandi-IIT Ropar-PGI Chandigarh consortium, 18.05.2016 to 17.05.2018 (Completed)  
My role: **Co-PI**  
Amount: 8,00,000/-
- *Investigation of phase change nanocomposite for high strain rate resistant armor application*” Terminal Ballistics Research Laboratory, DRDO, Govt. of India, 31.01.2017 to 30.04.2020 (Completed)  
My role: **Co-PI**  
Amount: 27,48,226
- *Development, Characterisations and Mathematical Modelling of Microwave Cured Porous Composites for Biomedical Applications*” IIT MANDI SEED GRANT, 27.03.2017 to 26.03.2020 (Completed)  
My role: **Co-PI**  
Amount: 14,50,000

- **Project Under Review**

*Artificial Intelligence Enabled Geometrically Nonlinear Analysis of Graphene Reinforced Functionally Graded Auxetic Metamaterial Panels*, Aeronautics Research & Development Board, DRDO, Govt. of India

My role: **PI**

Amount: 40,00,000

- **Project Under development phase**

- *Design and development of functionally graded biomaterials scaffold for skin wound.*

CEFIPRA under the Collaborative Scientific Research Programme (CSRFP).

Ref No.: 7000-B-E

**PI (India) Dr. Mohammad Talha**

PI (France) Prof. David Bassir UTBM, France  
JC (India) Prof. Debrupa Lahiri, IIT Roorkee

Budget Indian Side: Rs. 84,27,946.00

Budget French Side: Euros 93241.00

First round accepted.

Second round it didn't go through.

It will be submitted again after few modifications in the coming call.

- *Performance Simulation of Functionally Graded Rotating Blades Reinforced with Graphene Platelets for Hydropower Turbine Applications*

Submitted to SJVN Ltd. (Satluj Jal Vidyut Nigam Ltd. )

Under Review

My role: **PI**

Amount: Approx 40,00,000/-

- *Machine Learning Aided Structural Response of Graphene Reinforced Functionally Graded Metallic Porous Panels for defense applications*

Under discussion with DMRL

My role: **PI**

Amount: Approx 80,00,000/-

#### ADVISING ACTIVITIES

- **Faculty advisor**, M. Tech Energy Systems of 2021 batch, IIT Mandi
- **Faculty advisor**, M. Tech Energy Systems of 2017 batch, IIT Mandi
- **Faculty advisor**, B. Tech Mechanical Engineering of 2013 batch, IIT Mandi
- **Faculty advisor**, VI Semester B.E. students at International Institute for Aerospace Engineering and Management, Jain University, Bangalore, India, for session 2013-14

#### PHD GUIDANCE

##### Completed 05, Ongoing 02

- **Dr. Ankit Gupta**, Completed in 2018  
Thesis Topic: *Development of nonpolynomial based kinematics for high technology materials*  
Presently: Assistant Professor, Mechanical Engineering, Shiv Nadar Univ., Noida, INDIA  
My role: Thesis Guide
- **Dr. Nidhi Barnwal**, Completed in 2018  
Thesis Topic: *Infrared Signature Studies of Aircraft*  
Presently: Assistant Professor, Mechanical Engineering, NIT Calicut, INDIA  
My role: Thesis Co-Guide  
Prof. S P Mahulikar, Aerospace Engineering, IIT Bombay (Guide)
- **Dr. Mohammad Amir**, Completed in 2020  
Thesis Topic: *Nonlinear thermo-electro-elasticity analysis of geometrically imperfect functionally graded curved panels with material uncertainties*  
Presently: Research Professor, Research Institute for Aerospace Engineering and Technology, Korea Aerospace University, South Korea  
My role: Thesis Guide

