Aisha Mahmood, *PhD*

Skype ID: ash_prof
Email ID: aisha.mahmood@ue.edu.pk/ash_prof@lumsalumni.pk
Mobile: +92-316-4122700/306-4049968
LinkedIn Profile: linkedin.com/in/draishamahmood

OBJECTIVE

Seeking Excellence in STEM Education Research, Practice and Leadership.

EDUCATION

Universiti Teknologi Malaysia (UTM), Johor Bahru, Malaysia
PhD in Engineering Education   *September 8, 2015*

Supervisors: Dr. Fauzi Bin Othman and Dr. Yudariah Binti Mohammad Yusof
Thesis Title: *"Blended Learning Environment to develop Personas and Themes in Engineering Students using Mathematical Oriented Activities"*

Lahore University of Management Sciences (LUMS), Lahore, Pakistan
Masters of Science in Computer Engineering   *June 18, 2011*

Relevant Courses: Problems of Learning; Computer Vision; Machine Learning; Digital System Design; Applied Probability; Design and Analysis of Algorithms; Computer Architecture; Advanced Computer Architecture; Data Mining; Operations Research.

University of Engineering and Technology (UET), Lahore, Pakistan
Bachelors of Science in Electrical Engineering   *January 1998*
Final Year Project "Traffic Signal Control Using PLC."

PROFESSIONAL EXPERIENCE

University of Education, Township Campus Lahore   *April 2018 to date*

    Assistant Professor (Department of STEM Education, Division of Education)

Namal College, Mianwali, Pakistan

    Assistant Professor (Department of Electrical Engineering) &   *April 2015 to May 2017*

    Registrar   *June 2016 to May 2017*

    [Head of Student Support Office (SSO)/ Head of Admissions and Placement Office (APO)/

    Head of Exams and Placement Office (EPO)]

Universiti Teknologi Malaysia   *October 2011 to August 2014*

    Research Assistant

Allama Iqbal Open University, Lahore, Pakistan   *March 2011 to September 2011*

    IT Professional OG-II / Department of Computer Sciences

Beacon House National University, Lahore, Pakistan   *Jan 2011 to June 2011*

    Assistant Professor (Visiting Faculty)

Megaplus, Lahore, Pakistan   *Jan 2003 to July2009*

    ERP Coordinator

PROFESSIONAL EXPERIENCE *(Continued)*

Informatics, Bahria University & SZABIST ISD, Pakistan	*Sep 2001 to Dec 2002*

Assistant Professor (Visiting Faculty)

The University of Lahore, Pakistan	*January 2000 to Aug 2001*

Assistant Professor

National Engineers Training Services, Lahore, Pakistan	*Nov 98 to June 2000*

Manager SAP Operations

Systems Research Pvt. Ltd., Rawalpindi, Pakistan	*Feb 98 to Oct 98*

SAP Functional Consultant

Control Systems Engineering Pvt. Ltd.	*April 96 to Sep 96*

Project Internee

RELEVANT SKILLS & ACCOMPLISHMENTS

Interpersonal, Communication & Entrepreneurial Skills:

- Working as Education Consultant in the Project "***Rehabilitation and Revitalization of Science Labs across Selected Schools in Punjab***" under FAME Educations and PMIU (September 2019 to date)

- Working as Co-Principal Investigator of the project *"**Innovating and Designing Applications in STEM Education (IDEA-STEM)**"* collaboratively with the University of North Carolina Wilmington and the University of Education, Lahore in Pakistan, (April 2018 to date)

- Worked as Principal Investigator of the project *"**Integration of Design Thinking and Inventive Problem Solving for Prospective Engineers**"* at Namal College, Mianwali (April 2016 to May 2017)

- Worked as Team Lead of the project **"Namal Initiative of Social Transformation (NIST)"** at Namal College, Mianwali (February 2016 to May 2017)

- Worked as Patron of **Namal Society of Social Impact (NSSI)** at Namal College, Mianwali (September 2015 to June 2016)

- Worked as Coordinator Workshops and Seminars at Namal College, Mianwali (September 2015 to May 2017)

- Worked as Mendeley Advisor for the Namal College, Mianwali (2015 to 2017) and Conducted basic and advanced level workshops on Mendeley (2015) for undergraduate students of Computer Science and Electrical Engineering

- Worked as Engineering Education Consultant in Ce-TIDE, Namal College, Mianwali (2015)

- Worked as Mendeley Advisor for the ***UTM, Skudai Campus*** (2012 to 2015) and conducted basic and advanced level workshops on Mendeley (2012, 2013, 2014) for postgraduate students

- Worked as research assistant on a project "***Study of Mathematics Learning Methods among Malaysian using fMRI***" and sharing engineering education perspective to facilitate and make sense of the fMRI results (2011-2014) at ***Universit Teknologi Malaysia***.

