

## Curriculum Vitae (as on March 18, 2026)



### Dr. Muhammad Mujtaba Shaikh

**Designation:** Associate Professor B.P.S. 20 (Mathematics)  
**Affiliation:** Department of Basic Sciences and Related Studies,  
Mehran UET, Jamshoro, Pakistan.  
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+92-22-2772250 (Extension: 2202)  
**E-mail:** mujtaba.shaikh@faculty.muett.edu.pk  
**Blog:** <http://shaikhmuhammadmujtabakhan.blogspot.com>  
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housing society (SUECHS), Phase II, Jamshoro, Sindh, Pakistan.

#### **OBJECTIVES:**

- Fully utilize my knowledge and expertise to contribute in the field of mathematical research.
- Standardize the education level skillfully, and strive to promote the status of my organization.
- Offer my services on potential projects related to Computational mathematics, Statistical analysis, and their applications in science and engineering.
- Bridge my mathematical expertise with case studies in science and engineering to contribute towards United Nations sustainable development goals (UN-SDGs).
- Particularly focus on case studies related to Climate models and resilience, Environment, Energy, Water, Healthcare, Materials, Structures, Transportation, Sustainability, etc.

#### **FIELDS of RESEARCH/INTEREST:**

- Applied and computational mathematics
- Numerical and statistical analysis of mathematical problems in engineering
- Operations research and optimization algorithms
- Boubaker polynomial expansion scheme (BPES)

#### **AWARDS, MEDALS, HONORS and DISTINCTIONS:**

- **POST Ph.D. EXPERIENCE** (Over 8 years since October, 2017)
- **PRODUCTIVE SCIENTIST of PAKISTAN (PSP'17) and RESEARCH PRODUCTIVITY AWARD (RPA'17)**  
Listed in PSP'17 and also included in merit list of RPA'17. Got top 4<sup>th</sup> position in MUET, Jamshoro.
- **SINDH PUBLIC SERVICE COMMISSION** (Paper setting and evaluation)
- **RECIPIENT OF CHANCELLOR'S GOLD MEDAL**  
For highest marks in BS (4-years) throughout the Faculty of Natural Sciences, University of Sindh, Jamshoro.
- **RECIPIENT OF VICE-CHANCELLOR'S SILVER MEDAL**  
For first position in BS-Mathematics, IMCS, University of Sindh, Jamshoro.
- **APPROVED SUPERVISOR**  
For Ph.D./M.Phil./M.E./M.S. at MUET, Jamshoro, University of Sindh, Jamshoro and GCU, Hyderabad.
- **AWARD OF APPRECIATION**  
Served as JUDGE in MTOPENDAY'16, Department of Metallurgy and Materials Engineering, MUET, Jamshoro.
- **MEMBER of SUPPLY CHAIN and OPERATIONS MANAGEMENT RESEARCH GROUP, MUET, JAMSHORO**
- **MEMBER of U.S. CLIMATE RESILIENCE COMMUNITY for SINDH and BALUCHISTAN, PAKISTAN**

#### **ACADEMIC QUALIFICATIONS:**

| Degree                         | Completion | CGPA/Grade (%)     | Name of Institution/Board           |
|--------------------------------|------------|--------------------|-------------------------------------|
| Ph.D. Mathematics              | 2017       | 4.00/4.00          | IMCS, University of Sindh, Jamshoro |
| B.S. Mathematics               | 2009       | 3.98/4.00 (88.02%) | IMCS, University of Sindh, Jamshoro |
| Intermediate (Pre-Engineering) | 2005       | "A" (77.6%)        | B.I.S.E. Hyderabad                  |
| Matriculation (Science)        | 2003       | "A1" (81.06%)      | B.I.S.E. Hyderabad                  |

#### **Ph.D. (Mathematics) RESEARCH:**

**Title of my Ph.D. thesis:** Modified family of closed mid-point derivative-based quadrature rules (PCD#21660)

**Supervisors:** Prof. Dr. Muhammad Saleem Chandio and Prof. Dr. Abdul Sattar Soomro

I published my research in prestigious journals and my work has been very well-received in form of citations. Besides, a number of M.S./M.Phil./M.E. and Ph.D. scholars are working with me on extended applications of my Ph.D. research.

#### **WORK EXPERIENCE: 15+ years**

- Associate Professor (BPS-20), BSRS, MUET, Jamshoro ----- January 10, 2022 – Present
- Assistant Professor (BPS-19), BSRS, MUET, Jamshoro ----- October 05, 2017 – January 09, 2022
- Lecturer (BPS-18), BSRS, MUET, Jamshoro ----- May 13, 2011 – October 04, 2017
- Lecturer (on contract basis), BSRS, MUET, Jamshoro ----- July 16, 2010 – May 12, 2011

## **THESES SUPERVISED:**

### **a. Ph.D.**

**Completed (4)**

1. Ayaz Ali Siyal (2025), "Development of efficient orthogonalization of Boubaker polynomials with its applications in numerical integration and linear Fredholm integral equations of the second kind", Ph.D. (Applied Mathematics), PGS, MUET, Jamshoro.
2. Sara Mahesar (2023), "Efficient modifications in derivative-based open and semi-open quadrature rules", Ph.D. (Mathematics), IMCS, University of Sindh, Jamshoro.
3. Kamran Malik (2021), "Efficient derivative-based schemes for numerical cubature", Ph.D. (Mathematics), IMCS, University of Sindh, Jamshoro.
4. Kashif Memon (2021), "Efficient derivative-based schemes for Riemann-Stieltjes integral", Ph.D. (Mathematics), IMCS, University of Sindh, Jamshoro.