- **Dr. Saurav Sharma**, Completed in 2021  
Thesis Topic: *Isogeometric Analysis of Flexoelectricity in Functionally Graded Structures*  
Presently: Alexander von Humboldt Postdoc Fellow at Bauhaus Universtiy Weimar  
My role: Thesis Co-Guide  
Prof. Rajeev Kumar, SMME, IIT Mandi (Guide)
- **Dr. Ahmad Raza**, Completed in 2023  
Thesis Topic: *Free Vibration Analysis of Cracked Functionally Graded Plates: Deterministic and Stochastic Approach*  
Presently: Research Professor, Research Institute for Aerospace Engineering and Technology, Korea Aerospace University, South Korea  
My role: Thesis Co-Guide  
Dr. Himanshu Pathak, SMME, IIT Mandi (Guide)
- **Mr. Vikram singh Chandel**, Ongoing  
Thesis Topic: *Analysis of Nanocomposite beams*  
My role: Thesis Guide
- **Mr. M. Shakir**, Ongoing  
Thesis Topic: *Analysis of Graphene Reinforced Functionally Graded Strucutres*  
My role: Thesis Guide

MS (BY  
RESEARCH)  
GUIDANCE

#### Completed 04

- **Mr. Vishrut Shah**, Completed in 2016  
Thesis Topic: *Numerical and experimental study of bistable piezoelectric energy harvester*  
Completed PhD from Queens University, Canada  
Presently: Management Consultant, Business & Digital Strategy  
My role: Thesis Guide  
Prof. Rajeev Kumar, SMME, IIT Mandi (Co-Guide)
- **Mr. Sanjay Singh Tomar**, Completed in 2018  
Thesis Topic: *Nonlinear strucutral response of geometrically imperfect skewed sandwich FGM plates with material uncertainties*  
Presently: Pursuing PhD from Aerospace Engineering, IIT Kanpur  
My role: Thesis Guide
- **Mr. Kamalpreet Singh** , Completed in 2018  
Thesis Topic: *Influence of Poling Orientation on Piezoelectric Characteristics for Sensing, Actuation, and Vibration Control*  
Presently: Pursuing PhD from University of Bath  
My role: Thesis Co-Guide  
Prof. Rajeev Kumar, SMME, IIT Mandi, Thesis Guide
- **Mr. Fahed Mohd** , Completed in 2022  
Thesis Topic: *Nonlinear behaviour and stability of graphene reinforced functionally graded porous structures: A deterministic and stochastic study*  
Presently: Enrolled in PhD at Applied Mechanics, IIT Delhi for a short period of time.  
Received offer for PhD in Mechanical Engineering at the University of Nottingham, UK. Likely to join by September 2023  
My role: Thesis Guide

**Completed 12, Ongoing 01**

**Completed 12, Ongoing 01**

- **Mr. Md. Adil**, ongoing 2023  
Thesis Topic: *To be decided*  
My role: Thesis Guide
  
- **Mr. Smit Mahendra Kansagara**, Completed in 2023  
Thesis Topic: *Experimental Study and Analysis of Torsional Vibrations in Transmission System*  
Received one year Internship at TATA Motors, Pune  
Presently: Received Job offer Tata Motors Limited, Pune  
My role: Thesis Guide  
Mr. Hiralkumar Patel (Thesis Guide), Deputy General Manager, ERC Transmission Development, Tata Motors Limited, Pune
  
- **Mr. Prasant Sharma**, Completed in 2023  
Thesis Topic: *Simulation of Electrical Vehicle & Performance Analysis using Global Simulation Platform*  
Received one year Internship at Volvo Group India Pvt Ltd, Bangalore  
Presently: Received Job offer from Volvo Group India Pvt Ltd, Bangalore  
My role: Thesis Guide  
Mr. Madhukar.(Thesis Guide), Volvo Group India Pvt Ltd, Bangalore
  
- **Mr. Udatha Ram Sai Rohith**, Completed in 2023  
Thesis Topic: *Analysis of Air-Cooling Battery Thermal Management System of Battery Pack Module in Electric Vehicle*  
Presently: Received Job offer from Software Company  
My role: Thesis Guide  
Dr. Narsa Reddy Tummuru (Thesis Co-Guide), SCEE, IIT Mandi
  
