

# DR SAIRA FAISAL

## ASSOCIATE PROFESSOR (NED UET)

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## EXPERIENCE

**JANUARY 2022 – TILL DATE**

**ASSOCIATE PROFESSOR, NED UNIVERSITY OF ENGINEERING & TECHNOLOGY  
KARACHI**

**JULY 2007 – JANUARY 2022**

**ASSISTANT PROFESSOR, NED UNIVERSITY OF ENGINEERING & TECHNOLOGY  
KARACHI**

**APRIL 2002 – JULY 2007**

**LECTURER, NED UNIVERSITY OF ENGINEERING & TECHNOLOGY KARACHI**

**MARCH 2001 – APRIL 2002**

**LAB ENGINEER, NED UNIVERSITY OF ENGINEERING & TECHNOLOGY KARACHI**

## EDUCATION

**MARCH 2014**

**DOCTOR OF PHILOSOPHY, UNIVERSITY OF LEEDS, UK**

Title: Synthesis of Multifunctional Reactive Dyes and Their Application onto Wool Fabric by Inkjet Printing

**JULY 2007**

**MASTER OF ENGINEERING, NED UET, PAKISTAN**

**MARCH 2001**

**BACHELOR OF ENGINEERING, NED UET, PAKISTAN**

Secured First Class Third Position

## GRANTS

1. Pakistan Science Foundation (PSF/CRP/TH/4/CFP/523) – Awarded PKR 7.4 million for research on the Development of Reactive Inks for Digital Printing.
2. Grand Challenge Fund (GCF-63) – Secured PKR 15 million for the Transformation to Man-Made Fiber-Based Textiles.
3. Independent Study Project (Seed Funding) – Awarded PKR 0.985 million for research on Urea-less Digital Printing of Cotton for Cleaner Production.

## ACADEMIC ACHIEVEMENTS

- **NED Approved Supervisor:** Officially recognized as a supervisor for graduate and postgraduate research projects at NED University.
- **Member, Pakistan Council of Scientific & Industrial Research (PCSIR):** Serving as a representative from academia and the private sector in scientific policy discussions.
- **Member, National Curriculum Revision Committee (NCRC) for Textile Engineering Technology (BSc):** Contributed to the revision and updating of the curriculum for textile engineering programs.
- **IRCA Registered Lead Auditor:** Certified Lead Auditor for international management systems, specializing in quality and sustainability audits.
- **OBE Program Evaluator (PEV), Pakistan Engineering Council:** Evaluator for Outcome-Based Education (OBE) programs, ensuring academic standards and quality.
- **Best Innovating Paper 2021, International Conference on Nascent Drifts in Industry:** Awarded for exceptional innovation in industry-related research.
- **Best Researcher:** Recognized as the Best Researcher since 2019 for consistent contributions to the academic and research community.
- **Best Publication Award 2019, NEDAASC:** Honored with the Best Publication Award for impactful research published in leading journals.
- **Secured Funding for Undergraduate Projects, NEDAASC:** Successfully facilitated and managed funding for multiple student research projects.
- **PhD Scholarship:** Awarded a highly competitive PhD scholarship for advanced research at the University of Leeds, United Kingdom.
- **PhD Bursary:** Received GBP 7,500 as a bursary towards PhD tuition fees from the University of Leeds.
- **Merit Certificate:** Earned First Class Third Position in Bachelor of Engineering, reflecting academic excellence.

## RESPONSIBILITIES

- **Academic and Curriculum Development**
  - Delivering lectures at undergraduate and postgraduate levels.
  - Supervising Thesis (Graduate Level) and Final Year Design Projects (Undergraduate Level).
  - Conducting course practicals and thesis examinations (Graduate and Postgraduate levels).
- **Administrative Roles**
  - Member, Board of Studies.
  - Member, Industry Advisory Board.
  - Member, Departmental OBE Committee (since 2015).
  - Served as Deputy QEC/Deputy MR (May 2014 – April 2016).
  - Served as Management Representative (MR) in June 2014.
  - Member, Project Committee and Course Revision Committee.
  - Class Advisor.
  - Member, Internal Audit Team.

- **Research and Industry Collaboration**

- Principal/Co-Principal Investigator for Academia-Industry Collaborative Research Projects.
- Reviewer for peer-reviewed foreign journals (JCR).

