# **Curriculum Vitae**

Prof. (Dr.) Ashish Arora Director, Amritsar Campus, IKG Punjab Technical University. Head, Department of Mathematical Sciences. IKG Punjab Technical University, Kapurthala.

### • Academic Qualification

Obtained M.Sc. in Mathematics from GNDU, Amritsar. Qualified CSIR-NET examination in December 2001, and Obtained Ph. D. in the field of Applied Mathematics from the Centre for Advanced Studies in Mathematics, Panjab University, Chandigarh. During Ph. D. studied the behaviour of seismic waves in the porous media saturated by two immiscible fluids. This study is a specialized branch of Mechanics with varied applications in fields like petroleum engineering, exploration geophysics and acoustics. The research work of Ph. D was published in the form of research articles in various international journals of repute.

Presently, pursuing research in the field of Applied Mathematics, Ethnomathematics and History of Mathematics.

### • Teaching Experience

Started teaching career at GNDU, Amritsar in the year 2000. In 2006 joined as an Assistant Professor at Kanya Maha Vidyalaya (KMV), Jalandhar. Served at KMV for consecutive four years and taught pure and applied Mathematics to students pursuing Post Graduation in Mathematics. Joined Punjab Technical University, Kapurthala as Assistant Professor in the year 2010. Presently, working as Professor at the department of Mathematical Sciences, I. K. Gujral Punjab Technical University. During all these teaching years, taught Mechanics, Numerical Analysis, Topology and Engineering Mathematics to undergraduate and post graduate students. Presently heading the department of Mathematics at IKG PTU and Director of the Amritsar Campus of the University.

### • Research and Research Projects

Supervised three Ph. D. and four M.Phill students. Presently pursuing research in the field of Continuum Mechanics. Also working on Ancient Indian Mathematical texts like Sulba Sutra, Lelavati, Sidhant Shiromani, and History of Indian Mathematics

Worked as Principal Investigator of the following Projects assigned by Department of Science and Technology (DST), Government of India, Council of Scientific and Industrial Research (CSIR), New Delhi and Indian Council of Philosophical research (ICPR), New Delhi.

- 1. 'Wave propagation in Porous Media', Department of Science and Technology (DST), No. SR/SM/MS:469/07. (Completed)
- 2. 'Waves in composite solid matrix saturated by multiple fluids', CSIR, No. 25(0243)/15/EMR-II. (Completed)
- 3. 'The Mathematical and Philosophical Foundations of Ancient Indian Yantras', ICPR, F. No: 4-16/2018-19/P&R/ICPR. (On going)

# • International Collaborations and Visits

Worked at University of Dundee, Scotland from January-2012 to March-2012 under INSA-Royal Society of Edinburg, International Bilateral exchange program and Collaborated research with Prof. Dong-Sheng Jeng, School of Civil Engineering, University of Dundee.

### • Contributory talks at International and National Platforms:

Delivered Contributory talks at

- International Congress on Industrial and Applied Mathematics (ICIAM)-2023, Tokyo, Japan
- > International Congress on Mathematics Education (ICME)-2016, Hamburg, Germany.
- International Congress of Mathematicians (ICM)-2014 Seoul, South Korea.
- International Congress of Mathematicians (ICM)-2010 at Hyderabad.
- > Advances in Mathematics and Applications-2008, NIT Hamirpur
- > Wave Mechanics Vibrations and Control Conference (WMVC)-2008, JECRC Jaipur
- > 10<sup>th</sup> Punjab Science Congress-2007, Jalandhar
- > 71<sup>st</sup> annual meet of Indian Mathematical Society (IMS)-2005, IIT Roorkee
- 6<sup>th</sup>, annual meet of Indian Society of Industrial and Applied Mathematics (ISIAM)-2001, GNDU, Amritsar
- Activities for popularization of Mathematics and Invited talks
- Conducted workshop on Vedic Mathematics and International Congress on Mathematics Education (ICME)-2024 at Sydney, Australia.
- Organized Teacher's Enrichment Program (TEW) sponsored by National Centre for Mathematics a joint venture of IIT Bombay and Tata Institute of Fundamental Research (TIFR), Mumbai in December 2019.
- > Invited talk at University of Abertay, Dundee, Scotland, February-2012
- Organized three weeks Instructional School in Engineering Mathematics at IKGPTU in Decmber-2012.
- Worked as Organizing Secretary for Punjab Science Congress at IKGPTU in February-2012.
- Delivered invited talks on the applications of mathematics in state level seminars at various colleges in Punjab.
- > Delivered talks on Mathematics and it's Applications in INSPIRE CAMPS of DST.

