

Curriculum Vites of Faculty of Mathematics Department

Faculty Details with Research

Faculty Name	Prof. Dr. Farhat Safdar
Father Name	Safdar Sultan
Department	Mathematics
Designation	Professor
Highest Degree	Ph.D.
Area of Specialization	Pure Mathematics
Email address	farhat_900@yahoo.com and farhat.safdar@sbkwu.edu.pk
Professional Trainings & Workshops Attended	<ul style="list-style-type: none"> • Worked as a resource person in Staff Development Course. Held from 12th August to 12th sept 2005 at SBK Women’s University, organized by National Academy HEC. • Worked as a coordinator in Competency Enhancement Program for University teachers held at SBK Women’s University, organized by LID, from 16th June – 17th July 2010. • Microteaching Presentation in faculty development professional program (FPDP) of HEC at Islamabad. • Workshop on “Teaching of Teachers”, held at regional centre HEC Lahore. • Trainings under HESSA Project; <ul style="list-style-type: none"> ○ Student Support Services Annual capacity Building & Knowledge-Sharing Summit (July 26-28,2022). ○ USAID’s HESSA student Leadership and Programming (24-27 January 2023, Rawalpindi). ○ Student Leadership and Programming (4-7 December 2023 at UET Lahore). ○ International Summit on Shaping the Future of Higher Education in Pakistan (10-12 June, 2024) ○ Registrar training Islamabad, 20-21 June 2024. • Attended Three days workshop on “Ph.D Successful Supervision (GEP, 2023)” in SBK women's University, Quetta, 18th -20th June 2025.

Publication	<ol style="list-style-type: none"> 1. Farhat Safdar, Muhammad Attique."Extended weighted Simpson-like type inequalities for preinvex functions and their use in physical system". Punjab University Journal of Mathematics. 2. Farhat Safdar, Muhammad Attique. "Some new generalizations for exponentially $(s; m)$-preinvex functions considering generalized fractional integral operators". Punjab University Journal of Mathematics. 3. Maysaa Al Qurashi, Saima Rashid, Ahmed M. Alshehri, Fahd Jarad and Farhat Safdar. "New numerical dynamics of the fractional monkeypox virus model transmission pertaining to nonsingular kernels. Mathematical Biosciences and Engineering". 4. WASIM IQBAL, MUHAMMAD ASLAM NOOR, KHALIDA INAYAT NOOR, FARHAT SAFDAR. "GENERALIZED PETROVIC'S INEQUALITIES FOR COORDINATED EXPONENTIALLY m-CONVEX FUNCTIONS". International Journal of Analysis and Applications 5. M. A. NOOR, K. I. NOOR, F. SAFDAR. "INTEGRAL INEQUALITIES VIA $\log m$-CONVEX FUNCTIONS". Turkish World Mathematical Society Journal of Applied and Engineering Mathematics. 6. Shuang-Shuang Zhou, Saima Rashid, Muhammad Aslam Noor, Khalida Inayat Noor, Farhat Safdar, Yu-Ming Chu. "New Hermite-Hadamard type inequalities for exponentially convex functions and applications". AIMS Mathematics. 7. Saima Rashid, Muhammad Aslam Noor, Khalida Inayat Noor, Fahd Jard, Farhat Safdar. On Pólya-Szegő ."Type Inequalities via K-Fractional Conformable Integrals". . Punjab University Journal of Mathematics. 8. Humaira Kalsoom, Saima Rashid, Muhammad Idress, Farhat safdar, Saima Akram, Dumitru Baleanu and Yu-Ming Chu. "Post Quantum Integral Inequalities of Hermite-Hadamard-Type Associated with Co-Ordinated Higher-Order Generalized Strongly Pre-Invex and Quasi-Pre-Invex Mappings". Symmetry. 9. Hong-Hu Chu, Humaira Kalsoom, Saima Rashid, Muhammad Idrees, Farhat Safdar, Yu-Ming Chu and Dumitru Baleanu. "Quantum Analogs of Ostrowski-Type Inequalities for Raina's Function correlated with Coordinated Generalized Φ-Convex Functions". Symmetry. 10. Saima Rashid, Muhammad Aslam Noor, Khalida Inayat Noor, Farhat Safdar. "New Hermite-Hadamard Type Inequalities for Exponentially GA and GG-Convex Functions". Punjab University Journal of Mathematics
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11. Jun-Feng Li, Saima Rashid, Jia-Bao Liu Ahmet Ocak Akdemir, and **Farhat Safdar**. "Inequalities Involving Conformable Approach for Exponentially Convex Functions and Their Applications". Journal of Function Spaces.
12. M. U. Awan, M. A. Noor, **F. Safdar**, A. Islam, M. V. Mihai, And K. I. Noor. "Hermite-Hadamard Type Inequalities With Applications". Miskolc Mathematical Notes.
13. **Farhat Safdar**, Muhammad Aslam Noor, Khalida Inayat Noor, Saima Rashid. "Some New Estimates of Generalized (h₁, h₂)-Convex FUNCTIONS". Journal of Prime Research in Mathematics.
14. **Farhat Safdar**, Muhammad Aslam Noor, Khalida Inayat Noor. " ϕ - Geometrically Log h-Convex Functions". Punjab University Journal of Mathematics.
15. **Farhat Safdar**, Muhammad Aslam Noor, Khalida Inayat Noor. "Some New Inequalities Related To (A, M)-Convex Functions". Journal of Prime Research in Mathematics.
16. Saima Rashid, Muhammad Aslam Noor, Khalida Inayat Noor, **Farhat Safdar**. "Inequalities for generalized preinvex functions". Punjab University Journal of Mathematics.
17. Saima Rashid **Farhat Safdar**, Ahmet Ocak Akdemir, Muhammad Aslam Noor and Khalida Inayat Noor. "Some new fractional integral inequalities for exponentially m-convex functions via extended generalized Mittag-Leffler function". Journal of Inequalities and Applications.
18. Saima Rashid, Muhammad Aslam Noor Khalida Inayat Noor **Farhat Safdar** and Yu-Ming Chu." Hermite-Hadamard Type Inequalities for the Class of Convex Functions on Time Scale". Mathematics.
19. S. Khan, M. U. Awan, M. A. Noor and **F. Safdar**. "Some new integral inequalities via ϕ -preinvex functions". UPB Scientific Bulletin, Series A: Applied Mathematics and Physics.
20. S. Buzdar, A. Mustaq, S. Rizwan, U. Jabeen, F. Bashir, **Farhat Safdar**, M. Baloch, M. Khan, M. Aamir, N. Shahwail." Impact of Halopriming on Four Wheat (*Triticum aestivum* L.) Cultivars of Balochistan under saline conditions". Bangladesh Journal of Botany.
21. Muhammad Aslam Noor, Khalida Inayat Noor, **Farhat Safdar**. "Integral Inequalities via Generalized Geometrically r-Convex Functions". International Journal of Analysis and Applications.
22. Muhammad Aslam Noor, Khalida Inayat Noor, **Farhat Safdar**. "Inequalities via generalized h-convex functions". Problemy Analiza - Issues of Analysis.
23. Muhammad Aslam Noor, Khalida Inayat Noor, **Farhat Safdar**. "Generalized r-Convex Functions and Integral Inequalities". International Journal of Analysis and Applications.
24. Muhammad Aslam Noor, Khalida Inayat Noor, **Farhat Safdar**. "Inequalities via generalized beta m-convex functions". Journal of Mathematical Analysis.

