

Shenela Naqvi
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Education	Doctor of Philosophy in Textile Science & Technology Textile & Paper, School of Materials The University of Manchester, UK	2012
	Master of Engineering in Textiles (3.80 G.P.A) NED University of Engineering & Technology, Karachi	2007
	Bachelor of Engineering in Textiles (First position) NED University of Engineering & Technology, Karachi	2001

Experience

Assistant Professor
NED University of Engineering & Technology, Karachi. *July 2007 to date*

- Responsible for delivering lectures
- Conduct research in various fields of Textile and Biomechanical Engineering
- Conduct Practical Classes
- Class Advisory
- Area Coordinator
- Supervisor to the Engineering Design Projects and Independent Study projects of undergraduate and postgraduate programs
- Arrangement of Special lecturers, Seminars, Training, Industrial Visits, Internships & Workshops by the Experts (Local and Foreign Experts)
- Work in collaboration with industries, national and international institutes and universities
- Objective Based Education (OBE, *Washington Accord recognised*) Program Evaluator
- OBE mentor for the Biomedical Engineering program
- Member of Course design and Course revision committees
- Member of Pakistan Engineering Council Accreditation committee
- Development of Self-Assessment Reports for undergraduate and PhD programs

Visiting Professor
Tianjin Polytechnic University, People's Republic of China *Sep 2017 to Dec 2017*

- Responsible for delivering lectures to undergraduate and postgraduate students
- Collaborative research

Lecturer
NED University of Engineering & Technology, Karachi

*Jan 2005 -
July 2007*

- Responsible for delivering lectures
- Conduct Practical Classes
- Internal Advisor to the Engineering Design Project of Final year Students (undergraduate)
- Member of the Project committee which is responsible for arranging all the activities related to the Projects
- Arrangement of Special lecturers, Seminars & Workshops by the Experts of Textile Field (Local and Foreign Experts)
- Arrange Industrial Visits & Internships
- Being a Laboratory-Incharge arrange all the resources (staff, Chemicals and Equipment) for smooth running of Laboratory activities

Research Interest

Primary research interest is in the development of Smart Textiles products and Medical systems for human health monitoring, health care, protection and rehabilitation. It encompasses Biomechanical engineering of textile and clothing, Medical Textiles, Medical equipment for health care, Pressure garments, Sport Textiles, Electronic Textile and Soft Robotics.

PhD Thesis

Effect of Sphygmomanometric Inflatable Cuff Properties on Blood Pressure Measurement

A wide range of Blood pressure measurement cuffs are used all over the world every day. Variation in the cuff types may result in non-standard pressure distribution on the arm and on to the artery. The effect of different types of inflatable cuffs constructed of different fabrics on the arterial pressure in the human upper limb was investigated in detail by creating simulation model in Abaqus/CAE using Dicom data obtained from MRI scan of a human upper arm. An anthropomorphic upper arm is also developed for verification of simulation models through experimental investigation. The current research clearly indicates the need for development of a new type of BP cuff. The designing of the cuff would benefit from the knowledge generated within this research.

Current Projects

- Development of Textile based sensors / Smart garment for Vital Signs monitoring (ECG, Respiration rate and Core skin Temperature)
- Development of a new Blood pressure cuff
- Development of Textile based solar panel
- Development of flexible pressure sensors for biomedical and sport applications
- Development of Soft Robotics for Rehabilitation of stroke patients
- Synthesis of nanoparticles for the development of the textile based antimicrobial products for healthcare and textile applications
- Development of Textile based strain sensors to monitor respiration rate
- Development of Textile based Antennas
- Development of Dehydration sensors for elderly persons
- Development of Personal Protective Equipment

Publications

Journal Articles Published

- Ali M, Faisal S, Naqvi S, Lin L et al. Electrically heated wearable textiles produced by conventional pigmented inks containing carbon black. *Pigment and Resin Technology*. (**Accepted for publication on May, 2021**)
- Naqvi S, Husain D, Dias T, Lewis PS. Investigating the Inaccuracies of indirect method of blood pressure measurement associated to the cuff constructing fabrics. (Accepted for publication on May, 2021)
- Faisal S, Ali M, Naqvi S, Lin L. Statistical optimization and bulk scale validation of the effects of cationic pre-treatment of cotton fabric for digital printing of Reactive dyes. *Journal of Natural Fibres* (Accepted for publication on 15 April, 2021)
- Faisal S, Naqvi S, Ali M, Lin L. Comparative study of multifunctional properties of synthesised ZnO and MgO NPs for Textiles applications. *Pigment and Resin Technology*. (**Accepted for publication on 05 April, 2021**)
- Naqvi S, Potluri P, Lewis P, Mandal P. Experimental investigation on pressure transmission underneath blood pressure cuffs of different types using an arm simulator. *Journal of Textile Institute*. 2021 Mar 7:1-2. (DOI: 10.1080/00405000.2021.1899451).
- Husain D, Naqvi S, Siddiqui O, Kennon R. Steady state mathematical model of Test-Rig for the validation of experimental Temperature-Resistance relationship of Temperature Sensing Fabric. *Mehran University Research Journal of Engineering and Technology*. (Accepted for Publication on 1 January, 2021)
- Naqvi S, Potluri P, Mandal P, Lewis PS. Simulation Models Predicting Pressure distribution and transmission underneath blood pressure cuffs of different types, accepted for publication in *AATCC Journal of Research* 2020 Sep 1;7(5):38-46.
- Naqvi S, Potluri P, Mandal P, Lewis P. Effect of different cuff types on blood pressure measurement: Variation in BP values for different cuff types. *Journal of Industrial Textiles*. 2018 Mar;47(7):1478-95.
- Naqvi S, Husain MD, Potluri P, Mandal P, Lewis P. Pressure distribution under different types of blood pressure measurement cuffs. *Journal of Industrial Textiles*. 2017 Jul;47(1):89-103.
- Husain MD, Naqvi S, Atalay O, Hamdani ST, Kennon R. Measuring human body temperature through temperature sensing fabric. *AATCC Journal of Research*. 2016 Jul 1;3(4):1-2.

