

# Muhammad Abas



Mobile/ WhatsApp Contact: +923348260685

Email: [muhammadabas@uetpeshawar.edu.pk](mailto:muhammadabas@uetpeshawar.edu.pk)

Address: Village Darmangi, Warsak Road Peshawar, Pakistan

LinkedIn: <https://www.linkedin.com/in/muhammad-abas-6a311124a/>

Google Scholar : <https://scholar.google.com/citations?user=BnOGP0IAAAAJ&hl=en&oi=sra>

## Career Objective

A young, motivated researcher in the field of Industrial Engineering equipped with both academic and administrative experience of more than ten years in educational institutes. As a researcher I am always looking for a challenging environment to further furnish professional capabilities in a well-defined manner.

## Education

### **PhD in Industrial Engineering, University of Engineering and Technology, Peshawar, Pakistan**

March 2018 – November 2023

Core area: Additive Manufacturing

Thesis title: Optimization of Process Parameters of Fused Deposition Modeling in the Development of Assistive Devices Used in Physical Rehabilitation of People with Disabilities

### **MS in Mechanical Engineering, G.I.K. Institute, Topi, Pakistan**

January 2014 - January 2016

Core area: Additive Manufacturing

Thesis title: Micro Dispensing Based Additive Manufacturing for the Fabrication of Flex Sensors

### **BSc in Industrial Engineering, University of Engineering and Technology, Peshawar, Pakistan**

September 2009 - October 2013

## Employment/Experience

### **Lecturer, University of Engineering and Technology, Peshawar, Pakistan**

August 2017 – Present

- Teach Undergraduate Courses
- Supervise Final Year Projects

### **Research Associate, Funded Project, Department of Industrial Engineering, University of Engineering and Technology, Peshawar, Pakistan**

November 2020 – Present

Project funded by the Pakistan Science Foundation (PSF), Project No. PSF/CRP/KPK-UET/T-Helix (126), with a total worth of Rs. 4.053 Million.

**Key Responsibilities:**

- Prepared comprehensive research project proposals.
- Managed procurement and purchasing of necessary equipments.
- Conducted extensive experimental work to meet project objectives.
- Compiled and submitted detailed annual progress reports to PSF.
- Published research articles.

**Semester Coordinator, Department of Industrial Engineering, University of Engineering and Technology, Peshawar, Pakistan**

Feb 2023 – Present

- Coordinating the scheduling of classes, exams, and other academic activities
- Serving as a point of contact for students with academic or administrative concerns.
- Coordinating faculty meetings and communication.
- Preparing reports on academic performance and other metrics as required by the institution.
- Addressing and resolving any issues that arise during the semester, whether related to academic or administrative matters.
- Ensuring compliance with institutional policies and procedures

**Program Team Member, University of Engineering and Technology, Peshawar, Pakistan**

Sept 2018 – Oct 2022

- Preparing departmental self-assessment report (SAR) based on Outcome-based education (OBE) for accreditation visits by Pakistan Engineering Council (PEC) under Washington Accord.
- Compiling departmental data for undergraduate and postgraduate programs of Industrial Engineering for Higher Education (HEC) and International Ranking Bodies under supervision of university quality enhancement cell (QEC).

**Lecturer, Sarhad University of Science and Information Technology, Peshawar, Pakistan**

May 2016 – August 2017

- Teach undergraduate and postgraduate courses

**Graduate Teaching Assistant, G.I.K. Institute, Topi, Pakistan**

January 2014 – January 2016

- Teach and conduct labs at the undergraduate level
- Assist faculty in various undergraduate courses

## **Achievements**

**Awards:**

- Best reviewer award for 2023 by International Journal of Construction Management (Publisher: Taylor and Francis)
- Faculty Endowment Fund for PhD studies
- MS scholarship at GIK Institute

- Merit based scholarship at UET, Peshawar
- 3rd Position for Best Paper “Scheduling a Job Shop- A Case Study” at 13th International Symposium on Advanced Materials, Islamabad , Pakistan, October 2015

### **Memberships:**

- Registered Engineer with Pakistan Engineering Council (PEC).