	<p>25. Muhammad Aslam Noor, Khilada Iayat Noor, Farhat Safdar. “New inequalities for generalized log h-convex functions”. Journal of Applied Mathematics & Informatics.</p> <p>26. Muhammad Aslam Noor, Khilada Iayat Noor, Sabah Iftikhar, Farhat Safdar. “Some Properties of Generalized Strongly Harmonic Convex Functions”. International Journal of Analysis and Applications.</p> <p>27. Muhammad Aslam Noor, Khilada Iayat Noor, Sabah Iftikhar, Farhat Safdar. “Generalized (h,r)-Harmonic Convex Functions and Inequalities”. International Journal of Analysis and Applications.</p> <p>28. Muhammad Aslam Noor, Muhammad Uzair Awan, Khilada Iayat Noor, Farhat Safdar. “Some new quantum inequalities via tgs -convex functions”. TWMS Journal of Pure and Applied Mathematics.</p> <p>29. Muhammad Uzair Awan, Muhammad Aslam Noor, Khilada Iayat Noor, Farhat Safdar. “On strongly generalized convex functions”. Filomat.</p> <p>30. Muhammad Aslam Noor, Khilada Iayat Noor, Farhat Safdar. “Integral inequalities via generalized convex functions”. Journal of Mathematics and Computer Science.</p> <p>31. Muhammad Aslam Noor, Khilada Iayat Noor, Farhat Safdar Muhammad Uzair Awan, Saleem Ullah. “Inequalities via generalized log m-convex functions”. Journal of Nonlinear Sciences and Applications.</p> <p>32. Muhammad Aslam Noor, Khilada Iayat Noor, Farhat Safdar. “Generalized geometrically convex functions and inequality”. Journal of Inequalities and Applications</p> <p>33. Muhammad Aslam Noor, Khilada Iayat Noor, Farhat Safdar. “INTEGRAL INEQUALITIES VIA GENERALIZED (α, m)-CONVEX FUNCTIONS”. Journal of Nonlinear Functional Analysis.</p> <p>34. Muhammad Aslam Noor, Khilada Iayat Noor, Muhammad Uzair Awan, Farhat Safdar. “Integral Inequalities for Relative Harmonic (s, η)-Convex Functions”. Quantum Information.</p> <p>35. Muhammad Aslam Noor, Khilada Inayat Noor, Sabah Iftikhar, Farhat Safdar. “Integral Inequalities for Relative Harmonic (s, η)-Convex Functions”. Applied Mathematics and Computer Science.</p>
Faculty Name	Dr. Raheela Manzoor
Father Name	Manzoor Hussain
Department	Mathematics
Designation	Associate Professor
Higher Degree	Ph.D. in Computational Mathematics
Area of Specialization	Computational Fluid Mechanics
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Professional Trainings & Workshops Attended	<ul style="list-style-type: none"> • Attended conference on “Gravitational Collapse” held in University of Punjab, 2011. • Worked as organizer “SYMPOSIUM” held in CIIT Abbottabad, 2011 • Attended 7th “Faculty development program” work for three month workshop through HEC held in Islamabad, 2006. • Attended “3rd Master trainers Faculty development program” workshop held through HEC in, 2010. • Attended three days workshop on “digital library” through HEC held in SBK University Quetta, 2009. • Attended Symposium on “computational complexities, innovations and solution” held in CIIT Abbottabad, 2014. • Attended “Staff Development Course under the scheme National Academy of Higher Education” at BUITMS, Quetta, 2012. • Achieved “International Computer Driving License” through attending three month training course in HEC Islamabad, 2006. • Attended three days “research methodology work shop” for physical sciences conducted through QEC department at SBK Women's university Quetta, 2012. • Participated in “Flower Exhibition” at university of Balochistan, 2003. • Attended one week work shop on “Advance mathematics” course held in university of Balochistan, through HEC 2004. • Attended three days workshop of “Revamping the Integrated Under Graduate Curriculum” at BUITEMS, Quetta, May 2019. • Attended Four days workshop on “Ph.D Supervision” in BUITEMS Quetta, April 2019. • Attended three days workshop of “Harassment of Women at Serena Hotel”, November, 2019. • Attended one week workshop OF SAP (ERP) in Islamabad through HEC as a Registrar. • Delivered two sessions as a resource person about strategic planning in HEC Faculty Development Program conducted in SBKWU, Quetta. • Focal person in organizing “Women Empowerment & Mentoring Program (WEMP)” held in SBK Women’s university Quetta 20th dec-20th April,2025. • Attended Three days workshop on “Ph.D Successful Supervision (GEP, 2023)” in SBK women's University, Quetta, 18th -20th June 2025.
Publications	<p>[1] S. Ul. Islam, R.Manzoor, Z. U. Islam, S.Kalsoom and Z. C. Ying,A computational study of drag reduction and vortex shedding suppression of</p>