## **JOURNAL PUBLICATIONS**

1. Farooq, S.; Akhter, A.; **Faisal, S.**; Hussain, D. and Siddiqui, O. (2024). Durable Multifunction finishing on Polyester knitted fabric by applying ZnO nanoparticles, Pigment & Resin Technology, Accepted.
2. Batool, F., Naqvi, S., **Faisal, S.** et al. (2024). Characterization of Denim Effluent Treatment Plant Sludge and its Influence on Concrete Hardened Properties. Iran J Sci Technol Trans Civ Eng. <https://doi.org/10.1007/s40996-024-01476-9>.
3. Rafiq, M.S.K., Jabbar, A., **Faisal, S.** et al. (2024). Synthesis and Comprehensive Examination of New Non-Toxic Heterocyclic Mono-Azo Acid Dyes: Investigating Biological Activity, Application on Fabric, Solvatochromism, and DFT Insights. Chemistry Africa. <https://doi.org/10.1007/s42250-024-01034-w>.
4. Rafiq, M.S.K., Jabbar, A., **Faisal, S.** et al. (2024). New Synthetic Non-toxic Mono-azo Acid Dyes with Prominent Antibacterial Properties for Potential Application on Polyamide Fabrics. Fibers Polym 25, 2967–2983. <https://doi.org/10.1007/s12221-024-00610-8>.
5. Siddiqui, M. O. R., Farooq, S., Husain, M. D., and **Faisal, S.** (2023). Prediction of air permeability and effective thermal conductivity of multifilament polyester yarn by finite element analysis. Polimery, 68(1), 6-18. <https://doi.org/10.14314/polimery.2023.1.2>.
6. Ali, M., **Faisal, S.**, Naqvi, S., Abdul Wahab, K., Afreen, R. and Lin, L. (2022). Electrically heated wearable textiles produced by conventional pigmented inks containing carbon black. Pigment & Resin Technology, Vol. 51 No. 4, pp. 390-396. <https://doi.org/10.1108/PRT-05-2021-0051>.
7. **Faisal, S.**, Naqvi, S., Ali, M. and Lin, L. (2022). Comparative study of multifunctional properties of synthesised ZnO and MgO NPs for textiles applications. Pigment & Resin Technology, Vol. 51 No. 3, pp. 301-308. <https://doi.org/10.1108/PRT-02-2021-0017>.
8. Farooq, S., **Faisal, S.**, & Asim, F. (2022). Investigating the liquid moisture transport behavior of cotton and polyester cotton blended woven fabric. Mehran University Research Journal of Engineering & Technology, 41(1), 129–134. <https://doi.org/10.3316/informit.263390014142233>.
9. **Faisal, S.**, Ali, M., Naqvi, S., & Lin, L. (2021). Statistical Optimization and Bulk Scale Validation of the Effects of Cationic Pre-treatment of Cotton Fabric for Digital Printing with Reactive Dyes. Journal of Natural Fibers, 19(13), 6737–6747. <https://doi.org/10.1080/15440478.2021.1932671>.
10. **Faisal, S.**, Ali, M., Siddique, S.H. and Lin, L. (2021). Inkjet printing of silk: factors influencing ink penetration and ink spreading. Pigment & Resin Technology, Vol. 50 No. 4, pp. 285-292. <https://doi.org/10.1108/PRT-12-2019-0120>.
11. Siddique, S.H., **Faisal, S.**, Ali, M., Gong, R.H. (2021). Optimization of process variables for tensile properties of bagasse fiber-reinforced composites using response surface methodology. Polymers and Polymer Composites, 29(8), 1304-1312. <https://doi.org/10.1177/0967391120968432>.
12. Siddique, S.H., **Faisal, S.**, Mohtashim, Q., Ali, M., & Gong, R.H. (2021). Investigation of fibre orientation and void content in bagasse fibre composites using an image analysis