### **b. M.Phil./M.E./M.S.**

**Completed (22)**

1. Waqas Ahmed Channa (2025), "A new explicit approximation for turbulent pipe flows using the Colebrook-White formula", M.Phil. (Applied Mathematics), PGS, MUET, Jamshoro.
2. Zainab Memon (2025), "Development of a computationally efficient family of quadrature-based iterative methods for solving nonlinear equations using Daftardar-Gejji and Jafari decomposition technique", M.Phil. (Applied Mathematics), PGS, MUET, Jamshoro.
3. Sawera Rani Mastoi (2025), "A new family of methods for nonlinear equations using Daftardar-Gejji and Jafari decomposition and midpoint quadrature rule", M.Phil. (Applied Mathematics), PGS, MUET, Jamshoro.
4. Muhammad Ashraf Ali (2025), "An efficient explicit approximation for Colebrook-White equation using method of non-linear least squares", M.Phil. (Applied Mathematics), PGS, MUET, Jamshoro.
5. Basharat Hussain (2025), "Development of Boubaker collocation method for linear Fredholm integral equation of second kind", M.Phil. (Applied Mathematics), PGS, MUET, Jamshoro.
6. Tariq Mehmood (2025), "Revised analysis of classical properties of orthogonal Boubaker-Turki polynomials", M.Phil. (Applied Mathematics), PGS, MUET, Jamshoro.
7. Muhammad Ahad Ashraf Khan (2024), "Development of Gauss-Christoffel quadrature rules using Ahmed's orthogonal Boubaker polynomials", M.Phil. (Applied Mathematics), PGS, MUET, Jamshoro.
8. Hafeezullah Channa (2023), "General analytical solution of Timoshenko beam problem under varying loads", M.Phil. (Applied Mathematics), PGS, MUET, Jamshoro.
9. Imran Ali Panhwar (2023), "General analytical solution for deflection and slope of Euler-Bernoulli beam equations under different types of loads and supports", M.Phil. (Applied Mathematics), PGS, MUET, Jamshoro.
10. Syed Faique Ali Shah (2023), "Reconstruction of static flux linkage characteristics of switched reluctance motor by inverse numerical simulation", M.E. (Electrical Power), IICT, MUET, Jamshoro.
11. Murtaza Ali Khooharo (2023), "Energy conservation by new energy-efficient motors and confidence interval forecasts using statistical techniques", M.E. (Electrical Power), IICT, MUET, Jamshoro.
12. Sanam Mahar (2022), "Improved numerical integrator for simulation of switched reluctance machine", M.E. (Electronic Systems), IICT, MUET, Jamshoro.
13. Sehrish Umer Pathan (2022), "An improved quadrature based iterative method for one variable non-linear equations", M.Phil. (Mathematics), IMCS, University of Sindh, Jamshoro.
14. Adnan Ali Mastoi (2022), "A modified derivative-based method for non-linear equations", M.Phil. (Mathematics), IMCS, University of Sindh, Jamshoro.
15. Mumtaz Yousaf (2022), "Comparative analysis of techniques used for balancing equation of chemical reactions", M.Phil. (Mathematics), IMCS, University of Sindh, Jamshoro.
16. Nazeer Ahmed Khoso (2022), "Derivation of Strum-Liouville form and related classical properties of the Boubaker polynomials", M.Phil. (Mathematics), IMCS, University of Sindh, Jamshoro.
17. Suhail Ahmed Jiskani (2021), "Assessment of 'The City Wide Approach for improved WaSH Services project in Thatta City' by using Statistical Techniques", M.S. (WaSH), USPCAS-W, MUET, Jamshoro.
18. Zulfiqar Ali Shahani (2021), "Small signal stability analysis of Jamshoro thermal power plant through eigenvalues", M.E. (Electrical Power), IICT, MUET, Jamshoro.
19. Bahadur Ali Laghari (2020), "Power Quality Assessment of Grid Integrated Small Scale Wind-based Doubly Fed Induction Generator", M.E. (Electrical Power), IICT, MUET, Jamshoro.
20. Mueed Sultan (2020), "Comparative analysis of methods to overcome human knee osteoarthritis using statistical techniques", M.E. (Biomedical), IICT, MUET, Jamshoro.
21. Khuda Dad (2019), "A hybrid two-step method for single variable non-linear equations", M.Phil. (Mathematics), IMCS, University of Sindh, Jamshoro.
22. Majid Ali Soomro (2019), "Estimation and validation of indoor air CO<sub>2</sub> concentration in class rooms of educational institutes by using Grey-box models", M.E. (Environment), IEEM, MUET, Jamshoro.

**c. B.E. projects****Completed (7)**

1. B.S. (Mathematics) final year project thesis: "Post assessment of COVID-19 outbreak in Pakistan using SIR model" at Department of Basic Sciences and Related Studies, MUET, Jamshoro. (21BSM002, 53, 44), 2025.
2. B.S. (Mathematics) final year project thesis: "Electricity demand forecast of Sindh province using LEAP model" at Department of Basic Sciences and Related Studies, MUET, Jamshoro. (21BSM016, 11), 2025.
3. B.E. (Electrical) final year project thesis: "Reconstruction of input data and modelling of switched reluctance machine in transient mode" at Department of Electrical Engineering, MUET, Jamshoro. (18EL53, 45, 46), 2022.
4. B.E. (Electrical) final year project thesis: "Study and simulation of CSC based HVDC line using MATLAB" at Department of Electrical Engineering, MUET, Jamshoro. (F16EL149, 141, 166), 2020.
5. B.E. (Electrical) final year project thesis: "Energy conservation in Jamshoro power company using energy efficient motors through statistical techniques" at Department of Electrical Engineering, MUET, Jamshoro. (16EL144, 108, 131, 116, 103), 2019.
6. B.E. (Electrical) final year project thesis: "The comparative analysis of energy efficient motors" at Department of Electrical Engineering, MUET, Jamshoro. (15EL76, 106, 134, 111, 103), 2018.
7. B.E. (Bio-Medical) final year project thesis: "Comparative Study of Action Potential Models using Simulation" at Department of Bio-Medical Engineering, MUET, Jamshoro. (14BM02, 53), 2017.

**WORKSHOPS/ TRAININGS CONDUCTED:**

1. Conducted One day training on "Improving student soft skills using data storytelling about climate resilience" as Lead Speaker at Institute of Environment Engineering and Management (IEEM), MUET, Jamshoro on February 26, 2024. Participants included faculty members, Ph.D., M.E. and B.E. fellows of IEEM. In collaboration with University of Nevada Las Vegas, University of Utah and University of Alabama, USA.
2. Conducted Four days' workshop on "Data Analysis using SPSS by Dr. Muhammad Mujtaba Shaikh" as Lead Instructor at U.S. Pakistan Centre of Advanced Studies in Water, MUET, Jamshoro on November 20-23, 2017. Participants included faculty members, Ph.D., Post Doc., M.E. and B.E. researchers and practitioners from different universities and organizations including MUET. Participants were provided with certificates of completion.