- **Mr. Vaibhav Bhardwaj**, Ongoing 2023  
Thesis Topic: *Analysis & Review of Air-Cooling Battery Thermal Management System of Battery Pack Module in Electric Vehicle*  
Presently: Received Job offer from Software Company  
My role: Thesis Guide  
Dr. Sunny Zafar (Thesis Co-Guide), SMME, IIT Mandi
  
- **Mr. Vinay Kumar**, Completed in 2022  
Thesis Topic: *Ballistic Performance of Composite Armour using Finite Element Method*  
Presently: Received Job offer from Software Company  
My role: Thesis Guide
  
- **Mr. Parvez Khan**, Completed in 2021  
Thesis Topic: *Influence of Hygrothermal Environment on Free Vibration Behaviour of Functionally Graded Beams by Employing Various Theories*  
Presently: Pursuing PhD in Civil Engineering, IIT Roorkee  
My role: Thesis Co-Guide  
Prof. (Emiretus) Tarun Kant, Thesis Guide
  
- **Mr. Rahul Singh**, Completed in 2020  
Thesis Topic: *Vibration Isolation in Machine Elements using Bio-inspired Structure (Jackhammer)*  
Presently: Presently working in ADA Bangalore

My role: Thesis Guide

- **Mr. Shailendra Kumar Singh**, Completed in 2020  
Thesis Topic: *Finite Element Analysis OF Isotropic and Composite Plates under Blast Loading*  
Presently: Project Associate-II at Central Building Research Institute Roorkee  
My role: Thesis Guide
- **Mr. Karanveer Singh**, Completed in 2019  
Thesis Topic: *Modal And Flexural Analysis of Smart Square FGM Plates*  
Presently: Govt. job in Punjab Government  
My role: Thesis Guide
- **Mr. Aayush Trivedi**, Completed in 2019  
Thesis Topic: *Modal And Flexural Analysis of Smart Square FGM Plates*  
Presently: Pursuing PhD in Mechanical Engineering, IIT Bombay  
Selected for DAAD fellowship for a period of 7 months from 1st Sept 2018 to 31st March 2019. He has worked with Prof. Wolfgang Seemann, KIT Germany.  
My role: Thesis Guide  
Prof. Wolfgang Seemann, KIT Germany. (Thesis Guide)
- **Ms. Ambily Ajaykumar**, Completed in 2014  
Thesis Topic: *Vibration analysis of gradient plates with initial geometric imperfections*  
My role: Thesis Guide  
Institute: International Institute for Aerospace Engineering and Mangement, Jain University, Bangalore
- **Mr. Neela Kshamith**, Completed in 2014  
Thesis Topic: *Vibration characteristics and imperfection sensitivity of laminated composite plates*  
My role: Thesis Guide  
Institute: International Institute for Aerospace Engineering and Mangement, Jain University, Bangalore
- **Mr. Sandeep Reddy L**, Completed in 2014  
Thesis Topic: *Effect of thermal environment on vibration response of functionally graded material plates*  
My role: Thesis Guide  
Institute: International Institute for Aerospace Engineering and Mangement, Jain University, Bangalore
- **Neelotpal Dutta (B16106) & Garvit Mathur (B16096)**, Completed in 2020  
Thesis Topic: *Modelling and design of a system to simulate the systemic arterial load using a windkessel model*  
Presently: Neelotpal Dutta, PhD student at University of Manchester  
Garvit Mathur, Software engineer at Lloyds Banking Group, London  
My role: Thesis Guide

B. TECH.  
GUIDANCE

- Mr. Neelotpal Dutta received President of India Gold Medal, and Institute Silver medal in Convocation 2020. Mr Neelotpal and Garvit joined my research group since his 2nd Yr. B.Tech.
- Their work has been accepted for oral presentation in 1st National Conference on Advances in Mechanical Engineering - 2019 at NIT Delhi, on dated 16 March 2019.