flowpast a square cylinder in presence of small control cylinders,AIP Advances, 7, 045119 (2017); doi:10.1063/1.4982696

- [2] S. Ul. Islam, **R. Manzoor** and A. Tareen, Numerical investigation of flow around square cylinder with an upstream control plate at low Reynolds numbers in tandem, J Braz. Soc. Mech. Sci. Eng,**39** (2017)1201–1223; DOI: 10.1007/s40430-016-0677-5
- [3] **R. Manzoor**, S. Ul. Islam, W. S. Abbasi and S. Parveen, Variation of wake patterns and force coefficients of the flow past square bodies aligned inline, J. Mech Sci. Tech, 30 (4) (2016) 1691-1704.
- [4] S. Ul. Islam, **R. Manzoor** and Z. C. Ying, Effect of Reynolds Numbers on Flow Past a Square Cylinder in Presence of Multiple Control Cylinders at Various Gap Spacings, Arab. J. Sci. Eng, 3(42) (2017) 1049-1064.
- [5] S. Ul. Islam, **R. Manzoor**, Z. C. Ying, M. M. Rashidi andA. Khan, Numerical investigation of fluid flow past a square cylinder using upstream, downstream and dual splitter plates, J. Mech Sci. Tech, 31(2) (2017) 669-687.
- [6] S. Ul. Islam, **R. Manzoor** and Z. C. Ying, Effect of Reynolds Number on Flow Past a Square Cylinder in Presence of Upstream and Downstream Flat Plate at Small Gap Spacing, Int J. Mech. Aerospace. Industrial. Manufacturing. Eng,(2015), 9(12).
- [7] N. Ahmed, Adnan, U. Khan, **R. Manzoor** and S. T. Mohyud-Din, Influence of viscous dissipation on a copper oxide nanofluid in an oblique channel: Implementation of the KKL model, Eur. Phys. J. Plus, (2017)132: 237.
- [8] S. Ul. Islam, **R. Manzoor**, U. Khan, G. Nazeer and S. Hassan, Drag Reduction on a Square Cylinder using Multiple Detached Control Cylinders, KSCE J. Civil Eng, 22(5) (2018) 2023–2034.
- [9] S. Ul. Islam, **R. Manzoor**, T. Mengal, A. Naeem, S. Parveen and R. Akbar, Numerical Study of Drag Reduction For Flow Past a Square Cylinder Through Passive Control Method at Various Gap Spacing, "J. Computation, Theoretical Nano-Sci.14(12):5872-5881. DOI: [10.1166/jctn.2017.7029](https://doi.org/10.1166/jctn.2017.7029).
- [10] M. Asadullah, U. Khan, N. Ahmed, **R. Manzoor** and S.T. Mohiyud-Din, MHD Flow of a Jeffery Fluid in Converging and Diverging Channels, Int. J. Modern Mathematical Sci, 6(2) (2013) 92-106.
- [11] S. Kalsoom, **R. Manzoor** and A. Khan, Note on (α, μ) -fuzzy interior ideals of Hemirings, Int. J. Algebra and Stat, 2(2) (2013) 1-9.
- [12] F. Yousafzai, N. Yaqoob, S. Haq and **R. Manzoor**, A Note on Intuitionistic Fuzzy G-LA-semi groups, World. Applied. Sci. J, 19 (12) (2012) 1710-1720.