- Worked as Vice President, ***Postgraduate Student Society-School of Graduate Studies (PGSS-SPS)*** (2014-2015) at Universit Teknologi Malaysia

- Participated in a ***National Science Foundation (NSF)*** funded project ***"Engineering Education Research Leadership NetWorkshop"*** (2013 to 2015) as a mid-career faculty to get a support to move into leadership roles, building my communication skills in difficult situations, and developing strategies to raise awareness of and appreciation for the field of EER in the broader engineering community.

- Participated in a ***National Science Foundation (NSF)*** funded project ***"Engineering Education Pioneers and Trajectories of Impact,"*** (2014) to gain a contextualized understanding of past transformation efforts in engineering education by documenting and analyzing pioneers' "impact trajectories" (contributions, influences, challenges, and successes) and to catalyze and study the development of prospective change agents.

- Participated in a ***National Science Foundation (NSF)*** funded project ***"Refining the Taxonomy for Engineering Education Research"*** (August 2013 to September 2013) and several follow-up sessions with the broad engineering education research community to refine the taxonomy for engineering education research. These include online audio, video and written interactions and a workshop at REES 2013.

- Worked as Female Representative, ***International Student Society, Pakistan (ISS-PAK)*** (2012)

- Worked on project proposal writing for online BS (CS) program under the Department of Computer Science AIOU, Pakistan (2011)

ROLE IN ADMINISTRATION & SERVICES

Registrar/Head of SSO, APO, EPO

As *Head of Student Support Office (SSO)*, I was responsible for supporting the academic environment and enhancing the student experience at Namal College through advising and counseling, liasoning the academic as well as non-academic misconduct cases, developing the policies and procedures of SSO, smoothly executing standard operating procedures (SOPs)

related to the student services and providing a healthy learning environment for extra-curricular activities including student societies and clubs.

As *Head of Admissions and Placement Office (APO)*, I planned and executed the admission drive, developed and improved the admission process. I also managed the graduation ceremonies and headed the placement drives for fresh graduates in the industry.

As *Head of Exams and Partnership Office (EPO)*, I supervised exam and partnership office for pre-, post- and during exam activities and facilitate the partnership SOPs with local and foreign universities.

Student Advising & Mentorship Activities

Academic Year 201617:

- o An allocated group of 15 students has been advised (as Academic Advisor).
- o Most of the DPS (Developing Professional Skills) module's students were advised for skill building on regular basis (as a Teacher/Mentor).
- o Event management team has been advised throughout the year for leadership skills (as Coordinator Seminars and Workshops).
- o Fresh Graduates have been advised/mentored for their further studies and Jobs (as Mentor).

Academic Year 201516:

- o An allocated group of 14 students has been advised (as Academic Advisor).
- o Most of the DPS (Developing Professional Skills) module's students have been advised for skill building on regular basis (as a Teacher/Mentor).
- o NSSI (Namal Society of Social Impact) management team has been advised throughout the year for leadership skills (as Patron).
- o Event management team has been advised throughout the year for leadership skills (as Coordinator Seminars and Workshops)
- o Fresh graduates have been advised/mentored for their higher studies and jobs (as Mentor).

HONORS, AWARDS & SCHOLARSHIPS

- Received "Partial Support for PhD Studies Abroad" for my last year of PhD at Universiti Teknologi Malaysia (UTM) , Malaysia from HEC, Pakistan   *2013*

- Achieved First Place award on Final Year Project "Traffic Signal Control Using PLC"
  1997

- Received National Talent Scholarship & Silver Medal for obtaining the 2nd position
  among girls in F.Sc.   *1994*

- Received Shamshad Memorial Gold Medal & Silver Medal for standing first in Lahore College for Women   *1993*

- Received Academic Roll of Honors from Lahore College for Women   *1993*

- Achieved Final Award of Govt. Scholarship   *1987*

- Achieved President's Talent Farming Scholarship   *1987*

RESEARCH & PROJECTS

- *"Rehabilitation and Revitalization of Science Labs across Selected Schools in Punjab"*
  September 2019 to date