# • Professional Memberships

- Life member of Indian Mathematical Society (IMS),
- Punjab Academy of Sciences
- > Indian Society of Industrial and Applied Mathematics (ISIAM), and
- Indian Science Congress Association (ISCA).

# • Research Publications

 Baljinder Kour, Ashish Arora, Deep Singh (2025); Solitary pattern solution of fractional Triki–Biswas and generalised KdV–Zakharov–Kuznetsov equations, Pramana, doi: 10.1007/s12043-024-02863-7

- Rajbir Kaur and Ashish Arora (2024): Love wave along the corrugated interface between an elastic half-space and the corrugated porous layer containing two fluids, Journal of Vibration and Control, doi: 10.1177/10775463241292656
- Baljinder\_Kour, Mustafa\_Inc, Ashish\_Arora (2023): Space time fractional Ito system with variable coefficients: explicit solution, conservation laws and numerical approximation, Multidiscipline Modeling in Materials and Structures, doi: 10.1108/mmms-05-2022-0097
- Ashish Arora and Neeru Bala (2022): The effect of composite material on Rayleigh wave at free surface of composite porous matrix saturated by fluids, Mathematical Modeling of natural Phenomenon, doi: 10.1051/mmnp/2022025.
- Abhishek Painuley and Ashish Arora (2019): Rayleigh wave at composite porous half space saturated by two immiscible fluids, Applied Mathematical Modelling doi: 10.1016/j.apm.2019.03.038
- Neeru Bala and Ashish Arora, (2018): Effect of pore connectivity on reflection amplitudes of an inhomogeneous wave in a composite porous solid saturated by two immiscible fluids, Journal of earth System Sciences, doi: 10.1007/s12040-018-0962-z
- Abhishek Painulay and Ashish Arora, (2017): Reflection and transmission of inhomogeneous waves in a composite porous solid saturated by two immiscible fluids, Geophysical Prospecting, doi: 10.1111/1365-2478.12542
- Ashish Arora, Neeru Bala, S. K. Tomar, (2016): A mathematical model for wave propagation in a composite solid matrix containing two immiscible fluids, Acta Mechanica, doi: 10.1007/s00707-016-1571-z
- Ashish Arora, Abhishek Painuley and S. K. Tomar, (2015): Body waves in composite solid matrix containing two immiscible fluids, Transport in Porous Media, vol. 108, (531-554), doi: 10.1007/s11242-015-0486-9.
- Ashish Arora and S. K. Tomar, (2010): Seismic reflection from an interface between an elastic solid and fractured porous medium with partial saturation, Transport in Porous Media, vol. 85, issue 2, (375-396).
- Ashish Arora and S. K. Tomar, (2008): The effect of inertial coupling on seismic reflection amplitudes, Geophysical Prospecting, vol. 56, issue 5, (643-654).
- Ashish Arora and S. K. Tomar, (2007): Propagation of elastic waves along a cylindrical borehole in a poroelastic medium saturated by two immiscible fluids, Journal of Earth System Sciences, vol. 116, issue 3, (225-234).
- Ashish Arora and S. K. Tomar, (2007): Reflection and transmission of elastic waves at porous/porous half-spaces saturated by two immiscible fluids. Journal of Porous Media, vol. 10, issue 8, 2007, (751-768).
- Ashish Arora and S. K. Tomar, (2007): Erratum Reflection and transmission of elastic waves at an elastic/porous solid saturated by two immiscible fluids, International

Journal of solids and structures, vol 44, Issues 17, (5796-5800).

 S.K. Tomar and Ashish Arora, (2006): Reflection and transmission of waves at an elastic/porous solid saturated by two immiscible fluids, International Journal of solids and structures, vol. 43, (1991- 2013).