- **Pradeep Kumar (B15326) & Wasim Salih (B15342)**, Completed in 2020  
Thesis Topic: *Finite element modelling of coronary artery wall with plaque*  
Presently: Pradeep Kumar, Preparing for UPSC  
Wasim Salih, Pursuing Masters at IIT Bombay - M.Des Industrial Design  
My role: Thesis Guide
  - Their work has been accepted for oral presentation in 1st National Conference on Advances in Mechanical Engineering - 2019 at NIT Delhi, on dated 16 March 2019.
  - Received Best Paper Award in the Conference.
  - One Journal Paper has been accepted from this work in Advanced Science Letters, American Scientific Publishers, USA
- **Shailendra Meena (B13331) & Gajendra Prajapati (B13308)**, Completed in 2017  
Thesis Topic: *Influence of different neck morphologies on dental Implant – 3D FEM Analysis*  
Presently:Gajendra Prajapati, Working as a senior software developer  
My role: Thesis Guide
- **Mothi Kailash & Akash Kumar** , Completed in 2017  
Thesis Topic: *Prediction of kidney failure using machine learning technique*  
Presently: Mothi Kailash, Product Manager Copart, Dallas, Texas, United States  
My role: Thesis Guide
- **Lalit Skhaywal (B13313) & Subhankar Das (B13335)**, Completed in 2017  
Thesis Topic: *Nonlinear analysis of FGM plates*  
Presently:Lalit Skhaywal, Scientist, RCI (DRDO), Hyderabad  
My role: Thesis Guide

TALK  
DELIVERED

- “*Graphene Reinforced Functionally Graded Porous Panels for Engineering Applications*”, at the **Universit Technologie Belfort-Montbeliard, 90010 Belfort Cedex, France**, 14 December 2022.
- “*Mathematical Modelling and Analysis of Functionally Graded Porous Panels*”, at the **Laboratory Soete, Faculty of Engineering and Architecture, Ghent University, Belgium**, 19 December 2022.
- “*Thermo-elastic Modelling and Analysis of Imperfection Sensitive Higher Order Functionally Graded Sandwich Plates*”, at the **Department of Aerospace Engineering, Pusan National University, Busan, South Korea**, October 30, 2018.
- “*Functionally Graded Materials: Modelling & Applications*”, at the **Surendera group of Institutions, Sriganaganagar, India, sponsored by TEQIP-III under Rajasthan Technical University, Kota**, March 09, 2018.
- “*Role of Modelling and Simulation in Product Development*”, at the **Department of Mechanical Engineering, Jamia Millia Islamia, New Delhi, India**, October 23, 2019.
- “*Design and Analysis of High Technology Materials for Aerospace and Orthopaedics Applications*”, at the **Department of Mechanical Engineering, Moradabad Institute of Technology, Moradabad, India**, August 16, 2018.
- “*Nonlinear Analysis of Finite Element Modeled Functionally Graded Plate Structures*”, at the **Department of Aerospace Engineering and Mechanics, University**

of Alabama, Tuscaloosa, USA, June 2, 2011.

- “*Nonlinear Thermo-elastic Bending Analysis of Functionally Graded Plate Structures*”, during Diamond Jubilee Celebration at the **Department of Aerospace Engineering, IIT Kharagpur, India**, October 28, 2011.
- “*Modelling of graded plates with material uncertainties*”, at the **Institute of Engineering Mechanics, Karlsruhe Institute of Technology, Karlsruhe, Germany**, December 12, 2016.
- “*Product Development Through Modelling and Simulations Approach*”, at the **Department of Mechanical Engineering, Chandigarh University, Chandigarh, India**, October 15, 2019.
- “*Product realization - Concept to Design*”, at the **Department of Mechanical Engineering, Moradabad Institute of Technology, Moradabad, India**, February 2, 2016.
- “*Influence of imperfection sensitivity on functionally graded sandwich structures*”, at the **Dept. of Mechanical Engineering, SECAB Institute of Engg & Technology 424, Nauraspur, Bagalkot road, Bijapur 586101, India**, November 27, 2017.
- “*Role of composite materials in modern orthopaedic medicine*”, at the **Dept. of Mechanical Engineering, SECAB Institute of Engg & Technology 424, Nauraspur, Bagalkot road, Bijapur 586101, India**, November 27, 2017.