- [13] **R. Manzoor**, A. Khan, F. Yousafzai and V. Amjad, Fuzzy quasi-ideals with thresholds (α ; β] in ordered semigroups, *Int. J. Algebra and Stat* 2(1) (2013) 72-82.
- [14] A. Khan and **R. Manzoor**, Generalized fuzzy quasi-ideals in ordered semigroups, *Int. J. Algebra and Stat*, 1(2) (2012) 33-45.
- [15] S. Ul. Islam, G. Nazeer, Z. C. Ying and **R. Manzoor**, Transitions in the Flow Patterns and Aerodynamic Characteristics of the Flow around Staggered Rows of Cylinders, *PLOS ONE* 12(10):e0184169, DOI: [10.1371/journal.pone.0184169](https://doi.org/10.1371/journal.pone.0184169).
- [16] T. Bibi, R. M. Ahmad, I.A. Baloch, **R. Manzoor**, S. Muhammad, ETHNOMEDICINAL USES OF PLANTS FOR CHILD BIRTH AND POSTPARTUM RECOVERY IN DISTRICT PISHIN, NORTHERN BALOCHISTAN, PAKISTAN, *International Journal of Biology, Pharmacy and Allied Sciences*, 2017, 6(9): 1730-1760.
- [17] S. Ul. Islam, **R. Manzoor**, Z. Chao Ying and Z.Ul. Islam. Numerical investigation of different aspect ratios for flow past three inline rectangular cylinders. *Journal of the Brazilian Society of Mechanical Sciences and Engineering*. 40:410 (2018); DOI: 10.1007.s40430-018-1334-Y.
- [18] W. S. Abbasi, S. Ul. Islam, H.Rahman and **R.Manzoor**, Numerical investigation of fluid-solid interaction Forflow around three square cylinders,AIPAdvances 8, 025221 (2018) DOI: 10.1063/1.5004631.
- [19] **R. Manzoor**, S. Ul. Islam, S. Batool, A. Anwar and P.Akhtar, Numerical Analysis of Wake Mode and Force Statistics for Flow over Two Rectangular Rods at Different Reynolds Numbers,” *International Journal of Emerging Engineering Research and Technology*, 6(10) (2018) 2349-4409.
- [20] A. Ghaffar, M. Iqbal, M. Bari, S. Muhammad, **R. Manzoor**, K. Sooppy and D.Baleanu, Construction and Application of Nine- Tic B-Spline Tensor Product SS” *Mathematics*,(2019) 7, 675.
- [21] S. Ul. Islam, **R. Manzoor**, M. Zahid, S. Kulsoom and U. Kausar,Numerical Study of Flow Past Three Rectangular Rods at Unequal Gap Spacing,*Indian Journal of Science and Technology*,12(32) (2019)DOI:10.17485/ijst/2019/v12i32/119776.
- [22] **R.Manzoor**, A. Ghaffar, D. Baleanu, K.S. Nisar, Numerical Analysis of Fluid Forces for Flow Past a Square Rod with Detached Dual Control Rods at Various Gap Spacing. *Symmetry*, (2019) 12, 159.

- [23] A. Ahmed, **R. Manzoor**, S.U. Islam, H. Rahman, Numerical Investigation for Flow Past over a square Rod through Passive Control Method at Various Reynolds Number, Canadian journal of physics, 98(2995)(2019)doi.org/10.1139/cjp-2019-0155.
- [24] A. Khalid, S. Younas, **R. Manzoor**, I. Khan, R. Nawaz, Mode matching Analysis for two dimensional acoustic wave propagation in trifurcated lined duct, Journal of interdisciplinary mathematics, 22 (2019) 1095-1112,
<http://doi.org/10.1080/09720502.2019.1706888>.
- [25] A. Ahmed, S.U. Islam, Z.U. Ying and **R. Manzoor**, Fluid dynamics around three Cylinders in presence of small control cylinders, Canadian Journal of Physics, 98(4) (2019); DOI:[10.1139/cjp-2019-0599](https://doi.org/10.1139/cjp-2019-0599)
- [26] **R. Manzoor**, A. Khalid, I. Khan, S. U. Islam, Numerical simulation of drag reduction on a square rod detached with two control rods at various gap spacing via lattice Boltzmann method, Symmetry,(2020) 12, 475; doi:10.3390/sym12030475.
- [27] **R. Manzoor**, A. Anwar, S.U.Islam, K. Jamil, Transition of Flow past a Square Rod through Passive Control Method at Low Reynolds number, International Journal of Emerging Engineering Research and Technology,8(6) (2020) 32-43.
- [28] H. Rahman, S.U.Islam, I. Ali, M. U. Khan, W. S. Abbasi, **R. Manzoor**, Lattice Boltzmann analysis of fluid structure interaction mechanism around a row of five side-by-side square cylinders, OceanEngineering, (2021) 238, 109738.
- [29] A. Ahmad, A. Wahid, R. Manzoor, N. Nadeem, N. Ullah, S. Muhammad, Flow Characteristics and Fluid Force Reduction of Flow Past Two Tandem Cylinders in Presence of Attached Splitter Plate, Mathematical Problems in Engineering, Volume 2021, Article ID 4305731, 16 pages
<https://doi.org/10.1155/2021/4305731>.
- [30] **R. Manzoor**, S. Ul. Islam, N. Nadeem, S. Perveen, T. Naeem, Numerical Investigations for Flow Past Two Square Rods in Staggered Arrangement through Lattice Boltzmann Method: Ann Math Phys 4(1): 016-027. DOI:
<https://dx.doi.org/10.17352/amp.000021> .
- [31] H. Rahman, S. Ul. Islam, W. S. Abbasi, **R. Manzoor**, F. Ameen, Z. Alam, Numerical Computations for Flow Patterns and Force Statistics of three Rectangular, Mathematical Problems in Engineering, Volume 2021 |Article ID 9991132.
- [32] **Raheela Manzoor**, Maliha Jalil, Tehmina Naz, Ruksana Rafique,