- *"Innovating and Designing Applications in STEM Education (IDEA-STEM)"*
  April 2018 to date

- *"Integration of Design Thinking and Inventive Problem Solving for Prospective Engineers"* *April 2016 to May 2017*

- "*Study of Mathematics Learning Methods among Malaysian using fMRI*"
  October 2011-to August 2014

- *"Engineering Education Pioneers and Trajectories of Impact"*
  January, 2014-to-December 2014

- *"Refining the Taxonomy for Engineering Education Research"*
  August-September, 2013

- "*Anomaly Detection in Data Sets" (Problems of Learning)* *2011*
  For the Course Project of "Problems of Learning"

- "*Anomaly Detection in Data Sets"* *2011*
  (Domain specific applications for Anomaly detection and prediction).

- *"Traffic Signal Control Using PLC"* *1997*
  (Adaptive Control and Time division Control).

PUBLICATIONS (REFERRED/INDEXED)

- Sterrett, William; Azam, Rauf; Moallem, Mahnaz; Boersma, Jess; Bashir, Ahsan; Ricanek, Karl; Saeed, Mohammad; Butt, Intzar; *Mahmood, Aisha*; Sukhera, Sohail; Gordon, Chris (2020) *"Sharing a Powerful IDEA: Learning Organizations Collaborating to Innovate and Design Engaging Applications in STEM Education"* accepted for publication in *Development and Learning in Organizations*.

- *Aisha Mahmood*, Zulhasni Abdul Rahim, Muhammad Mansoor and Mariam Altaf Tarar "*Redesigning the way future engineers learn to solve inventive problems*" in The TRIZ Journal (online) *,* June Issue, 2016 [https://triz-journal.com/triz-journals-june-issue/]

- Yusof, Y. M., Othman, M. F. Bin, & *Mahmood, A.* (2014). *Making Students' Thinking Explicit: Learning What They Know about Functions*. In *International Conference on Teaching and Learning in Computing and Engineering* (pp. 256–261). Kuching, Malaysia: IEEE Computer Society Press. doi:10.1109/LaTiCE.2014.56 *[Scopus Indexed]*

- *Mahmood, A.,* Othman, M. F. Bin, & Yusof, Y. M. (2013). *Activity Theory Model to Cultivate Higher Order Mathematical Thinking*. In *Research in Engineering Education Symposium (REES2013) 4-6 July , 2013, ISBN 978-967-0194-35-6* (pp. 263–275). Putrajaya, Malaysia. *[Scopus Indexed]*

- *Mahmood, A.,* Othman, M. F., & Yusof, Y. M. (2012). *A Conceptual Framework for Mathematical Ability Analysis through the Lens of Cultural Neuroscience*. *Procedia - Social and Behavioral Sciences*, *56*(8 October), 175–182. *[Science Direct Indexed]*

CONFERENCE PROCEEDINGS (PEER REVIEWED)

- **Aisha Mahmood**, Yudariah Mohammad Yusof, Mohd. Fauzi Bin Othman *"Making Sense of my Reflective Practice: A Journey from practice to praxis"* The 2nd International Conference on Science, Technology, Engineering and Mathematics Education 2018 (ICSTEM2018) 2-4 October, 2018 in Kuala Lumpur, Malaysia

- **Aisha Mahmood**, Yudariah Mohammad Yusof, Mohd. Fauzi Bin Othman *"Evidence-Based Personas of First Year Engineering Students as Potential Pedagogical Tool"* Regional Conference in Engineering Education & Research in Higher Education (RCEE & RHED 20116) 9-10 August, 2016 in Kuala Lumpur, Malaysia (Scopus Indexed Conference)

- **Aisha Mahmood**, Muhammad Abbas Choudhary, Aleena Hasan Qurashi *"Redesigning the way Teams Work Smarter using Comprehensive Assessment of Team Member Effectiveness (CATME)"* in PICMET '16 Conference, "Technology Management for Social Innovation" on September 4 - 8, 2016 at Waikiki Beach Marriott Resort & Spa Honolulu, Hawaii, USA (Core A Conference)

- Muhammad Adil Raja, Sarmad Ali, **Aisha Mahmood** *"Simulators as Drivers of Cutting Edge Research"* in ISMS2016, IEEE 7th International Conference on Intelligent Systems, Modelling and Simulation in Bangkok (Thailand), 25 - 27 January, 2016 at Century Park Hotel hosted by King Mongkuts University of Technology Thonburi. (IEEE Explore pp. 114-119, doi: 10.1109/ISMS.2016.30, http://ieeexplore.ieee.org/document/7877199/)