**MEMBERSHIP with Societies/ Boards/ Academic Forums:**

- Member: Pakistan Mathematical Society
- Member: Young Pakistani Thinkers Forum
- Member: IBM Academic Initiatives (USA)
- Member: Research Centre for Training and Development (RCTD)
- Advisory Board Member: MUETmosphere Magazine, MUET, Jamshoro
- Member: Board of Studies (Mathematics), BSRS, MUET, Jamshoro
- Member: Board of Studies (Mathematics), GCU, Hyderabad
- Member: Board of Studies (Mathematics), IMCS, University of Sindh, Jamshoro.
- Departmental Coordinator of BSRS at ORIC, MUET, Jamshoro.
- Member Academic counselling committee: FoSTH and BSRS, MUET, Jamshoro.
- Departmental Coordinator of PMYLS for BSRS, MUET, Jamshoro.
- Member: Supervisory/Advisory Board, BSRS, MUET, Jamshoro.

**PROFESSIONAL AUTHOR and PEER-REVIEWER PROFILES:**

- ORCID: <https://orcid.org/0000-0002-1471-822X>
- WoS RESEARCHER ID: <https://www.webofscience.com/wos/author/record/H-5344-2019>
- GOOGLE SCHOLAR: <https://scholar.google.com.pk/citations?user=JpSrPOgAAAAJ&hl=en>
- SCOPUS: <https://www.scopus.com/authid/detail.uri?authorId=56459658700>
- SciProfiles: <https://sciprofiles.com/profile/503296>
- MENDELEY: <https://www.mendeley.com/profiles/muhammad-mujtaba-shaikh/>
- RESEARCHGATE: [https://www.researchgate.net/profile/Muhammad\\_Mujtaba\\_Shaikh](https://www.researchgate.net/profile/Muhammad_Mujtaba_Shaikh)

**EDITORIAL POSITIONS:**

1. Editorial Board Member, Archivos de Ciencia e Investigación (ADCI)
2. Section Editor, Statistics and Probability, Journal of AppliedMath
3. Section Editor, Numerical Analysis and Scientific Computation, Journal of AppliedMath
4. Topical Board Member and Guest Editor, Contemporary Mathematics
5. Editorial Board Member, Journal of Intercultural Communication
6. Review Editor, Frontiers in Applied Mathematics and Statistics
7. Review Editor, Frontiers in Physics
8. Editorial Board Member, American Journal of Operations Research
9. Editorial Board Member, Journal of Mechanics of Continua and Mathematical Sciences
10. Editorial Board Member, International Journal of Innovative Research and Scientific Studies
11. Editorial Board Member, Academic Journal of Applied Mathematical Sciences
12. Academic Editor, Asian Journal of Advanced Research and Reports
13. Editorial Board Member, Journal of Soft Computing Exploration
14. Advisory Board Member, MUETmosphere magazine

### **REFEREE ASSIGNMENTS:**

- (6) Energy – An International Journal (Elsevier)
- (1) International Journal of Heat and Mass Transfer (Elsevier)
- (3) Clean Technologies and Environmental Policy (Springer Nature)
- (2) IEEE Access (IEEE)
- (3) IEEE Transactions on Industrial Electronics (IEEE)
- (4) IEEE Transactions on Industrial Informatics (IEEE)
- (2) Frontiers in Applied Mathematics and Statistics
- (2) Open Physics
- (1) Journal of Data Science and Intelligence Systems
- (1) Frontiers in Energy Research
- (1) Frontiers in Education
- (4) Frontiers in Physics
- (2) Journal of Taibah University for Science (Taylor and Francis)
- (3) Engineering, Technology and Applied Science Research
- (1) Engineering, Science and Technology
- (1) Asian Journal of Advanced Research and Reports
- (1) Mathematical Problems in Engineering
- (1) Revista Mexicana de Ingenieria Quimica
- (2) Journal of Mathematical and Statistical Analysis
- (1) MethodsX (Elsevier)
- (1) Sindh University Research Journal (Science Series)
- (1) Mehran University Research Journal of Engineering and Technology
- (3) American Journal of Operations Research
- (2) Academic Journal of Applied Mathematical Sciences
- (1) International Journal of Earth Science and Geophysics
- (1) Sigma Journal of Engineering and Natural Sciences
- (1) The Journal of Engineering and Physical Sciences
- (2) International Journal of Electrical and Computer Engineering
- (2) Indonesian Journal of Electrical Engineering and Computer Science (IAES)
- (6) Advances in Pure Mathematics (SRP)
- (1) Time Journal of Engineering and Physical Sciences
- (1) International Conference on Economic and Business Management (FEBM2020)
- (1) International Conference on Computer Science and Application Engineering (CSAE 2020)
- Integrative Journal of Conference Proceedings; The Catalyst Research Journal; Science Digest, etc.

### **CONFERENCE TECHNICAL PROGRAM COMMITTEE**

1. Working as technical program committee member in the International conference on data science and edge computing ICDSEC (2025) held on 26-28 September 2025, Ningbo, China.
2. Working as technical program committee member in the fourth International conference on electrical, electronics and information engineering EEIE (2025) held on 19-21 November 2025, Wuhan, China.
3. Worked as technical program committee member in the first international conference on role of mathematics and allied sciences for sustainable development: bridging industry and academia ICRMASSD:BIA (2024) held on 26-27 April 2024, Government College University, Hyderabad, Pakistan
4. Worked as technical program committee member in the third International conference on electrical, electronics and information engineering EEIE (2024) held on 14-16 November 2024, Wuhan, China.
5. Worked as technical program committee member in the International conference on applied mathematics, modelling and statistics applications AMMSA (2023) held on 26-28 August 2023, Changsha, China.

### **KEYNOTE and GUEST SPEECHES:**

1. Presented my talk on “A new derivative-based Simpson’s type cubature scheme for double integrals” as a Keynote speaker in First International Conference on Role of Mathematics and Allied Sciences for Sustainable Development: Bridging Industry and Academia ICRMASSD:BIA (2024) on 26 and 27 April 2024, organized by Government College University, Hyderabad, Pakistan.
2. Presented my talk on “On a family of higher-order convergent nonlinear solvers with applications” as a Keynote speaker in Sixth International Two-Day Conference (Online) on Advanced Research and Development in Mathematical Physics and Mathematics ARDMPM (2023) on 12 and 13 April 2023 organized by Institute of mechanics of continua and mathematical sciences, Kolkata, West Bengal, India.
3. Presented my talk on “Mathematical methods to balance equations of chemical reactions – comparison and way forward” as an invited guest speaker in Third International Two-Day Conference (Online) on Advanced Research and Development in Applied and Pure Mathematics ARDAPM (2021) on 8 and 9 December 2021 organized by Institute of mechanics of continua and mathematical sciences, Kolkata, West Bengal, India.