	<p>Vortex Suppression and Drag Reduction through Passive Control Method at Various Reynolds Numbers, SBK. J. B. Sci&Inn. Res,2021, 1(1): 12-33.</p> <p>[33] Shao-Wen Yao ,Raheela Manzoor , Asim Zafar, Mustafa Inc , Souleymanou Abbagari , Alphonse Houwe, Exact soliton solutions to the Cahn–Allen equation and Predator–Prey model with truncated M-fractional derivative, Results in Physics, Volume 37, June 2022, 105455.</p> <p>[34] Adnan1 , Umar Khan , Naveed Ahmed , Raheela Manzoor and Syed Tauseef Mohyud-Din, Impacts of various shaped Cu-nanomaterial on the heat transfer over a bilateral stretchable surface: Numerical investigation, Advances in Mechanical Engineering 2021, Vol. 13(12) 1–10 (2021) DOI 10.1177/16878140211067420.</p> <p>[35] R. Manzoor, S.Ul. Islam, A. Naeem, G. Aziz, S. Kalsoom, H.Rahman, Numerical Analysis of Flow Past over Square rods using a Control Rod at Distinct Gap Spacing, Indian Journal of Science and Technology (2023).</p> <p>[36] Adnan, U. Khan, H. Alotaibi, N. Ahmed, S. T. Mohyud-Din, M. Hassan, R. Manzoor, and I. Khan, Heat Transfer Analysis in Cu Nanomaterial based Nanofluid: 2 A Nonlinear Fluid Dynamics Model, Crystals.(2022)</p> <p>[37] R. Manzoor, S. Mushtaq N. Azhar, S. Perveen, S. Kalsoom, A. Naeem & R. N. Akbar, Numerical investigation of flow past a triangular cylinder at various Reynolds numbers: Physics of Fluid, Vol. 13(12) 1–10 (2023) DOI : 10.1177/16878140211067420</p> <p>[38] R. Manzoor, B. Habib, S. Kalsoom, N. Jamil, and M. Haque, "Numerical Simulation of Flow past a Square Object Detached with Controlling Object at Various Reynolds Number," <i>Int. J. Innov. Sci. Technol.</i>, 2023.</p> <p>[49] R. Manzoor, S. Ul. Islam, M. Jalil, and Y. Akhtar, "Fluid structure interaction problem for flow past three unequal sized square cylinders at different Reynolds numbers," <i>Phys. Fluids</i>, vol. 36, no. 4, 2024.</p> <p>[40] R. Manzoor, R. Habib, N. Nadeem, and S. Kalsoom, "Numerical Analysis of Flow Past Over a Triangular Rod through Passive Control Method," <i>Phys. Fluids</i>, vol. 36, 034103, 2024.</p> <p>[41] A. Ahmad, R. Manzoor, I. Ali, S. Kalsoom, N. Azhar, N. Jamil, I. Javed and F. Behlil. (2024). “Numerical Study Of Flow Behind The Tods In Side-By-Side Arrangement Through Lattice Boltzmann Method,” <i>Kurdish Studies</i>, Vol. 12, No: 5, 897-915</p>
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- [42] E. U. Saleem, **R. Manzoor**, N. Azhar, E. H. Saleem, and F. Behlil, "Design of a High Gain Dual Band Patch Antenna with T Slot Ground Structure for Millimeter Wave Communication Applications," *Int. J. Innov. Sci. Technol.*, 2024.
- [43] S. Kalsoom, W. S. Abbasi, and **R. Manzoor**, "Numerical study of flow past two square cylinders with horizontal detached control rod through passive control method," *AIP Advances*, vol. 14, no. 6, 065009, 2024.
- [44] S. Kalsoom, W. S. Abbasi, and **R. Manzoor**, "Numerical Simulation of Wake Flow Around two Square Cylinder through Passive Control Method," *Phys. Fluids*, 2024, 0341032.
- [45] Islam, S. U., Manzoor, R., Ahmad, Z., Kalsoom, S., & Kausar, A. (2024). Analysing the effect of unequal gap spacing for flow past over three rectangular rods at fixed Reynolds number (Re) and aspect ratio (AR). **Book; Mathematics and Computer Science - Contemporary Developments**, 2, 18–44. B P International.
- [46] Kalsoom, S., Abbasi, W. S., Manzoor, R., Aslam, F., & Azhar, N. (2024). Numerical simulation of flow characteristics over two square cylinders at different diameters with various gap spacing. *Kurdish Studies*, 12(5), 1481–1500.
- [47] Bunpheng, W., Manzoor, R., Panezai, N., Haque, M., Shah, H. H., Heili, M., Rao, J. S., & Kit, C. C. (2024). Numerical simulations for flow past five inline square rods at various gap spacing. *Kurdish Studies*.
- [48] Azhar, N., Anum, L., Manzoor, R., Akhter, Y., & Khan, O. (2024). Assessment of wind power and energy at the coast of Balochistan, Pakistan. *Remittances Review*, 9(54), 501–516.
- [49] Sheikh, N., Naeem, A., Parveen, S., Rahman, A., Anjum, M., Yaseen, M., & Manzoor, R. (2024). Prediction of cardiovascular diseases through machine learning algorithms: A supervised model. *Kurdish Studies*, 12(5), 818–828.
- [50] Azhar, N., Manzoor, R., & Kalsoom, S. (2024) Application of fractional integral transform in fuzzy differential equations. **(book) In Fractional Calculus - From Theory to Applications**. IntechOpen.
- [51] Manzoor, R., Kalsoom, S., Kalsoom, T., Panezai, F., Panezai, N., & Sheikh, N. (2024). Transition of flow past five square obstacles in tandem arrangement at distinct gap spacing. *Kurdish Studies*.