### **Reviewed Journals:**

- Expert Systems with Applications, Elsevier Publisher
- Results in Engineering, Elsevier Publisher
- Measurement, Elsevier Publisher
- Scientific Reports, Nature Publisher
- Progress in Additive Manufacturing, Springer Publisher
- Journal of Mechanical Science and Technology, Springer Publisher
- International Journal of Construction Management, Taylor and Francis

### **Skills**

- Python
- SPSS
- Minitab
- MS Excel
- Solid Works
- Ansys
- Geomagic Design X
- Meshmixer

### **Languages**

- English (Good)
- Pashtu (mother language)
- Urdu (national language)

### **Research Interests**

- Additive Manufacturing
- Optimization of manufacturing processes using conventional and AI approaches.
- Composites
- Sustainable Manufacturing
- Machining
- Construction Management

### **Teaching Interests**

- Engineering Economics

- Design of Experiments
- Probability and Statistics
- CAD/CAM
- Manufacturing Process
- Engineering Drawing
- Mechanics of Materials

## Book Chapters

1. *Abas, M\**, Jan, Z., Rahman, K., (2023). Direct Ink Writing, Chapter 9, Book Title: Innovative Development in Micromanufacturing, CRC Press (Taylor and Francis), Boca Raton, 1st Edition, ISBN: 9781003364948. <https://doi.org/10.1201/9781003364948>
2. *Abas, M\**, Khan, I., Jan, Z., (2024). An Integrated Approach of Particle Swarm Optimization and Grey Relational Analysis in Multi-Response Optimization of Fused Deposition Modeling, Chapter 2, Book Title: Metaheuristics Algorithm and Optimization of Engineering and Complex Systems, IGI Global, ISBN: 9798369333143. DOI: 10.4018/979-8-3693-3314-3

## Publications

\*Corresponding Author, Impact factor (IF)

1. I. Khan, *Abas. M*, S. Ahmad, A. Al Rashid, and M. Koç (2024). Fabrication of a Low-Cost Fused Filament Fabrication-based 3D Printer and Investigation of the Effect of Process Parameters on Mechanical Properties of 3D-Printed Samples. Journal of Engineering Research. <https://doi.org/https://doi.org/10.1016/j.jer.2024.06.018>. (IF 1.0, SCI, Q3)
2. Alqahtani, F.M.; *Abas, M\**; Alkahtani, M.; Hayat, M.; Farrukh, A. (2024). Enhancing Sustainable Safety Practices in Construction: Insights from Cultural and Socio-Economic Analysis. Sustainability, 16, 5103. <https://doi.org/10.3390/su16125103>. (IF 3.8, SCI, Q2)
3. Almuflih AS, *Abas M\**, Khan I, Noor S. (2024). Parametric Optimization of FDM Process for PA12-CF Parts Using Integrated Response Surface Methodology, Grey Relational Analysis, and Grey Wolf Optimization. Polymers, 16(11):1508. (IF 5.0, SCI, Q1). <https://doi.org/10.3390/polym16111508>
4. Khan, I., Yaseen, M., Ahmad, M.M. *Abas, M.*, Shah, M.I., Hussain, H., & Hira, F., (2024). Integrating resistance-based sensing into fused filament fabricated mechanical metamaterial structure. Prog Addit Manuf. (IF 4.5, ESCI, Q2) <https://doi.org/10.1007/s40964-024-00635-8>
5. *Abas, M\**, Habib, T., Noor, S., (2024). Design and analysis of solid ankle foot orthosis by employing mechanical characterization and a low-cost scanning approach for additive manufacturing. Rapid Prototyping Journal. (IF 3.9, SCIE, Q1) <https://doi.org/10.1108/RPJ-09-2023-0316>.
6. *Abas, M\**, Habib, T., Khan, I. et al. (2024). Definitive screening design for mechanical properties enhancement in extrusion-based additive manufacturing of carbon fiber-reinforced PLA composite. Prog Addit Manuf. (IF 4.5, ESCI, Q2) <https://doi.org/10.1007/s40964-024-00610-3>
7. Khan, M.S., *Abas, M\**, Qayyum, Z. et al. (2024). Effect of root pass removal procedures on mechanical and microstructural properties of shielded metal arc welded joints. Int J Adv Manuf Technol. <https://doi.org/10.1007/s00170-024-13591-y>. (IF 3.4, SCI, Q2).
8. Khan, A. U., *Abas, M\**, Jan, Q. M. U., & Khan Y., (2024) Characterization of fuel composite obtained by the mixing of biomass and coal, Energy Sources, Part A: Recovery, Utilization,