- technique. *Fibres & Textiles in Eastern Europe*.  
<https://doi.org/10.5604/01.3001.0014.7784>.
13. Asim, F., Farooq, S., Siddique, S.H., & **Faisal, S.** (2021). Investigation onto the effect of surface etching using chemical etchants on the dye-ability of UHMWPE fibre. *Mehran University Research Journal of Engineering & Technology*, 40(4), 842–846. <https://doi.org/10.3316/informit.091985311538051>.
  14. Siddique, S.H., **Faisal, S.**, Zahid, B., & Wang, C. (2021). Tensile properties of bagasse fiber composites. *Mehran University Research Journal of Engineering & Technology*, 40(3), 502–511. <https://doi.org/10.3316/informit.891103235612948>.
  15. **Faisal, S.**, Lin, L., Clark, M. (2020). Synthesis, stability and printing properties of a novel 2-sulphophenoxy-4-chloro-s-triazine reactive dye for ink-jet printing of wool. *Coloration Technology*, 136, 153–166. <https://doi.org/10.1111/cote.12457>.
  16. **Faisal, S.**, Lin, L. (2020). Green synthesis of reactive dye for ink-jet printing. *Coloration Technology*, 136, 110–119. <https://doi.org/10.1111/cote.12450>.
  17. **Faisal, S.**, Tronci, A., Ali, M., Lin, L., & Mao, N. (2020). Pretreatment of silk for digital printing: identifying influential factors using fractional factorial experiments. *Pigment & Resin Technology*, Vol. 49 No. 2, pp. 145-153. <https://doi.org/10.1108/PRT-07-2019-0065>.
  18. **Faisal, S.**, Tronci, A., Ali, M., Bashir, E., & Lin, L. (2019). Right-first-time dyeing: a design of experiments approach for the optimisation of dyeing processes using hard water. *Pigment & Resin Technology*, Vol. 48 No. 5, pp. 449-455. <https://doi.org/10.1108/PRT-05-2019-0045>.
  19. Ali, M., Lin, L., **Faisal, S.**, Ali, S.R., & Ali, S.I. (2019). Let-down stability and screen printability of inks prepared using non-printing ink grades of carbon black pigment. *Pigment & Resin Technology*, Vol. 48 No. 6, pp. 523-532. <https://doi.org/10.1108/PRT-06-2019-0050>.
  20. Ali, M., Lin, L., **Faisal, S.**, Sahito, I.A., & Ali, S.I. (2019). Optimisation of screen-printing process for functional printing. *Pigment & Resin Technology*, Vol. 48 No. 5, pp. 456-463. <https://doi.org/10.1108/PRT-05-2019-0043>.
  21. Azeem, F., Mao, N., & **Faisal, S.** (2019). Effect of alkali treatment of lower concentrations on the structure and tensile properties of Pakistan's coarse cotton fibre. *The Journal of The Textile Institute*, 110(10), 1499–1507. <https://doi.org/10.1080/00405000.2019.1620501>.
  22. **Faisal, S.**, Farooq, S., Hussain, G., & Bashir, E. (2019). Influence of Hard Water on Solubility and Colorimetric Properties of Reactive Dyes. *AATCC Journal of Research*, 6(2), 1-6. <https://doi.org/10.14504/ajr.6.2.1>.
  23. **Faisal, S.**, Tronci, A. (2018). Predictive Modelling of Colour Strength and Ink Penetration (%) of Inkjet-Printed Cotton. *Fibers and Polymers*, 19, 1435–1443. <https://doi.org/10.1007/s12221-018-8196-x>.
  24. Zahid, B., **Faisal, S.**, & Hussain, S. (2017). Analysis of Caustic Soda of Different Manufacturers in Pakistan for Mercerization of Cotton Textiles. *Mehran University Research Journal of Engineering and Technology*, 36(4), 857-866. (hal-01700366).

## CONFERENCE PUBLICATIONS

25. **Faisal S;** Farooq S; Hinna Bibi. *Optimization of heat setting process of Cationic Dyeable Polyester knitted fabric*, In 3<sup>rd</sup> *International Conference on Knowledge-Based Textiles*, March 5-6, 2024.
26. **Faisal S;** Naqvi S; Farooq S; Naqvi A. Z; Alam A. Durable antibacterial coating for polyester knitted fabric. In *2nd International Conference on Knowledge-based Textiles* (online), February 14-15, 2023.
27. **Faisal S.** Effect of electrolyte on printing properties of digitally-printed cotton: process development and optimization. In *International Conference on Nascent Drifts in Industry 2021* (Online), August 28-29, 2021.
28. **Faisal S;** Lin L. Microwave-Assisted Green Synthesis of Reactive Dyes for Digital Printing. In *4th NED International Textile Conference*, 2020, Karachi, Pakistan, p. 33.
29. **Faisal S;** Lin L. Green Synthesis of Reactive Dyes for Inkjet Printing. *Proceedings of ICONTEX 2019*, Corlu, Turkey, p. 436-443.
30. **Faisal S;** Lin L; Clark M. Triazine-Based Reactive Dye for Inkjet Printing of Wool. *Proceedings of ICONWOOLF 2019*, Corlu, Turkey, p. 143-152.
31. **Faisal S.** Predictive modeling and optimization of printing properties on inkjet-printing of cotton. In *5th International Conference on Value Addition and Innovations in Textiles 2019*, Faisalabad, Pakistan, p. 14.
32. **Faisal S;** Lin L; Clark M. Novel Reactive Dyes and their Application onto Textile Substrates by Inkjet Printing in *NIP & Digital Fabrication Conference*, 2013: Society for Imaging Science and Technology, Seattle, United States of America, p. 168-170.
33. **Faisal S;** Lin L; Clark M. Novel Reactive Colorants and Their Application onto Textile Substrates by Inkjet Printing. *Proceedings of AIC Colour 2013: 12th Congress of the International Colour Association*, 2013, Newcastle-Upon-Tyne, UK, p. 601-604.