### **BOOK CHAPTERS:**

1. F. Shaikh, SuR Massan, S. Bhatti, S. S. Chandio, **M. M. Shaikh**, "Effects of Online Educational System on Personal Health of Students and Teachers in COVID-19 Crises". In: García Márquez, F.P., Jamil, A., Eken, S., Hameed, A.A. (eds) Computational Intelligence, Data Analytics and Applications. ICCIDA 2022. Lecture Notes in Networks and Systems, Volume 643. Springer, 2023. [https://doi.org/10.1007/978-3-031-27099-4\\_38](https://doi.org/10.1007/978-3-031-27099-4_38)
- 2-4. Muhammad Mujtaba Shaikh, "Chapter 22: Basic Statistics", "Chapter 25: Chords of a Circle", "Chapter 26: Tangents of a Circle", In Mathematics for Class 10, Sindh Textbook Board, Jamshoro, Sindh, Pakistan, 2022.

### **CONFERENCE PRESENTATIONS:**

1. **M. M. Shaikh**, K. Malik, K. Memon, "A new derivative-based Simpson's type cubature scheme for double integrals", First International Conference on Role of Mathematics and Allied Sciences for Sustainable Development: Bridging Industry and Academia ICRMASSD:BIA (2024) on 26 and 27 April 2024, organized by Government College University, Hyderabad, Pakistan.
2. SuR, Massan, **M. M. Shaikh**, L. A. Thebo, I. A. Qureshi, M. A. Qureshi, "ChatGPT: Is it a bane or a blessing for university teachers?", International conference on business and management ICBM (2023) on 19-20 May 2023 organized by Muhammad Ali Jinnah University, Karachi, Pakistan.
3. H. Channa, **M. M. Shaikh**, K. Malik, "Exact solution of Timoshenko beam equations subjected to varying loads – a generalization", International conference on sustainable development in civil engineering ICSDC (2023) on 16-18 February 2023 organized by Mehran University of Engineering and Technology, Jamshoro, Pakistan.
4. M. A. Khooharo, **M. M. Shaikh**, A. A. Hashmani, "Energy conservation by new energy-efficient motors and confidence interval forecasts using statistical techniques", Sixth International Two-Day Conference (Online) on Advanced Research and Development in Mathematical Physics and Mathematics ARDMPM (2023) on 12 and 13 April 2023 organized by Institute of mechanics of continua and mathematical sciences, Kolkata, India.
5. I. A. Panhwar, **M. M. Shaikh**, R. Kumar, "General analytical expressions for deflection and slope of Euler-Bernoulli beam under different types of loads and supports", Sixth International Two-Day Conference (Online) on Advanced Research and Development in Mathematical Physics and Mathematics ARDMPM (2023) on 12 and 13 April 2023 organized by Institute of mechanics of continua and mathematical sciences, Kolkata, West Bengal, India.
6. F. Shaikh, SuR Massan, S. Bhatti, S. S. Chandio, **M. M. Shaikh**, "Effects of Online Educational System on Personal Health of Students and Teachers in COVID-19 Crises". The international conference on computing, intelligence and data analytics ICCIDA (2022) on 16 and 17 September 2022, Turkey.
7. H. Channa, **M. M. Shaikh**, K. Malik, "General analytical solution of an elastic beam under varying loads with validation", Fifth International Two-Day Conference (Online) on Advanced Research and Development in Applied and pure Mathematics and Computer Science ARDAPMCS (2022) on 9 and 10 November 2022 organized by Institute of mechanics of continua and mathematical sciences, Kolkata, West Bengal, India.
8. F. Shaikh, S. Bhatti, S. S. Chandio, **M. M. Shaikh**, "Feasibility of adoption and overview of online learning in institutes of Pakistan after COVID-19: an instructors and learners perspective", Fifth International Two-Day Conference (Online) on Advanced Research and Development in Applied and pure Mathematics and Computer Science ARDAPMCS (2022) on 9 and 10 November 2022 organized by Institute of mechanics of continua and mathematical sciences, Kolkata, West Bengal, India.
9. **M. M. Shaikh**, M. Yousaf, "On mathematical methods to balance equations of chemical reactions – a comparison and way forward", Fifth International Two-Day Conference (Online) on Advanced Research and Development in Applied and pure Mathematics and Computer Science ARDAPMCS (2022) on 9 and 10 November 2022 organized by Institute of mechanics of continua and mathematical sciences, Kolkata, West Bengal, India.
10. S. R. Mahar, **M. M. Shaikh**, A. A. Memon, "An efficient numerical scheme for static torque profiling of switched reluctance machine with experimental validation", Third International Two-Day Conference (Online) on Advanced Research and Development in Applied and Pure Mathematics ARDAPM (2021) on 8 and 9 December 2021 organized by Institute of mechanics of continua and mathematical sciences, Kolkata, West Bengal, India.
11. S. R. Massan, **M. M. Shaikh**, A. S. Dahri, "Effect of Corona epidemic on research activities of researchers in Engineering universities in Pakistan and its solution via technology", Third international multi-topic conference on Engineering and Science IMCES (2020) on 2-4 June 2020 organized by Universitas Yarsi, Jakarta, Indonesia.
12. S. R. Massan, A. I. Wagan, **M. M. Shaikh**, "Numerical data for wind turbine microsite inspired by human dynasties by use of the Dynastic Optimization Algorithm (DOA)", Third international multi-topic conference on Engineering and Science IMCES (2020) on 2-4 June 2020 organized by Universitas Yarsi, Jakarta, Indonesia.
13. M. A. Soomro, S. A. Memon, **M. M. Shaikh**, A. Channa, "Indoor air CO<sub>2</sub> assessment of classrooms of educational institutes of hyderabad city and its comparison with other countries", Fifth international conference on Energy, Environment and Sustainable development EESD (2018) on 14-16 November 2018 organized by Mehran University of Engineering and Technology, Jamshoro, Pakistan.

