Dr. Muhammad Yousaf

COMSATS University Islamabad, Park road, Islamabad, Pakistan.

Personal Data:

Date of Birth	06-06-1969.
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	G-9/4, Islamabad.
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	COMSATS University, Islamabad,
	Park road, Chack Shahzad, Islamabad.

Academic Qualification:

Sr.	Degree/Certificate	Passing Year	Marks	Division	College/University
1	PhD (Mathematics)	2012	81.40 % (course work)	Ist	CU Islamabad
2	MS(Mathematics)	2007	77.20 %	Ist	CU Islamabad.
3	PGD-Computer Science	1999	68.00 %	Ist	QAU-Islamabad
4	M.Sc. (Mathematics)	1995	63.90 %	Ist	QAU-Islamabad
5	B.Sc. (Math A&B, Phy.)	1990	70.50 %	Ist	Islamia University Bahawalpur
6	F.Sc. (Pre-Engineering)	1987	67.73 %	Ist	Bahawalpur Board
7	S.S.C (Science)	1985	79.76 %	Ist	Bahawalpur Board

Teaching Experience: (**24 Years**) at Bachelor and Master Levels.

- Worked as lecturer in Mathematics at **The National College** 6-th Road Rawalpindi from 1997 to 2002(**5 Years**).
- worked as visiting lecturer at **Bahria University Islamabad** since October 2000 to August 2002.

- worked as visiting lecturer at **<u>Air University Islamabad</u>** since April 2002 to August 2002.
- worked as visiting lecturer at **<u>Mohi-ud-Din Islamic University</u>** Rawalpindi Cantt since May 2001 to January 2002
- worked as visiting lecturer at Pyramid education Center 6-th Road Rawalpindi since December 2001 to April 2002.
- worked as visiting lecturer at Global Informatics Peshawar Road Rawalpindi since February 2001 to August 2002
- **<u>Worked as Lecturer (OG-1) at CUI</u>** About   **10 Years**
- **<u>Working as Assistant Professor</u>** (OG-11) **at CUI** About **11 Years** .

List of Publications

1. S. Qamar, **M. Yousaf**, S. Muddasser, The space-time CE/SE method for solving ultra-relativistic Euler equations, *Computer Physics Communications*, 182, 994-1004, 2011. **Impact factor 3.628, ISSN: 0010-4655**
2. S. Qamar, **M. Yousaf**, The space-time CE/SE method for solving special relativistic hydrodynamic equations**,** Journal of *Computational Physics*, 231, 3928–3945, 2012. **Impact factor 2.434, ISSN: 0021-9991**
3. S. Qamar, **M. Yousaf**, The discontinuous Galerkin finite element method for solving special relativistic hydrodynamic equations, *Computers & Mathematics with Applications*, 65, 1220-1232, 2013. **Impact factor 1.697, ISSN: 0898-1221**
4. T. Ghaffar, **M. Yousaf**, S. Sultan and S. Qamar, High Order Central Schemes Applied to Relativistic Multi-Component Flow Models, *Appl. Math. J*., **5, 1249-1266**, 2014. **ISSN: 2152-7385 (2152-7393 online).**
5. **M. Yousaf**, T. Ghaffar and S. Qamar, Application of central upwind scheme to special relativistic hydrodynamic models, DOI: 10.1371/journal.pone.0128698 June 12, 2015 Plos one, 201. **Impact factor 3.234.**
6. T. Ghaffar, **M. Yousaf**, and S. Qamar, Numerical solution of special ultra-relativistic Euler equations using central upwind scheme, Results in Physics, 9, 1161-1169, 2018. **Impact factor 2.147.**

Students Supervised

1) Ms.Saira Sultan MS student Spring 2014 (Thesis titled: Numerical Solution of Relativistic Multi- Flows Using High Order Central Scheme)
2) Ms.Kanwal Ejaz MS student Spring 2014 (Thesis titled: Numerical Solution of Ultra-Relativistic Hydrodynamic Model)
3) Ms.Samia Amjad MS student Fall 2015 (Thesis titled: Numerical Solution of Viscous Quantum Hydrodynamic Model for Semiconductors Using High Resolution Central Upwind Scheme.)
5) Ms.Uzma Shaheen MS student Fall 2017 (Thesis titled: On the Solutions of Special Relativistic Hydrodynamic Equation.)

4) Ms.Iqra Luqman BS student Fall 2017 (Project titled: Some Fundamentals of Fractional Calculus.).
6) Mr. Luqman Yousuf BS student Spring 2018 (Project titled: On the Fundamental of Fourier Series.).
7) Mr. Farhat Iqbal, M.Sc Mathematics student (COMSATS Virtual Campus) Spring 2018 (Project titled: Prime Numbers and their Applications.).
8) Mr. Muhammad Mairaj MS student Spring 2019 (Thesis titled: Numerical Solution of Ultra-relativistic Euler Equations using Discontinuous Galerkin Finite Element Method.)
9) Ms. Samra Midhat BS student Spring 2020 (Project titled: On the Fundamentals of Differential Equations, their Applications and Solution Methods)
10) Ms. Laraib Kiran, MS student Spring 2020 (Thesis titled: Numerical Solution of Special Relativistic Euler Equations using Space Time CESE Method.)