	[52] Rahman, H., Abbasi, W.S., N, Sumera., Manzoor, R. (2024) Effect of Dual Connected Vertial Plates on Flow Features of Single Square Cylinder. Computational Particle Mechanics. Accepted.
Faculty Name	Dr. Noreen Azhar
Father Name	Muhammad Azhar
Department	Mathematics
Designation	Assistant Professor
Higher Degree	Ph.D. in Applied Mathematics
Area of Specialization	Applied Mathematics
Email Address	noreen_nadeem@yahoo.com & noreen.azhar@sbkwu.edu.pk
Professional Trainings & Workshops Attended	<ul style="list-style-type: none"> • 3-days Workshop on Ensuring Training Effectiveness by learning innovation Division (HEC), 28th May to 30th May 2012. • Four days Workshop on Research methodology & skills, from 11-14 July 2012. • Staff Development Course under the scheme National Academy of Higher Education, Aug,15 – Sep.15,2005 • Participated as a Judge in Balochistan Provisional Science Fair 2016 by Intel. • The Seminar on Applied Mathematics, at University of Balochistan, 16th November 2017. • One day workshop on Quality Learning Innovation organized by directorate of Quality Assurance and Accreditation in collaboration with International Islamic University, Islamabad, 30 April 2018. • Webinar on Navigating the Pathways of publishing in High quality journals by using Scopus organized by Elsevier on 15th November 2022 • Webinar on Enabling a perfect research ecosystem with Science Direct on 28th Nov 2022 • Webinar on Navigating the pathways of publishing in High-quality journals by Using Science Direct on Oct 20, 2023 • Webinar on Understanding Research Matrices and Elsevier's Science Direct on 17th September 2024. • Attended "Women Empowerment & Mentoring Program (WEMP)" held in SBK Women's university Quetta 20th dec-20th April,2025. • Attended Three days workshop on "Ph.D Successful Supervision (GEP, 2023)" in SBK women's University, Quetta, 18th -20th June 2025.
Publications	1. N. Azhar, F. Kauser, S. Kalsoom & Y. Akhtar. (2017). Resolution of Wind Energy and Power in Coastline of Balochistan, Pakistan, Journal of Computational and Theoretical Nanoscience Vol. 14, 1–6, 2017

2. N. Azhar, S. Iqbal, F. Saleem, F. Iqbal & A. Rehman, Wind Data Analysis of Coastal Region of Balochistan (Pakistan) by Weibull and Rayleigh Method, Indian Journal of Science and Technology, Vol 12(26), 1-8, 2019
3. A. Ahmed, Abdul Wahid, R. Manzoor, N. Nadeem, N. Ullah, and S. Kalsoom, Flow characteristics and Fluid Forces Reduction of Flow Past Two Tandem Cylinders in Presence of Attached Splitter Plate, Mathematical Problems in Engineering Volume 2021, Article ID 4305731, 16 pages <https://doi.org/10.1155/2021/4305731>
4. N. Azhar & S. Iqbal. Solution of Fuzzy Fractional order differential equation by fractional Mellin's transform method, Jan 2022, Journal of computational and Applied Mathematics.
5. N. Azhar, S Parvaiz & A. Saleem. Statistical Analysis of wind potential in Gawadar, Balochistan. SBK Journal of Basic Sciences and Innovative Research Vol 2 2022.
6. R. Manzoor, S. Ul. Islam, N. Nadeem, S. Perveen, T. Naeem, Numerical Investigations for Flow Past Two Square Rods in Staggered Arrangement through Lattice Boltzmann Method: Annulus Math Phys 4(1): 016-027. DOI: <https://dx.doi.org/10.17352/amp.000021>
7. N. Azhar & S. Iqbal. A Method for Solving Initial and Boundary Value Fuzzy differential equations by Mellin Transform. *Preprint in Research Square*, <http://doi.org/10.21203/rs.3.rs-301071/v1>
8. R. Manzoor, S. Mushtaq N. Azhar, S. Perveen, S. Kalsoom, A. Naeem & R. N. Akbar, Numerical investigation of flow past a triangular cylinder at various Reynolds numbers: Physics of Fluid, Vol. 13(12) 1–10 (2023) DOI : 10.1177/16878140211067420
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10. E. U. Saleem, R. Manzoor, N. Azhar, E. H. Saleem, and F. Behlil, "Design of a High Gain Dual Band Patch Antenna with T Slot Ground Structure for Millimeter Wave Communication Applications," *Int. J. Innov. Sci. Technol.*, 2024.
11. Azhar, N., Anum, L., Manzoor, R., Akhter, Y., & Khan, O. (2024). Assessment of wind power and energy at the coast of Balochistan, Pakistan. *Remittances Review*, 9(54), 501–516.
12. A. Ahmad, R. Manzoor, I. Ali, S. Kalsoom, N. Azhar, N. Jamil, I. Javed and F. Behlil. (2024). "Numerical Study Of Flow Behind The Tods In Side-By-Side Arrangement Through Lattice Boltzmann Method," *Kurdish Studies*, Vol. 12, No: 5, 897-915
13. Statistical Analysis of Wind Potential in Three Coastal Regions of Baluchistan, *Front. Mech. Eng.*, Accepted
14. Azhar, N., Manzoor, R., & Kalsoom, S. (2025) Application of fractional integral transform in fuzzy differential equations. **(book) In Fractional Calculus - From Theory to Applications**. Intech Open.