### **JOURNAL PUBLICATIONS:**

1. K. Dad, **M. M. Shaikh**, K. Memon, A. W. Shaikh, "A new family of efficient open-type quadrature for the approximation of Riemann-Stieltjes integrals using derivatives", International Journal of Analysis and Applications, Volume 24, 2026, 41.

2. S. Mahesar, **M. M. Shaikh**, K. Memon, M. S. Chandio, "Geometric mean derivative-based open Newton-Cotes quadrature rules", NED University Journal of research, Volume 22, Number 4, 2025, pages: 248-275.
3. **M. M. Shaikh**, K. Memon, S. Mahesar, O. A. Rajput, "A theoretical analysis of Simpson's 1/3-type scheme for the Riemann-Stieltjes integral based on geometric mean derivative", Sindh University Research Journal (Science Series), Volume 57, Number 1, 2025, pages: 1-13.
4. S. Mahesar, **M. M. Shaikh**, K. Memon, "Some efficient derivative-based semi-open quadrature rules with error analysis", Punjab University Journal of Mathematics, Volume 57, Number 4, 2025, pages: 595-617.
5. S. R. Massan, A. I. Wagan, **M. M. Shaikh**, "Adam inspired dynastic optimization algorithm - a fresh look at wind turbine micrositng", Mehran University Research Journal of Engineering and Technology, Volume 44, Number 4, 2025, pages: 120-132.
6. K. Memon, **M. M. Shaikh**, S. Mahesar, et al. "Approximating Riemann-Stieltjes integral using new time and cost efficient trapezoid-type quadrature", European Journal of Pure and Applied Mathematics, Volume 18, Number 4, 2025, 7112.
7. K. Memon, **M. M. Shaikh**, S. Mahesar, "Numerical investigation of a four-point Simpson's quadrature for computing Riemann-Stieltjes integrals", NED University Journal of research, Volume 22, Number 1-2, 2025, pages: 27-44.
8. A. Siyal, **M. M. Shaikh**, C. Cesarano, "Some novel results on Boubaker polynomials leading to an efficient orthogonalization", Dolomites Research Notes on Approximation, Volume 18, Number 1, 2025, pages: 55-71.
9. H. Channa, **M. M. Shaikh**, K. Malik, "General exact analytical expressions for rotation and displacement of a Timoshenko beam under variable loads with validation", Jurnal Kejuruteraan, Volume 36, Number 1, 2024, pages: 199-209.
10. S. Mahesar, **M. M. Shaikh**, M. S. Chandio, A. W. Shaikh, "Centroidal mean derivative-based open Newton-Cotes quadrature rules", VFAST Transactions on Mathematics, Volume 11, Number 2, 2023, pages: 138-154.
11. S. Mahesar, **M. M. Shaikh**, M. S. Chandio, A. W. Shaikh, "Heronian mean derivative-based open Newton-Cotes quadrature rules", NED University Journal of research, Volume XX, Number 4, 2023, pages: 31-45.
12. **M. M. Shaikh**, M. Yousaf, "On mathematical methods to balance equations of chemical reactions – a comparison and way forward", Journal of Mechanics of Continua and Mathematical Sciences, Volume 18, Number 1, 2023, pages: 1-20.
13. M. A. Khooharo, **M. M. Shaikh**, A. A. Hashmani, "Energy conservation by new energy-efficient motors and confidence interval forecasts using statistical techniques", Journal of Mechanics of Continua and Mathematical Sciences, Volume 18, Number 5, 2023, pages: 22-31.
14. I. A. Panhwar, **M. M. Shaikh**, R. Kumar, "General analytical expressions for deflection and slope of Euler-Bernoulli beam under different types of loads and supports", Journal of Mechanics of Continua and Mathematical Sciences, Volume 18, Number 6, 2023, pages: 27-39.
15. A. J. Memon, M. A. Mahar, A. S. Larik, **M. M. Shaikh**, "A comprehensive review of reduced device count multilevel inverters for pv systems", Energies (MDPI), Volume 16, Number 15, 2023, 5638.
16. H. A. Abro, **M. M. Shaikh**, "A new family of twentieth order convergent methods with applications to nonlinear systems in engineering", Mehran University Research Journal of Engineering and Technology, Volume 42, Number 1, 2023, pages: 165-176.
17. S. F. A. Shah, A. A. Memon, **M. M. Shaikh**, "Inverse numerical simulation for the reconstruction of static flux linkage characteristics of switched reluctance motor", Engineering Science and Technology International Research Journal, Volume 7, Number 3, 2023, pages: 61-65.
18. H. B. Lanjwani, M. S. Chandio, K. Malik, **M. M. Shaikh**, "Stability analysis of boundary layer flow and heat transfer of  $\text{Fe}_2\text{O}_3$  and Fe-water base nanofluid over a stretching/shrinking sheet with radiation effect", Engineering, Technology & Applied Science Research, Volume 12, Number 1, 2022, pages: 8114-8122.
19. S. R. Mahar, **M. M. Shaikh**, A. A. Memon, "An efficient numerical scheme for static torque profiling of switched reluctance machine with experimental validation", Journal of Mechanics of Continua and Mathematical Sciences, Volume 17, Number 1, 2022, pages: 104-116.
20. F. Shaikh, S. Bhatti, S. S. Chandio, **M. M. Shaikh**, "Feasibility of adoption and overview of online learning in institutes of Pakistan after COVID-19: an instructors and learners perspective", Journal of Mechanics of Continua and Mathematical Sciences, Volume 17, Number 12, 2022, pages: 1-13.
21. H. Channa, **M. M. Shaikh**, K. Malik, "General analytical solution of an elastic beam under varying loads with validation", Journal of Mechanics of Continua and Mathematical Sciences, Volume 17, Number 11, 2022, pages: 54-62.
22. K. B. Soomro, **M. M. Shaikh**, S. Andriyas, M. R. Shahid, "Saline Water Impact on Water Use Efficiency of Bitter Melon (*Momordica charantia* L) Using Drip Irrigation", Advances in Agriculture (Hindawi), Volume 2022, Article ID 3189216.
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  80. S. Soomro, G. A. Tularam, **M. M. Shaikh**, “A comparison of numerical methods for solving the unforced Van der Pol’s equation”, Mathematical theory and modeling (IISTE), Volume 3, Number 2, 2013, pages: 66-78.