- Malik Shahzad Iqbal, Syed M. Mustafa, **Aisha Mahmood** *"Examining the Reliability of Past Entrance Tests for a Private Sector university, A Case Study"*, in 8th International Conference of Education, Research and Innovation, ICERI2015, in Seville, Spain. 18-20 November, 2015. ISBN: 978-84-608-2657-6 / ISSN: 2340-1095, Publisher: IATED, Proceedings, *pp. 2726-2734.*

- **Aisha Mahmood**, Zulhasni Abdul Rahim, Muhammad Mansoor and Mariam Altaf Tarar "*Redesigning the way future engineers learn to solve inventive problems*" in the 11th International MATRIZ Conference, **TRIZ*fest-2015,*** September 10-12, 2015, Seoul, South Korea.

- Yudariah M. Yusof, M. Fauzi Bin Othman, & *Aisha Mahmood* "*Manipulating Students' Met-befores in Mathematical Thinking and Problem Solving through Blended Learning"(Poster Presentation)* for the 8th IMA Conference on Mathematical Education of Engineers, April 2015 at Loughborough University, Loughborough, Leicestershire, United Kingdom

- *Aisha Mahmood,* M. Fauzi Bin Othman, & Yudariah M. Yusof "*Systematic Qualitative Data Management (SQDM) during an Interpretive Action Research*" in the 5th International Graduate Conference on Engineering, Science and Humanities IGCEH 2014 "*Towards Synergy in Multidisciplinary Research*" 19-21 August, 2014, Johor Bahru, Malaysia

- Yudariah M. Yusof, M. Fauzi Bin Othman, & *Aisha Mahmood* "*Making Students' Thinking Explicit: Learning what they know about Functions"* in International Conference on Learning and Teaching in Computing and Engineering (LaTiCE) in conjunction with Regional Conference in Engineering Education & Research in Higher Education (RCEE; RHEd) April, 2014, pp. 256-261, Kuching, Malaysia (Scopus Indexed Conference)

- *Aisha Mahmood,* M. Fauzi Bin Othman, & Yudariah M. Yusof **"*Activity Theory Model to Cultivate Higher Order Mathematical Thinking*"** in Research in Engineering Education Symposium (REES2013), July, 2013, pp. 263-275, Putrajaya; Malaysia (Scopus Indexed Conference)

- *Aisha Mahmood,* M. Fauzi Bin Othman, & Yudariah M. Yusof **"*A conceptual framework for mathematical ability analysis through the lens of cultural neuroscience*"** in International Conference on Teaching and learning in Higher Education (ICTLHE) 2012 in conjunction with the Regional Conference on engineering Education & Research in Higher Education (RCEE & RHED 2012) 10-12 April, 2012, Seremban, Malaysia

LIST OF INTERNATIONALWORKSHOPS ATTENDED DURING/AFTER PHD STUDIES

Title of the Workshop	*Facilitator(s)*
▪ Effective Teaching for Outcome-Based Education (20/05/2014-21/05/2014) ▪ Designing and Presenting Effective Teaching Workshops in Technical Disciplines (23/05/2014) ▪ How (and How Not) To Evaluate Teaching (23/05/2014)	Dr. Richard Felder (North Carolina State University) & Dr. Rebecca Brent (North Carolina State University)
▪ Cooperative Learning and Assessment (28/10/2013) ▪ Structured Controversy (15/12/2011) ▪ Future Direction of Engineering Education (17/12/2011)	Dr. Karl Smith (Purdue University)
▪ Design-Based Research (10/07/2013-11/-7/2013)	Dr. Anette Kolmos (Aalborg University)
▪ Research Design in Qualitative Research (8/04/2012) ▪ Techniques for Engaging Students in Deep Learning (13/4/2012)	Dr. Elliot Douglas (University of Florida)
▪ Crafting Problems for Engaging Learning (9/4/2012) ▪ Integrating Engineering into Secondary and Pre-University Curricula (10/4/2012) ▪ Model Eliciting Activities (MEAs) (11/4/2012)	Dr. Johannes Strobel (Texas A & M University) & Dr. Heidi Diefes-Dux (Purdue University)
▪ Concept inventory: What is it and how do I write one? (04/10/2013)	Prof. Ronald Miller (Colorado School of Mines)
▪ Writing High Impact Research Proposals in Engineering Education (10/12/2012)	Maura Borrego (Virginia Tech)
▪ Making Academic Change Happen (MACH) (30/11/2013) ▪ Implementation of students' learning and assessment using e-Portfolio (02/12/2013)	Prof. Julia M. Williams (Rose-Hulman Institute of Technology)
▪ Software Tools for Qualitative Data Analysis (9/04/2014)	Dr. Neena Thota (University of Saint Joseph, Macau S.A.R)
▪ Problem-Based Learning (10/04/2014) ▪ Planning, Preparing and Publishing Research in Engineering Education (9/04/2014)	Dr. Lyn Brodie (University of Southern Queensland)