Conference proceeding

- Husain, M.D.; Naqvi, S., E-TEXTILE Perceived Benefits and Challenges. 5th International Conference on Value Addition & Innovation in Textile, National Textile University, Faisalabad, 20-21 Mar 2019.
- Naqvi, S.; Husain, M.D.; Potluri, P.; Mandal P.; Lewis, P., Study of the relationship between cuff fabrics properties and blood pressure measurement. 1st international Forum on Textiles for graduate students of Tianjin Polytechnic University, Tianjin, People's Republic of China, 28-30 November 2017
- Husain, M.D.; Naqvi, S.; Atalay, O. & Kennon, W.R., Performance Analysis of Temperature Sensing Fabric. *AATCC Book of Papers, AATCC International Conference, Wilmington, North Carolina, USA, 28-30 Mar 2017* pp. 472-486.
- Naqvi, S.; Husain, M.D., Effect of sphygmomanometric cuffs construction on pressure distribution.. 1st National Conference on Technical Textiles (NCTT-2016), National Textile University, Faisalabad, 26-27 Sept 2016
- Husain, M.D.; Naqvi, S., Development of steady state mathematical model for the validation of experimental Temperature-Resistance relationship of

Temperature Sensing Fabric. 1st National Conference on Technical Textiles (NCTT-2016), National Textile University, Faisalabad, 26-27 Sept 2016

- Attended 2015 Seminar on Textile Industry Management for Pakistan II, Fuzhou

Poster Abstract

- Naqvi S, Potluri P, Mandal P, Lewis P. The effects of sphygmomanometer cuff construction on return-to-flow cuff inflation pressure using a physical simulation model of arm blood flow. Abstracts from the 2019 Annual Scientific Meeting of the British and Irish Hypertension Society (BIHS), Journal of Human Hypertension. 2019; (Vol. 33, pp. 15-15).
- Lewis P, Naqvi S, Mandal P, Potluri P. Arterial blood pressure assessed using numerical modelling of DICOM data and Finite Element Analysis shows marked variation dependent on cuff construction and materials. In Journal of Human Hypertension (vol. 29, no. 10, pp. 638-638). 2015 Oct 1;29(10):638-9.
- P. Lewis, S. Naqvi, P. Mandal, P. Potluri. Sphygmomanometer cuff construction and materials affect transmission of pressure from cuff to arterial wall. Finite element analysis of human pressure measurements and dicom data, Journal of Hypertension. e 127, June 2015 -Volume 33 - e - ESH 2015 Abstract Book Supplement 1.
- S Naqvi, T Dias, PS Lewis. Pressure under blood pressure cuffs invitro is non-uniform related to sub-cuff compliance and show hysteresis, Poster abstract published in Journal of Human Hypertension, September 2010. Volume 24(Supplement 1): p. S16

Awards & Grants

- Project got **1st prize** in All Pakistan DICE Textile Exhibition 2020
- Won **2019 Journal of Human Hypertension** Poster Prize of the British & Irish Hypertension Society. Annual Scientific Meeting, University of Birmingham, UK. 16th – 18th September, 2019
- Project got **Special prize** in 3rd All Pakistan DICE Textile Exhibition 2018
- Project got **Special Prize** in 3rd All Pakistan DICE Health Innovation Exhibition 2017
- Project got **3rd Prize** in 2nd All Pakistan DICE Health Innovation Exhibition 2016
- Secured **funding** from the University Development & Working Party (UDWP) for the development of Smart Textiles Lab
- Secured **funding** from PSF-TUBITAK for a research project related to development of the Soft Robotics for the rehabilitation of the post-stroke patients
- Secured **funding** of NRPU for research projects related to development of the Smart garments
- Scholarship awarded to pursue PhD studies at The University of Manchester, UK
- Awarded **Merit certificate and Gold medal** on securing **First class First position** in Bachelor of Engineering

Skills

- ABAQUS
- MatLab
- MS Office