CONFERENCE  
ORGANIZER

- **Joint Organizing Secretary**, 4th International and 19th National Conference on Machines and Mechanisms (iNaCoMM 2019), IIT Mandi, India, Dec. 5-7, 2019
- **Technical program manager**, during 5<sup>th</sup> International Conference on Theoretical, Applied, Computational and Experimental Mechanics, (ICTACEM 2010) at the Department of Aerospace Engineering, IIT Kharagpur, India, Dec. 27-29, 2010
- **Technical Committee member** in the National Conference on Multidisciplinary Design, Analysis, and Optimization, IISc Bangalore, 23-24 March, 2018.
- **International Steering Committee Member**, Joint Conference of APCATS, AJSAE & AAME 2023, JEJU Boo-Young Hotel & Resort, Jeju Island, Republic of Korea, October 11-14, 2023.

KEYNOTE  
SPEAKER

The 3rd Asian Joint Symposium on Aerospace Engineering 2018 (AJSAE 2018) held in Gyeong-Ju, Korea during October 31-November 3, 2018, hosted by The Society for Aerospace System Engineering (SASE), South Korea.

SESSION  
CHAIRMAN

- 4th International and 19th National Conference on Machines and Mechanisms (iNaCoMM 2019), IIT Mandi, India, Dec. 5-7, 2019.
- 7th International Congress on Computational Mechanics and Simulation (ICCMS 2019), IIT Mandi, India, Dec. 11-13, 2019.
- 27th Annual International Conference on Composites/Nano Engineering (ICCE27), University of Granada, Spain, July 14 - 20, 2019.

- EDITORIAL BOARD MEMBER
- Nanotechnology Reviews: De Gruyter
- ASSOCIATE EDITOR
- International Journal for Simulation and Multidisciplinary Design Optimization (IJSMDO):EDP Sciences
- REVIEWER
- Composites part B: Engineering
  - Composite Structures
  - Mechanics of Advanced materials and Structures
  - International Journal of Applied Mechanics
  - SoftwareX
  - Applied Mathematical Modelling
  - Composites Science and Technology
- MEMBERSHIP
- Member, ASME,USA
  - Member, Institution of Engineers, India
- STC ORGANIZED
- Coordinator** Short Term Course on Modelling and Simulation of Engineering Systems, IIT Mandi, 31 Jan-04 February 2022
- BOOK CHAPTER
1. Vinay Kumar, Mohammad Talha: Influence of Various Geometric Parameters on Sandwich Panel Under Ballistic Impact Using Finite Element Approach, Recent Advances in Manufacturing and Thermal Engineering: Select Proceedings of RAMMTE 2022, Pages 421-438, Publisher: Springer Nature Singapore.
  2. Mohammad Amir, Mohammad Talha: Free Vibration Analysis of the Functionally Graded Porous Circular Arches in the Thermal Environment: Recent Advances in Theoretical, Applied, Computational and Experimental Mechanics, Lecture Notes in Mechanical Engineering, Springer, 2020.
  3. Ankit Gupta, Mohammad Talha: Advances in Fabrication of Functionally Graded Materials: Modeling and Analysis. Manufacturing Techniques for Materials: Engineering and Engineered, Taylor & Francis, CRC Press, 2018.
- REFEREED JOURNAL PUBLICATIONS
1. Shakir, M., **Talha, M.**, Dileep, A.D., “Machine learning based probabilistic model for free vibration analysis of functionally graded graphene nanoplatelets reinforced porous plates” *Mechanics of Advanced Materials and Structures*, DOI: 10.1080/15376494.2023.2225051, 2023
  2. Raza, A., Pathak, H., **Talha, M.**, “Free flexural vibration of cracked composite laminated plate using higher-order XFEM” *Engineering Fracture Mechanics*, 109420, 2023
  3. Amir, M., Kim, SW., **Talha, M.**, “Uncertain Eigenvalue Analysis for Graded Porous and Sandwich Arches by Employing Perturbation-Based Stochastic Finite Element Approach” *Journal of Vibration Engineering & Technologies*, 1-20, 2023
  4. Chandel, VS., **Talha, M.**, “Vibration analysis of functionally graded porous nano-beams: A comparison study”, *Materials Today: Proceedings*, 2023, <https://doi.org/10.1016/j.matpr.2023.03.703>
  5. Shakir M, **Talha, M.**, ‘Dynamic investigation of GnP reinforced FG-porous sandwich skewed plates under blast impact considering elastic foundation.’ *Journal of Mechanical Science and Technology* (2023) Accepted.
  6. Singh, K., Sharma, S., Kumar, R., **Talha, M.**, “Vibration control of cantilever beam using poling tuned piezoelectric actuator”, *Mechanics Based Design of Structures and Machines*, 51 (4), 2217-2240, 2023