	15. N. Azhar & S. Iqbal. (2025). A Note on Fractional Mellin Transform: Concepts and Solutions. <i>Axioms</i> Accepted
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Publications	<ol style="list-style-type: none"> 1. Hanifa Hanif, Sharidan Shafie, and Zainab Jagun. Maximizing thermal efficiency of a cavity using hybrid nanofluid. <i>Journal of Cleaner Production</i> (2024). 2. Hanifa Hanif, Sharidan Shafie, Abeer A. Alanazi, S. S. Alzahrani, and T. H. Alarabi. Optimizing heat transfer with nano additives: A mathematical approach. <i>Ain Shams Engineering Journal</i> (2024). 3. Hanifa Hanif, Mohd Rijal Ilias, Zhaoor Iqbal, Sharidan Shafie, Sharifah E.Alhazmi, and M.M. Alqarni. Heat transfer in hybrid nanofluid flow between two coaxial cylinders. <i>Case Studies in Thermal Engineering</i> (2024). 4. Hanifa Hanif, Sharidan Shafie, and Zainab Jagun. Maximizing heat transfer and minimizing entropy generation in concentric cylinders with CuO-MgO-TiO₂nanoparticles. <i>Chinese Journal of Physics</i> (2024). 5. Hanifa Hanif, Liaquat Ali Lund, and Sharidan Shafie. Dynamics of Ag–TiO₂/H₂O between two coaxial cylinders: a computational approach. <i>The European Physical Journal Plus</i> (2024). 6. Hanifa Hanif, Arshad Khan, Mohd Rijal Ilias, and Sharidan Shafie. Significance of Cu-Fe₃O₄ on fractional Maxwell fluid flow over a cone with Newtonian heating. <i>Journal of Taibah University for Science</i> (2024). 7. Hanifa Hanif, Muhammad Saqib, Sharidan Shafie. Thermal analysis of Fe₃O₄- Cu/water over a cone: a fractional Maxwell model. <i>Open Engineering</i> (2024). 8. Hajar Hanafi, Hanifa Hanif, and Sharidan Shafie. Unsteady MHD dusty fluid flow over a cone in the vicinity of porous medium: a numerical study. <i>Journal of Taibah University for Science</i> (2024). 9. Hajar Hanafi, Hanifa Hanif, and Sharidan Shafie. Unsteady MHD dusty fluid flow over a non-isothermal cone embedded in a porous medium. <i>Modern Physics Letters B</i>. 10. Hajar Hanafi, Hanifa Hanif, Sharidan Shafie, Fazillah Bosli, and Mohd Rijal Ilias. Unsteady free convection dusty MHD flow with dissipation effect over non-isothermal vertical cone. <i>Journal of Advanced Research in Fluid Mechanics and Thermal Sciences</i> (2024). 11. Hanifa Hanif, Liaquat Ali Lund, Rahimah Mahat, and Sharidan Shafie. Heat transfer analysis of Maxwell hybrid nanofluid with fractional Cattaneo heat flux. <i>Alexandria Engineering Journal</i> (2023). 12. Hanifa Hanif, Wasim Jamshed, Mohamed R. Eid, Rabha W. Ibrahim, Sharidan Shafie, Aeshah A. Raezah, and Sayed M. El Din. Numerical Crank-Nicolson methodology analysis for hybridity aluminium alloy nanofluid flowing based- water via stretchable horizontal plate with thermal resistive effect. <i>Case Studies in Thermal Engineering</i> (2023). 13. Hanifa Hanif et al. (2023). Thermal description and entropy evaluation of magnetized hybrid nanofluid with variable viscosity via Crank–Nicolson method. <i>Case Studies in Thermal Engineering</i> (2023).

	<ol style="list-style-type: none"> 14. Hanifa Hanif, Sharidan Shafie, Norahian Afifah Rawi and Abdul Rahman Mohd Kasimc. Entropy analysis of magnetized ferrofluid over a vertical flat surface with variable heating. Alexandria Engineering Journal (2023). 15. Hanifa Hanif, Sharidan Shafie, Ali Chamkha, Effect of Ohmic heating on Magnetohydrodynamic flow with variable pressure gradient: a computational approach. Waves in Random and Complex media (2022). 16. Hanifa Hanif, Sharidan Shafie, Anati Ali and Rozain Roslan. Collision of hybrid nanomaterials in an upper-convected Maxwell nanofluid: a theoretical approach. Journal of King Saud University (2022). 17. Hanifa Hanif and Sharidan Shafie. Application of Cattaneo heat flux to Maxwell hybrid nanofluid model: a numerical approach. The European Physical Journal Plus (2022). 18. Hanifa Hanif and Sharidan Shafie. Interaction of multi-walled carbon nanotubes in mineral oil-based Maxwell nanofluid. Scientific Reports (2022). 19. Hanifa Hanif and Sharidan Shafie. Impact of Al₂O₃ in electrically conducting mineral oil-Based Maxwell nanofluid: Application to the petroleum industry. Fractal & Fractional (2022). 20. Hanifa Hanif. Cattaneo–Friedrich and Crank–Nicolson analysis of upper-convected Maxwell fluid along a vertical plate. Chaos, Solitons and Fractals (2021). 21. Hanifa Hanif. A computational approach for boundary layer flow and heat transfer of fractional Maxwell fluid. Mathematics and Computers in Simulation (2021). 22. Hanifa Hanif. A finite difference method to analyze heat and mass transfer in kerosene based γ-oxide nanofluid for cooling applications. Physica Scripta (2021). 23. Hanifa Hanif, Ilyas Khan, and Sharidan Shafie. A novel study on hybrid model of radiative Cu – Fe₃O₄/water nanofluid over a cone with PHF/PWT. European Physical Journal: Special Topics (2021). 24. Hanif, Hanifa, Ilyas Khan, and Sharidan Shafie. A novel study on time-dependent viscosity model of magneto-hybrid nanofluid flow over a permeable cone: applications in material engineering. The European Physical Journal Plus (2020). 25. Muhammad Saqib, Hanifa Hanif, Ilyas Khan, and Sharidan Shafie. Heat transfer in MHD flow of Maxwell fluid via fractional Cattaneo-Friedrich model: a finite difference approach. Computers, Materials & Continua (2020). 26. Hanifa Hanif, Ilyas Khan, and Sharidan Shafie. Heat transfer exaggeration and entropy analysis in magneto-hybrid nanofluid flow over a vertical cone: a numerical study. Journal of Thermal Analysis and Calorimetry (2020). 27. Hanifa Hanif, Ilyas Khan, Sharidan Shafie, and Waqar A. Khan. Heat transfer in cadmium telluride-water nanofluid over a vertical cone under the effects of magnetic field inside porous medium. Processes (2020). 28. Hanifa Hanif, Ilyas Khan, and Sharidan Shafie. MHD natural convection in cadmium telluride nanofluid over a vertical cone embedded in a porous medium. Physica Scripta (2019). 29. Amer Rashed, Rab Nawaz, Sohail Ahmed Khan, Hanifa Hanif, and Abdul Wahab. Numerical study of a thin film flow of fourth grade fluid. International Journal of Numerical Methods for Heat & Fluid Flow (2015).
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Publications	<ol style="list-style-type: none"> 3. Numerical investigation of flow around square cylinder with an upstream control plate at low Reynolds numbers in tandem; published in journal The Brazilian Society of Mechanical Sciences and Engineering in 2016. 4. Numerical Study of Drag Reduction for Flow Past a Square Cylinder through Passive Control Method at Various Gap Spacing" Journal of Computational and Theoretical Nanoscience. 5. Numerical Analysis of Flow Past Over Square rods Using Control Rod at Distinct Gap Spacing" Indian Journal of Science and Technology. 6. Prediction of cardiovascular diseases through machine learning algorithms: A supervised model. <i>Kurdish Studies</i>, 12(5), 818–822. https://doi.org/10.53555/ks.v12i5.3345 7. Comparative study of fake news detection using Naive Bayes and logistic model. <i>Kurdish Studies</i>, 12(5), 1008–1015. https://doi.org/10.53555/ks.v12i5.3390.