ETS Certification in the ELTeach professional development

5th Pre-Service Faculty development Training course

Courses taught:

- Discrete Mathematics, Msc. Computer Sciences, Msc. Computer Engineering, Bachelor of Computer Sciences.
- Calculus 1, Calculus 11 & Calculus 111, Bachelor of Computer Sciences
- Linear Algebra, Bachelor of Computer Sciences.
- Differential Equations, Bachelor of Computer Sciences
- Numerical Analysis, Bachelor of Computer Sciences.

Courses taught at COMSATS

- Engineering Transforms, Bachelor of Telecom Engineering.
- Calculus 1,11,111, Bachelor of Telecom Engineering, Computer Engineering and Computer Sciences, BS- Mathematics, Telecom, Electronics, and Bioinformatics.
- Calculus & Analytic Geometry, Bachelor of Computer Engineering, Computer Sciences, BS –Telecom.
- Multivariable Calculus, Bachelor of Computer Engineering and Computer Sciences, BS –Telecom
- Linear Algebra, BS Electronics
- Differential equations, Bachelor of Computer Engineering, BS –Telecom
- Ordinary Differential equations, Bachelor of Computer Engineering, and Computer Sciences, BS –Telecom
- Business Mathematics, BBA
- Mechanics I, II, BS-Mathematics

Administrative Assignments performed at COMSATS

- Member Anomalies Committee (Exams/Academics), BS Student Counselor

Courses studied during MSc.

1) Analytic Geometry of three dimensions.
2) Advance Calculus-1.
3) Linear Algebra.
4) Set Topology.
5) Ordinary Differential Equations.
6) Advance Calculus-2.
7) Group Theory.
8) Complex Analysis.
9) Differential Geometry.
10) Partial Differential Equations.
11) Analytical Mechanics.
12) Real Analysis.
13) Functional Analysis.
14) Numerical Methods.
15) Optimization Theory.
16) Mathematical Statistics.
17) Numerical Analysis.
18) Electromagnetism.
19) Introduction to Econometrics.
20) Fluid Mechanics.
21) Introduction to Operation Research.

Specialization

Computational fluid dynamics, Applied Mathematics, Fluid Mechanics.

Courses Studied during MS

1) Numerical Methods in Fluid Dynamics (By Prof. Dr. P.D. Arial, Canada)
2) Numerical Linear Algebra (By Dr. Alam Zeb CU, Islamabad)
3) Physical fluid Dynamics (By Dr.A.U.Kalim CU, Islamabad)
4) Perturbation methods and Homotropy Analysis (By Prof. Dr. Q.K. Ghori CU, Islamabad).
5) Numerical solutions of PDE's (Prof. Dr. Anwar Hussain Bangladesh)
6) Viscous Fluid Theory-1 (By Prof. Dr. Saleem Asghar CU, Islamabad)
7) Viscous Fluid Theory-11 (By Prof. Dr. Saleem Asghar CU, Islamabad).
8) Advanced PDE's. (By Prof. Dr. Saleem Asghar CU, Islamabad)

MS Thesis

Generalized Couette Flow of Third grade fluid with magnetic
Field (Supervisor Prof. Dr. Q.K. Ghori CU, Islamabad and Co-Supervisor
Prof. Dr. Abdul Majeed Siddiqui, Pennsylvania state University, USA)

Courses Studied during PhD

1) Purtubation Methods-II (By Prof. Dr. Saleem Asghar CU, Islamabad)
2) Integral Inequalities (By Prof. Dr. Nazir Ahmad Mir CU, Islamabad)

3) Magnetohydrodynamics (By Prof.Dr.Aftab Khan CU, Islamabad)
4) Group Theoretic Methods (By Dr. Muhammad Mushtaq CU, Islamabad).
5) Momentum & Thermal Boundary Layer Theory (Prof. Dr. Anwar Hussain Bangladesh)
6) Elastodynamics (By Prof. Dr. Dr.Aftab Khan CU, Islamabad)

PhD Thesis

Numerical Investigation on the Dynamic Behavior of Compressible Special Relativistic Flows (Supervisor Prof. Dr. Dr. habil. Shamsul Qamar, CU, Islamabad)

Research Project

Direct and Inverse Problems for Time Fractional Diffusion Equation (0.475 Million) by HEC during 2013-2014.

Research Interest

Computational Fluid Dynamics, Fluid Mechanics, Non-Newtonian Fluids, Applied Mathematics

Conferences & Workshops

- National Symposium on Nanotechnology 4-5 November 2002, Islamabad, Pakistan, **Participant.**
- International Conference on Mathematical Models and Methods in Fluid Mechanics, Islamabad, Pakistan, 2005, **Participant.**
- International Conference on Mathematical Models and Methods in Fluid Mechanics, Islamabad, Pakistan 2006 **Participant.**
- CIIT/IWR Joint Workshop on DUNE and PDELab, 2015 **Participant.**

References

1) Prof. Dr. Saleem Asghar

   Department of Mathematics,

   COMSATS University, Islamabad.

2) Prof. Dr. Aftab Khan

   Department of Mathematics,

   COMSATS University, Islamabad.

3) Prof. Dr. Habil. Shamsul Qamar

   Chairperson, Department of Mathematics,

   COMSATS University, Islamabad.