7. Fahed, M. ,**Talha, M.**, Influence of material uncertainties on thermo-elastic vibration characteristics of graphene reinforced functionally graded porous beams, *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*. 2023;0(0). doi:10.1177/09544062221146667
8. Fahed, M. ,**Talha, M.**, Influence of material uncertainties on thermo-mechanical postbuckling behaviour of graphene reinforced functionally graded porous beams, *Acta Mechanica Sinica*, Accepted, 2023
9. Shakir, M., **Talha, M.**, Hui, D., Gao, W., On the large amplitude vibration of shallow sandwich shells with FG-GNPRP core considering initial geometric imperfections, *Journal of Sandwich Structures & Materials*. 2023;25(4):403-425.
10. Fahed, M. ,**Talha, M.**, Influence of temperature variations on large amplitude vibrations of functionally graded metallic foam arches reinforced with graphene platelets, *Acta Mechanica* (2022). doi:10.1007/s00707-022-03398-x
11. Chandel, VS., **Talha, M.**, On uncertainty modeling of thermoelastic vibration for porous nanosandwich beams with gradient core based on nonlocal higher order beam model, *Waves in Random and Complex Media*, 1-31, 2022
12. Amir, M., Kim, SW., **Talha, M.**, On the stochastic vibration analysis of the geometrically nonlinear graded cellular curved panels with material stochasticity, *International Journal of Pressure Vessels and Piping* 199, 104768,2 022
13. Amir, M., Kim, SW., **Talha, M.**, Comparative study of different porosity models for the nonlinear free vibration analysis of the functionally graded cylindrical panels, *Mechanics Based Design of Structures and Machines*, 1-27, 2022
14. Shakir, M., **Talha, M.**, Influence of material uncertainty on higher-order FG-GPLs reinforced porous spherical panels under blast loading, *Thin-Walled Structures* 176, 109319 , 2022
15. Chandel, VS., **Talha, M.**, Stochastic thermo-elastic vibration characteristics of functionally graded porous nano-beams using first-order perturbation-based nonlocal finite element model, *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering*, 2022
16. Raza, A., Pathak, H., **Talha, M.**, Computational investigation of porosity effect on free vibration of cracked functionally graded plates using XFEM, *Materials Today: Proceedings*, 2022
17. Raza, A., Pathak, H., **Talha, M.**, Influence of microstructural defects on free flexural vibration of cracked functionally graded plates in thermal medium using XFEM, *Mechanics Based Design of Structures and Machines*, 1-24, 2022
18. Mohd, F., **Talha, M.**, Effect of graphene platelets reinforcement on vibration behavior of functionally graded porous arches under thermal environment, *Materials Today: Proceedings*, 2022
19. Shakir, M., **Talha, M.**, Transient response of GPLs reinforced FG-porous skewed plates subjected to blast loading, *Materials Today: Proceedings* 2022
20. Shakir, M., **Talha, M.**, “Influence of Material Stochasticity on Buckling Characteristics of Initially Imperfect Higher-Order Shear Deformable Gradient Plates”, *International Journal of Structural Stability and Dynamics*, 21 (01), 2150004 (2021)
21. Sharma, S., Kumar, R., **Talha, M.**, and Vaish, R.,. “poling of functionally graded ferroelectric materials *Advanced Theory and Simulations*, 4 (1), 2000158, (2021)
22. Sharma, S., Kumar, R., **Talha, M.**, and Vaish, R.,. “Strategies to instigate superior electromechanical response in dielectric materials via converse flexoelectricity”, *Extreme Mechanics Letters*, 42, 101138, (2021)
23. Sharma, S., Kumar, R., **Talha, M.**, and Vaish, R.,. “Design of spatially varying electrical poling for enhanced piezoelectricity in Pb (Mg 1/3 Nb 2/3) O3?0.35PbTiO3”, *International Journal of Mechanics and Materials in Design*, 17 (1), 99-118, (2021)
24. Singh, K., Sharma, S., **Talha, M.**, and Kumar, R.,. “A 3-Dimensional Approach for Evaluating the Influence of Poling Orientation on Piezoelectric Characteristics”, *Journal of Electronic Materials*, 50 (10), 5846-5856, (2021)