## RESEARCH INTERESTS

- Synthesis and Application of Reactive Dyes for Inkjet Printing
- Reactive Ink Formulation for Digital Printing Technologies
- Development of Pre-treatment Formulations for Inkjet Printing Applications
- Exploration of Fibers as Raw Materials for Diverse Applications
- Synthesis and Formulation of Nanoparticles for Textile-Based Applications
- Effluent Treatment Using Nanotechnology for Sustainable Textile Processing

## SKILLS

1. Microsoft Office, OriginPro, ChemDraw, Minitab and Statease
2. Design of Experiments
3. Fluent in Urdu, Punjabi and English

## CORE COURSES

- Textile Finishing
- Pre-treatment in Textiles
- Textile Chemical Processes II
- Polymer & Fiber Science
- Textile Product Evaluation I
- Textile Raw Materials I
- Textile Raw Materials II
- Machine Design
- Textile Mill Utilities - I
- Textile Printing

## **TRAININGS AND SEMINARS**

- Lead Trainer, "Dialogue for Sustainability" (CPD Credit Points) – Delivered training on sustainable practices and dialogue in September 2024.
- Special Lecturer, "Exploring Functional Finishing in Textiles" – Delivered a specialized lecture to professionals on functional finishing techniques in textiles in December 2023.
- Attendee, "Train the Trainers - Dialogue for Sustainability" – Participated in a 5-day training focused on sustainable dialogue techniques in May 2024.
- Consultant, Indus Messco Consortium – Provided consultancy for the project on Development of Policy, Planning, and Strategies on Cleaner Production (CP) for Sindh Environmental Protection Agency (SEPA) in 2020.
- Trainer, "Outcome-Based Education: Implementation of CQI" – Conducted a training session at the Chemical Engineering Department, Karachi University in September 2019.
- Trainer, "Textile Product Evaluation (Fibre to Fabric)" (CPD Credit Points) – Delivered a course on textile product evaluation at Army Labs Karachi in 2019.
- Attendee, ISO 9001:2015 Quality Management System Lead Auditor Training Course (LRCA) – Completed the course in 2017, focusing on quality management systems and audits.
- Attendee, International Workshop on "Discovering Statistics using IBM SPSS V.23" – Participated in the workshop organized by the Research Center for Training & Development (RCTD) on 21-22 July 2017.
- Attendee, International Workshop on Outcome-Based Education – Completed a 2-day workshop on Outcome-Based Education in 2015.
- Assistant, Salter's Chemistry Camps – Assisted in organizing Salter's Chemistry Camps in 2010 and 2011, hosted by the Royal Society of Chemistry at the University of Leeds, UK.
- Attendee, ISO 9000:2000 Series Auditor/Lead Auditor Training Course (IATCA-compliant) – Successfully completed the IATCA-compliant course No. A18021 in 2015.
- Attendee, Advanced Course on "CAD/CAM Fabric Designing System" – Completed an advanced course at SMA Rizvi Textile Institute.
- Attendee, ISO 9000:2000 Series Internal Auditor Training Course – Completed the internal auditor training at PIQC.

## **PROFESSIONAL MEMBERSHIP**

- Lifetime Member, Pakistan Engineering Council (Textile/27) since 2001
- Member, NEDAN since 2006
- Alumni, University of Leeds since 2014
- Senior Member, AATCC
- Member, The Institution of Engineers, Pakistan

## **PERSONAL INFORMATION**

- Father Name: Muhammad Ishaque (Late)
- Marital Status: Married
- CNIC: 42201-0471198-2

## **REFERENCES**

1. Prof. Dr. Muzzaffar Mahmood
2. Prof. Long Lin