**LANGUAGE SKILLS:** Competence scale of 1 to 5 checks (1 –basic; 5 – excellent):

| LANGUAGE | READING | SPEAKING | WRITING |
|----------|---------|----------|---------|
| English  | ✓✓✓✓✓   | ✓✓✓✓✓    | ✓✓✓✓✓   |
| Sindhi   | ✓✓✓✓✓   | ✓✓✓✓✓    | ✓✓✓✓✓   |
| Urdu     | ✓✓✓✓✓   | ✓✓✓✓✓    | ✓✓✓✓✓   |
| Arabic   | ✓✓✓✓✓   | ✓✓       | ✓✓      |

**SOFT SKILLS:**

- Creativity, Problem-solving, Critical thinking, Leadership, Empathy, Adaptability, Conflict resolution, Transparency.

**TECHNICAL SKILLS:**

- Good command over windows 7/ 8.1/10
- Ms-Office and its tools
- Using internet, Browsing emails and Micro-blogging
- Proficient handling and programming in MATLAB (Matrix Laboratory) and C++
- Statistical Package for Social Scientists (SPSS)
- ANSYS-Fluent package for Computational Fluid Dynamics
- TORA software for Operations Research
- EndNote, Mendeley and Zotero for reference management

**OTHER SIGNIFICANT ACHIEVEMENTS:**

- Serving as Editorial board member in international journals.
- Completed **over 70 review assignments** for international journals.
- Honor of receiving accumulative **impact factor of over 60** according to most reputed Journal citations reports 2024 by Thomson Reuters, and **CiteScore of over 115** as per Scopus, 2024 Cite Scores.
- Qualified GAT General Test with 70/100 in 2011 and GAT Subjective Test of Mathematics with 74/100 in 2016.
- Maintained study material blog for students at MUET (<http://shaikhmuhammadmujtabakhan.blogspot.com>)
- Delivered free lectures to teachers of Department of Commerce, University of Sindh, Jamshoro on the subjects: Business Mathematics (B.Com.) and Inferential Statistics (M.Phil. and Ph.D.).
- Provided guidance to M.E. (Electrical Engineering) scholars on the topics *Spline Interpolation* and *Statistical analysis of high efficiency motors’ data*.
- Provided counseling to Ph.D. scholar of MUISTD, USPCAS-W, MUET on the topics: *Pareto and Ordinal Regression*.

**COURSES, TRAININGS, SEMINARS, WORKSHOPS, EVENTS ATTENDED/ RECEIVED:**

1. Completed two days’ international workshop and training on “Improving student soft skills using data storytelling about climate resilience” organized by The University of ALABAMA, The University of Utah, University of Nevada, Las Vegas USA at USPCAS-W, MUET, Jamashoro from Dec. 6-7, 2023. Trainers: Dr. Steve Burian (US, USA) and Dr. Sajjad Ahmad (UNLV, USA).
2. Completed two days’ international workshop and training on “Incorporating climate resilience contents and activities in courses” organized by The University of ALABAMA, The University of Utah, University of Nevada, Las Vegas USA at USPCAS-W, MUET, Jamashoro from Dec. 4-5, 2023. Trainers: Dr. Steve Burian (US, USA) and Dr. Sajjad Ahmad (UNLV, USA).
3. Completed one-day training for research grant on “Key elements of a grant proposal” organized by Sindh Higher Education Commission, Karachi on Oct. 30, 2023 at Sindh Madressatul Islam University, Karachi. Trainer: Prof. Dr. Mehtab Karim.