	8. Numerical investigation for flow past two square cylinder rods in staggered arrangement through lattice Boltzmann method: Annulus Maths Physics. 2023
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Publications	<ol style="list-style-type: none"> 1. RManzoor, R., Ul Islam, S., Abbasi, W. S., & Parveen, S. (2016). Variation of wake patterns and force coefficients of the flow past square bodies aligned inline. <i>Journal of Mechanical Science and Technology</i>, 30(4), 1691–1704. 2. Ul Islam, S., Manzoor, R., Mengal, T., Naeem, A., Parveen, S., & Akbar, R. (2017). Numerical study of drag reduction for flow past a square cylinder through passive control method at various gap spacing. <i>Journal of Computational and Theoretical Nanoscience</i>, 14(12), 5872–5881. https://doi.org/10.1166/jctn.2017.7029

	<p>3. Manzoor, R., Ul Islam, S., Nadeem, N., Perveen, S., & Naeem, T. (Year not specified). Numerical investigations for flow past two square rods in staggered arrangement through Lattice Boltzmann Method. <i>Annals of Mathematical Physics</i>, 4(1), 016–027. https://doi.org/10.17352/amp.000021</p> <p>4. Manzoor, R., Ul Islam, S., Khalid, A., Khan, I., Perveen, S., & Panezai, N. (Year not specified). Numerical simulations for flow past five inline square rods at various gap spacing. <i>Physics of Fluids. (Volume and page numbers needed)</i></p> <p>5. Manzoor, R., Nadeem, N., & Perveen, S. (Year not specified). Numerical study of flow past a triangular cylinder at fixed Reynolds number. <i>(Journal details needed)</i></p> <p>6. Sheikh, N., Naeem, A., Parveen, S., Rehman, A., Anjum, M., Yasin, M., & Manzoor, R. (2024). Prediction of cardiovascular diseases through machine learning algorithms: A supervised model. <i>Kurdish Studies</i>, 12(5), 818–822. https://doi.org/10.53555/ks.v12i5.3345</p> <p>7. Sheikh, N., Parveen, S., Rehman, A., Naeem, A., Anjum, M., Shahid, K., & Yasin, M. (2024). Comparative study of fake news detection using Naive Bayes and logistic model. <i>Kurdish Studies</i>, 12(5), 1008–1015. https://doi.org/10.53555/ks.v12i5.3390</p>
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Publication	<ol style="list-style-type: none"> 1. Thesis topic “Elliptic Curves over Algebraically Closed Fields” 2. Azhar, N., Kousar, F., Kalsoom, S., & Akhtar, Y. (2017). Resolution of Wind Energy and Power in Coastline of Balochistan, Pakistan. <i>Journal of Computational and Theoretical Nanoscience</i>, 14(12), 5882-5887. 3. Manzoor, R., Naz, T., Jalil, M., Perveen, S., Akbar, R., Akhtar, Y., & Panezai, N. (2021). Numerical investigations for flow past two square rods in staggered arrangement through Lattice Boltzmann method. <i>Annals of Mathematics and Physics</i>, 4(1), 016-027. 4. Manzoor, R., Ul-Islam, S., Jalil, M., Akhtar, Y., Ahmed, A., & Kalsoom, S. (2024). Fluid structure interaction problem for flow past three unequal sized square cylinders at different Reynolds numbers. <i>Physics of Fluids</i>, 36(4). 5. Azhar, N., Anum, L., Manzoor, R., Akhter, Y., & Khan, O. (2024). Assessment of Wind Power and Energy at the Coast of Balochistan, Pakistan.