25. Raza, A., **Talha, M.**, Pathak, H., “Influence of Material Uncertainty on Vibration Characteristics of Higher-Order Cracked Functionally Gradient Plates Using XFEM”, *International Journal of Applied Mechanics*, 13 (05), 2150062, (2020)
26. Raza, A., Pathak, H. and **Talha, M.**, “Stochastic extended finite element implementation for natural frequency of cracked functionally gradient and bi-material structures”, *International Journal of Structural Stability and Dynamics*, 21 (03), 2150044, (2020)
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2. Shakir M, **Talha, M.**, and Dileep AD., Artificial neural network based frequency predictions of FG-GPL reinforced porous plates. 8th International Conference on Computational Mechanics and Simulation, IIT Indore, 09-11 December 2022.
3. Shakir M, **Talha, M.**, Thermally induced natural vibration of FG-porous plates reinforced with graphene nanoplatelets. National Convention of Aerospace Engineers and National Conference on Smart Materials and Their Applications in Aerospace Industries, PEC Chandigarh, 25-26 November 2022.
4. Chandel,V.S. and **Talha, M.**, Nonlocal stochastic bending response of porous gradient nanobeams using first order perturbation theory, 20th ISME Conference on Advances in Mechanical Engineering, IIT Ropar, 19-21 May 2022.

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9. Shakir M, **Talha, M.**, Transient analysis of graphene reinforced FG-porous sandwich plates subjected to underwater blast. 67th Congress of the Indian Society of Theoretical and Applied Mechanics (ISTAM), IIT Mandi, 14-16 December 2022.
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31. Amir, M. and **Talha, M.**, Imperfection Sensitivity Analysis of Functionally Graded Circular Arches in Thermal Environment, *NC-MDAO-2018, National Conference on Multidisciplinary Design, Analysis, and Optimization, Indian Institute of Science, Bengaluru, India , 22-23 March, 2018*
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COURSES  
TAUGHT

In teaching the courses I try to inculcate two aspects:

- a) Simulation Based Teaching: Introduce and explains the importance of simulation in solving the problem
- b) Research Based Teaching: I give research papers related to the course to the students, and they give presentations. Students like this approach very much, because they get an essence to relate the course with the research.