4. Completed one-day training for research grant on “Fundamentals of a research proposal grant” organized by Sindh Higher Education Commission, Karachi on Oct. 23, 2023 at Sindh Madressatul Islam University, Karachi. Trainer: Prof. Dr. Mehtab Karim.
5. Completed three days’ international workshop and training on “Use-inspired climate resilience research in Sindh and Balochistan” organized by The University of ALABAMA, The University of Utah, University of Nevada, Las Vegas USA at USPCAS-W, MUET, Jamashoro from Jul. 5-7, 2023. Trainers: Dr. Steve Burian (US, USA), Dr. Michael Barber (UU, USA) and Dr. Sajjad Ahmad (UNLV, USA).
6. Completed two days’ international workshop and training on “Infusing climate resilience into curriculum and teaching” organized by The University of ALABAMA, The University of Utah, University of Nevada, Las Vegas USA at USPCAS-W, MUET, Jamashoro from Jul. 3-4, 2023. Trainers: Dr. Steve Burian (US, USA), Dr. Michael Barber (UU, USA) and Dr. Sajjad Ahmad (UNLV, USA).
7. Attended workshop entitled "Capacity Building/developing SARs as per PEC Accreditation Manual 2014 for OBE&A Implementation" on 5th December 2017 at USPCAS-W, MUET, Jamshoro.
8. Completed two-day international research workshop “IBM SPSS Certification Examination Preparation” organized by Research Centre for Training and Development from Oct. 28 to Oct. 29, 2016.
9. Completed two-day international research workshop “Research Proposal writing and Fund Winning Strategies” organized by Research Centre for Training and Development from Sept. 07 to Sept. 08, 2016.
10. Completed two day international research workshop on “Model Building Techniques and Structural Equation Modeling Using SmartPls” organized by Research Centre for Training and Development from Aug. 11 to Aug. 12, 2016.
11. Completed two day international research workshop on “Research and Inferential Statistics” organized by Research Centre for Training and Development from Jun. 03 to Jun. 04, 2016.
12. Completed two day international research workshop on “Mastering Research Tools – Research Made Easy” organized by Research Centre for Training and Development from Feb. 17 to Feb. 18, 2016.
13. Attended online webinar session on “Lean Six Sigma: An Overview”, conducted by PAKISTAN SOCIETY OF INDUSTRIAL ENGINEERS on April 04, 2015.
14. Attended one day seminar on “Rapid urban growth: Challenges in developing countries”, organized by Department of City and Regional Planning at Auditorium, MUET, Jamshoro on Jan. 22, 2015.
15. Completed one day training of “Presiding Officers and Senior Assistant Presiding Officers” organized by the Election Commission of Pakistan for the Local Government Elections, Sindh, 2015.
16. Completed one week (16 Hours’) short course on “Computational Fluid Dynamics (CFD) using ANSYS-FLUENT® 14” organized by Department of Mechanical Engineering MUET, Jamshoro under supervision of Mr. Imran Nazir Unar from Dec. 18 to Dec. 21, 2014.
17. Completed with Distinction 6 weeks’ long online course “Statistical Analysis of fMRI Data“, offered by John Hopkins University, U.S.A, through www.coursera.org under the supervision of “Prof. Dr. Martin Lindquist”, John Hopkins University U.S.A, from July 21 to Sept. 01. 2014.
18. Participated in the event “TRANSCENDENCE”, organized by THE TEAM VECTOR, MUET, Jamshoro in collaboration with Humans of MUET at Auditorium, MUET, Jamshoro on Sept. 30, 2014.
19. Attended the 3<sup>rd</sup> international conference on “Energy, Environment and sustainable Development”, organized by Department of Environmental Engineering and Management, sponsored by HEC Pakistan from Oct. 22, 2014 to Oct. 24, 2014 at Auditorium, MUET, Jamshoro.
20. Completed with Distinction 10 weeks’ long online course “Introduction to Mathematical Thinking“ offered by Stanford University, California, U.S.A, through www.coursera.org under the supervision of “Prof. Dr. Keith Devlin”, Stanford University U.S.A, from March 04 to May 11. 2013.
21. Completed one day training of “Presiding Officers and Assistant Presiding Officers” organized by the Election Commission of Pakistan for the General Election 2013.
22. One day national workshop on “Intellectual Property Rights in Pakistan: Challenges and Opportunities”, organized by MUISTD, M.U.E.T, sponsored by HEC and PSF Pakistan. Held on April 26, 2012 (World IP Day) at Makhdoom Hall, MUET.
23. One day training seminar on “Solar Energy Applications”, organized by AEDM and ESO, held on Feb. 27, 2011 at Mumtaz Mirza Auditorium, Hyderabad.
24. “Lecture presentation on importance of Mathematics in engineering field”, organized by Department of B.S. and R.S. MUET Jamshoro, held at Makhdoom hall, MUET on 7<sup>th</sup> October 2010.
25. Seminar on “Response to emerging sources in research”, organized by Bureau of STAGS, University of Sindh Jamshoro, held on Wednesday 11 February 2009 at Shaikh Ayaz Auditorium, Arts faculty building, University of Sindh, Jamshoro.
26. Completed class course on MATLAB (MATRIX LABORATORY) under the supervision of “Mr. Abdul Karim Soomro”, I.M.C.S, University of Sindh, Jamshoro in 2007.
27. “Dr. M. N. M. Talpur Inaugural Lecture”, organized by Institute of Mathematics and Computer Sciences, University of Sindh Jamshoro, held on 27<sup>th</sup> March 2007 at Auditorium hall, Department of Statistics, University of Sindh, Jamshoro.
28. Completed with First Position 8 months’ long certificate course “English Proficiency Course” under the supervision of “Syed Asim Hassani”, United English Language and Computer Centre, Hyderabad, Pakistan, from June 2002 to Feb. 2003.

### **NEWSPAPER AND MAGAZINE PUBLICATIONS:**

1. Muhammad Mujtaba Shaikh, "Departmental profile: Department of Basic Sciences and Related Studies", MUETmosphere magazine, Mehran UET, Jamshoro, Nov. 2014.
2. Muhammad Mujtaba Shaikh, "Predatory publishers", THE NATION newspaper, Jan. 14, 2014.
3. Shaikh Muhammad Mujtaba Khan, "Mystery of the Bermuda Triangle", Monthly Shaoor magazine, Department of Mass Communication, University of Sindh, Jamshoro, Volume 3, Issue 8, Feb. 2009, pp. 26.
4. Shaikh Muhammad Mujtaba Khan, "Disorders of variable climate and their prevention", Monthly Shaoor magazine, Department of Mass Communication, University of Sindh, Jamshoro, Vol.3, Iss. 3, Jul-Aug 2008, pp.28.
5. Shaikh Muhammad Mujtaba Khan, "Contribution of Muslims in science and causes of their decline", Weekly Roshni newspaper, Department of Mass Communication, University of Sindh, Jamshoro, Volume 3, Issue 15, Aug 2008, pp. 07.
6. Shaikh Muhammad Mujtaba Khan, "Mathematics; not a headache", Monthly Shaoor magazine, Department of Mass Communication, University of Sindh, Jamshoro, Volume 2, Issue 4-5, Jul-Aug, 2007, pp. 28.

### **NATIONAL and INTERNATIONAL COLLABORATION outside MUET:**

- **Prof. Jong-Suk Ro**, Chung-Ang University, Korea.
- **Prof. Dr. Huafei Sun**, Beijing Institute of Technology, China.
- **(Late) Prof. Dr. Ing. Karem Boubaker**, University of Tunis, Tunisia.
- **Prof. Clemente Cesarano**, International Telematic University Uninettuno, Roma, Italy.
- **Prof. Dr. Gurudeo Anand Tularam**, Griffith University, Australia.
- **Prof. Dr. Steven Freear**, University of Leeds, UK.
- **Prof. Akhtar A. Khan**, Rochester Institute of Technology, New York, USA.
- **Dr. Noor Fadiya Mohd Noor**, University of Malaya, Kuala Lumpur, Malaysia.
- **Dr. Asim Imdad Wagan**, Muhammad Ali Jinnah University, Karachi, Pakistan.
- **Dr. Shafiq-ur-Rehman Massan**, Newports Institute of Communications and Economics, Karachi, Pakistan.
- **Prof. Dr. Muhammad Saleem Chandio**, University of Sindh, Jamshoro, Pakistan.
- **Prof. Dr. Abdul Sattar Soomro**, University of Sindh, Jamshoro, Pakistan.
- **Engr. Manzoor Hussain**, Government of Pakistan.
- **Dr. Muhammad Asim Ali**, IBA, Sukkur, Pakistan.
- **Dr. Muhammad Saleh Shah**, Government Saifee Zahabi Edhi College of Education, Karachi, Pakistan.
- **Dr. Abdul Wasim Shaikh**, University of Sindh, Jamshoro, Pakistan.