LIST OF INTERNATIONALWORKSHOPS ATTENDED DURING/AFTER PHD STUDIES
(CONTINUED)

Title of the Workshop	Facilitator(s)
▪ TRIZ Level 1 Practitioner Workshop & Certification (26/01/2015-27/01/2015)	Dr. Yeoh Teong San (Principal Engineer & MyTRIZ President)
▪ TRIZ Level 2 Practitioner Workshop & Certification (27/07/2016-28/07/2016)	Dr. Yeoh Teong San (Principal Engineer & MyTRIZ President)
▪ TRIZ Level 1 Instructor Workshop & Certification (17/10/2016-18/10/2016)	Dr. Yeoh Teong San (Principal Engineer & MyTRIZ President)
▪ Hands-on Workshop on Design Course for Engineering Faculty (06/04/2017) at GIKI	Prof. Dr. Abdul Fazal M. Arif (KFUPM, Saudia Arabia)

PROFESSIONAL INTERNATIONAL TRIZ CERTIFICATIONS

- Theory of Inventive Problem Solving (TRIZ) Level-1 Practitioner Certification (MyTRIZ) 2015
- Theory of Inventive Problem Solving (TRIZ) Level-2 Practitioner Certification (MyTRIZ) 2016
- Theory of Inventive Problem Solving (TRIZ) Level-1 Trainer Certification (MyTRIZ) 2016

LIST OF COURSES COMPLETED DURING PHD STUDIES

Course name	Session/ Semester	Course Type Core/ Elective	Instructor(s)' Name	Total credits of course	Grade /GPA
Fundamentals of Engineering Education	20112012/1	Core	Multiple Instructors	3	-
Research Methodology in Engineering Education	20112012/1	Core	Multiple Instructors	3	-
Quantitative Data Analysis	20112012/2	Core	Dr. Hamidreza	3	-
Current Issues of Engineering Education	20112012/2	Core	Dr. Helmi	3	-
Seminar on Global Development, Economic and Social Issues	20112012/2	Elective	Ahmad Shukri Bin Mohd Nain	3	A+/4.0
Malays Society and Culture	20132014/1	Elective	Norlin Ahmad	3	A/4.0
CGPA					4.0

LIST OF MOOCS COMPLETED

Course name	Date of completion	University	Instructor(s)' Name
Introduction to Mathematical Thinking	November 3, 2012	Stanford University	Keith Devlin
Design Thinking Action Lab	September 25, 2013	Stanford University	Leticia Britos Cavagnaro
How to Learn Maths	September 28, 2013	Stanford University	Jo Boaler
Effective Thinking Through Mathematics	May 8, 2014	UTAustinX	Michael Starbird

PROFESSIONAL MEMBERSHIPS

- Member of Pakistan Engineering Council (*PEC No. Elect/30772*) since 2009.
- Professional Member of IEEE (# 93706706) since 2015
- SEEM (Society of Engineering Education, Malaysia) Student Membership since 2012.
- ASEE (American Society for Engineering Education) Student Membership since 2013.
- MyTriz (Lifetime Membership)

LIST OF REFERENCES

Mentors/ Colleagues	**Dr. Ayaz Muhammad Khan** Director Division of Educationn, University of Education, Lahore, Pakistan *(ayaz@ue.edu.pk)* **Dr. Muhammad Alam Saeed** Director Division of Science and Technology, University of Education, Lahore, Pakistan *(moalsd@gmail.com)*
PhD Supervisors	**Dr. Yudariah Mohammad Yusof** *Associate Professor at Department of Mathematics, Faculty of Science, Universiti Teknologi Malaysia (yudariah@live.com)* **Dr. Mohd. Fauzi Bin Othman** *Associate Professor at Center for Artificial Intelligence and Robotics, Faculty of Electrical Engineering, Universiti Teknologi Malaysia (fauzi@fke.utm.my)*