The courses I taught at IIT Mandi:

- ME620 Modelling and Simulation Feb-June 2023
- ME632 Mechanics for Energy System Aug-Dec 2022
- ME620 Modelling and Simulation Feb-June 2022
- ME632 Mechanics for Energy System Aug-Dec 2021
- ME620 Modelling and Simulation Feb-June 2021
- ME632 Mechanics for Energy System Aug-Dec 2020
- IC141P PRT Lab II Sem, Feb-June 2019
- IC201P Design Practicum IV Sem, Feb-June 2019

- ME355 I C Engine VI Sem, Feb-June 2019
- ME311P Design Lab I V Sem, Aug-Dec 2018
- ME205 Machine Drawing III Sem, Aug-Dec 2018
- IC141P PRT Lab II Sem, Feb-June 2018
- IC201P Design Practicum IV Sem, Feb-June 2018
- ME355 I C Engine VI Sem, Feb-June 2018
- ME311P Design Lab I V Sem, Aug-Dec 2017
- ME205 Machine Drawing III Sem, Aug-Dec 2017
- IC141P PRT Lab II Sem, Feb-June 2017
- IC201P Design Practicum IV Sem, Feb-June 2017
- ME312P Design Lab II VII Sem, Feb-June 2017
- ME206 Solid Mechanics V Sem, Aug-Dec 2016
- ME311P Design Lab I V Sem, Aug-Dec 2016
- ME352 Finite Element Method in Engineering 2016
- IC141 Product Realization Technology II/2014 & 2015
- ME206 Mechanics of Solids 2014 & 2015

INSTITUTE  
VISITED

- Department of Mechanical Engineering, Universit Technologie Belfort–Montbeliard, 90010 Belfort Cedex, France, Oct-Dec, 2022
- Laboratory Soete, Faculty of Engineering and Architecture, Ghent University, Belgium, December 2022
- Department of Mechanical Engineering, Prince Muhammad bin Fahd University, Dammam, KSA, March 2023
- Department of Mechanical Engineering, University of Granada, Spain, July 2019
- Department of Aerospace Engineering and Mechanics, University of Alabama, Tuscaloosa, USA, June 2011
- Institute of Engineering Mechanics, Karlsruhe Institute of Technology, Karlsruhe, Germany, December 2016
- Department of Aerospace Engineering, Pusan National University, Busan, South Korea, October 2018
- Dhaka University, Bangladesh, April 2018
- Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, April 2018

ADMIN.  
EXPERIENCE,  
IIT MANDI

- Member IT Committee, April 2023 to present
- Chair, purchase committee, IT committee April 2023 to present
- Coordinator, OAS (ERP system) 2022-2023
- Co-Coordinator, OAS (ERP system) 2021-2022
- Warden, Suvalsar Hostel, Nov. 2019 to Present
- Chair, Hostel purchase committee, Nov. 2019 to Present
- Co-coordinator, IIT Mandi Convocation 2020 (online mode)
- Joint Organizing Secretary: 4th International and 19th National Conference on Machines and Mechanisms (iNaCoMM 2019), held at IIT Mandi during 5-7 December 2019.
- Chair, CCM for 3 and 4th yr core and elective EE courses, October 2018 to Present
- Chair, Academic Promotion Committee, Sep. 2020 to 2021
- Co-coordinator, Institute Colloquia Committee, Nov. 2019 to 2020
- Member, Design and Innovation center (DIC): June 2015 to 2021
- Member, CEC committee, Sep. 2020 to 2022
- Member, M.Tech, MS & PhD admission committee, Sep. 2020 to 2021
- Mechanical Workshop Coordinator: From 2018 to 2020
- Member: Advisory Board, Health Services from 2019 to 2021
- Member, Board of Academics (BoA), August 2014 - 2016
- Faculty advisor, M. Tech Energy Systems of 2017 batch
- Faculty advisor, M. Tech Energy Systems of 2021 batch
- Faculty advisor, B. Tech Mechanical Engineering of 2013 batch

REFERENCES

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