### **PERSONAL INFORMATION:**

Father's Name : Prof. (Rtd.) Dr. Hafiz Abdul Ghani  
Surname : Shaikh  
Domicile : Hyderabad (Urban), Sindh  
Religion : Islam  
Nationality : Pakistani

### **REFERENCES:**

| Full Name                   | Designation                                  | Address (Present)                                                                  | Contact Number  |
|-----------------------------|----------------------------------------------|------------------------------------------------------------------------------------|-----------------|
| Prof. Dr. Tauha Hussain Ali | Vice Chancellor                              | Mehran UET, Jamshoro                                                               | 022-2771197     |
| Prof. Dr. Aneel Kumar       | Pro-Vice Chancellor<br>(Main Campus)         | Mehran UET, Jamshoro                                                               | 022-2771352     |
| Prof. Dr. A. Sattar Larik   | Dean FoSTH                                   | Mehran UET, Jamshoro                                                               | 022-2771352     |
| Dr. Muhammad Anwar Solangi  | Professor<br>(BPS-21)<br>and Chairman        | Department of Basic Sciences<br>and Related Studies, Mehran<br>UET, Jamshoro       | +92-331-3549364 |
| Dr. Muhammad Aslam Uqaili   | Professor<br>(BPS-22)                        | Mehran UET, Jamshoro                                                               | 022-2771360     |
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## **PERSONAL PROFILE STATEMENT**

Greetings!

This is Dr. Muhammad Mujtaba Shaikh. I was born on 20-10-1988 in Hyderabad, and received my primary and secondary education from Dr. N. A. Baloch Model School, Elsa Kazi Campus, University of Sindh, Hyderabad.

During my primary and secondary education, I performed equally well in Mathematics as well as in all other subjects. That time, I used to consider Mathematics just like other subjects – there was nothing more special about it in my academic curiosity. I had been a hard-working student, and also secured perfect scores in Mathematics subject up to 8<sup>th</sup> grade, a number of times, but some sort of enjoyment and zeal for Mathematics was missing up to 8<sup>th</sup> grade.

However, in my Matriculation, I was highly inspired and influenced by the way of teaching of my Mathematics teacher “Sir. Jay Parkash” in the same school. That was a turning point of my academic exposure – and since then – I continued his motivations due to his way of delivering the lecture, explaining the things adequately and exposing to the applications to support abstract ideas. These admired me to the extent that I was firm enough right at matriculation stage that I will go ahead in my academic life for the highest degree in Mathematics, and pursue a teaching career in the same field to motivate future minds towards better understanding of the subject. This was the reason that, I chose later on Intermediate Pre-Engineering and completed it from same institute. Finally, I started my under-graduation journey by filing admission form only at University of Sindh, Jamshoro and with my only principle discipline of choice “Mathematics”. Although, at the same stage, my friends were more inclined towards Engineering degree from Mehran University, Jamshoro; but I didn’t even apply for that as I was clear enough on what I wanted to do ahead in my life.

Thanks to the strong educational background of my family with three PhDs in near relatives, but all in Social Sciences and none in Physical Sciences or Mathematics, who supported me throughout my academic discourse. I was always stimulated by family though to choose the field as per my own interest and aptitude and work hard to shine in the same, but I also faced a sort of isolation as I was doing something, at times, others did not use to understand and some had conventional laymen thinking that Mathematics was a mind-blowing headache and language of JINS. Yulk! This was reality, and this stimulated me to write some magazine articles right at the time I was pursuing B.S. (Mathematics) in 2006-2009 on importance of Mathematic and appealing a layman to know importance of science and mathematics. I published about four articles that time. As I was committed with my aim and thus always secured first position in my batch, and at last I also received faculty top stance in the Faculty of Natural Sciences, University of Sindh, Jamshoro in the Convocation.

I started my career in Mehran University of Engineering and Technology, Jamshoro in July 2010 as Lecturer of Mathematics on contract basis after qualifying departmental and university selection board, and presently I am working as an Associate Professor (BPS-20) since January 2022.

Soon after completing B.S. (Mathematics) degree in 2009, I started pursuing higher degree in Mathematics in 2010, and as per advice of my supervisor and experts witnessing the depth of my research work and room for extension, I was suggested to go for Ph.D. (Mathematics) degree under MS leading to PhD program since Dec. 2010. I completed it successfully with all requirements of University and HEC in Oct. 2017. My research work was concerned with computational mathematics, and particularly on improvement of the existing state-of-the-art methods of numerical integration to increase their accuracy and precision besides lowering or not compromising upon the computational cost and time required for implementation; hence also using them for addressing complex problems in mathematics, science and engineering.

Due to my zeal for Mathematics right after Matriculation, I was keen in interacting with my Engineering colleagues at MUET and other Universities and to discuss efficient mathematical treatment of case study problems in their fields. This also led to some impact factor publications right in the start of my career even before completing any research degree. So, besides my usual publications as a consequence of my Ph.D. research and with students working under my supervision, I also have equally a good section of my publications focusing upon efficient mathematical treatment of problems in science and engineering.

I have a vision, and I look things according to that, which is actually a realization of the fact that in the earlier times the giants making big achievements in the development of Science, Mathematics, etc, like: Albert Einstein, Isaac Newton, Karl Friedrich Gauss, etc, were not only Mathematicians, or only Physicists but they were scientists having all-round knowledge of important fields of science, like: Mathematics, Physics, Chemistry, Computing, etc. I think, we presently lack such revolutions and developments in science to get closer to the truth of universe, because we have gone deeper into our own particular fields with very less or quite negligible bridging of different fields to achieve milestones.

Present time requires us to bridge different disciplines besides doing research in own discipline so as to meet up with the challenges of the modern world, and to attain United Nations Sustainable Developments Goals (UN-SDGs), which are unlikely to be attained without interaction of experts from different fields.

With this vision in my mind, I see myself working in a two-fold capacity: as a faculty member at MUET and as a researcher in general. My research work and candidates’ supervision areas are all primarily concerned with mathematical sciences and applications, but can be categorized in two ways. On one hand, I am trying myself and with my candidates under supervision to improve existing mathematical methods, and on the other hand I am working myself with some engineering candidates under supervision and with engineering colleagues assisting me in the supervision to tackle complex mathematical problems and modelling strategies required in various fields of social sciences, natural sciences, engineering and technology. This all is witnessed from the list of my research publications and the candidates I have supervised. I wish to go ahead in this zeal to contribute more and towards achieving some concrete milestones in the near future.

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