- and Environmental Effects, 46:1,2461-2473. <https://doi.org/10.1080/15567036.2024.2309304>. (IF 2.9, SCI, Q3)
9. Afzal, M. S., Wakeel, A., Nasir, M. A., Qazi, M. I., & **Abas, M\***. (2024). Optimization of Process Parameters for Shielded Metal Arc Welding for ASTM A 572 grade 50. *Journal of Engineering Research*. <https://doi.org/10.1016/j.jer.2024.01.005>. (IF 1.0, SCI, Q3)
  10. Hussain, S., Qazi, M.I. & **Abas, M\***. (2023) Investigation and optimization of plasma arc cutting process parameters for AISI 304 by integrating principal component analysis and composite desirability method. *J Braz. Soc. Mech. Sci. Eng.* 46, 33. <https://doi.org/10.1007/s40430-023-04614-y>. (IF 2.2, SCI, Q3)
  11. Jan, Z., **Abas, M\***, Khan, I., Qazi, M.I., and Jan, Q.M.U., (2023). Design and Analysis of Wrist Hand Orthosis for Carpal Tunnel Syndrome Using Additive Manufacturing. *Journal of Engineering Research*. <https://doi.org/10.1016/j.jer.2023.12.001>. (IF 1.0, SCI, Q3)
  12. Khan, A. U., Jan, Q. M. U., **Abas, M\***, Muhammad, K., Ali, Q. M., & Zimon, D. (2023). Utilization of Biowaste for Sustainable Production of Coal Briquettes. *Energies*, 16(20), 7025. <https://doi.org/10.3390/en16207025>. (IF 3.2, SCI, Q3)
  13. **Abas, M\***, Awadh, M. A., Habib, T., & Noor, S. (2023). Analyzing Surface Roughness Variations in Material Extrusion Additive Manufacturing of Nylon Carbon Fiber Composites. *Polymers*, 15(17), 3633. <https://doi.org/10.3390/polym15173633>. (IF 5.0, SCI, Q1)
  14. **Abas, M.**, Habib, T., Noor, S., Zimon, D., & Woźniak, J. (2023). Application of multi-criteria decision-making methods in the selection of additive manufacturing materials for solid ankle foot orthoses. *Journal of Engineering Design*, 1-28. <https://doi.org/10.1080/09544828.2023.2247859> (IF 2.7, SCI, Q2).
  15. Khan, I., Tariq, M., **Abas, M.**, Shakeel, M., Hira, F., Al Rashid, A., & Koç, M. (2023). Parametric Investigation, Optimization of Mechanical Properties of Thick Tri-Material based Composite of PLA-PETG-ABS 3D-Printed Using Fused Filament Fabrication. *Composites Part C: Open Access*, 100392. <https://doi.org/10.1016/j.jcomc.2023.100392> (IF 4.2, ESCI, Q1).
  16. Khan, I., Farooq, U., Tariq, M., **Abas, M.**, Ahmad, S., Shakeel, M., & Hira, F. (2023). Investigation of Effects of Processing Parameters on the Impact Strength and microstructure of thick Tri-Material based Layered Composite Fabricated via Extrusion based Additive Manufacturing. *Journal of Engineering Research*. <https://doi.org/10.1016/j.jer.2023.08.007> (IF 1.0, SCI, Q3).
  17. **Abas, M\***, Habib, T., Noor, S., & Khan, K. M. (2022). Comparative study of I-optimal design and definitive screening design for developing prediction models and optimization of average surface roughness of PLA printed parts using fused deposition modeling. *The International Journal of Advanced Manufacturing Technology*, 125(1-2), 689-700. <https://doi.org/10.1007/s00170-022-10784-1>. (IF 3.563, SCI, Q2).
  18. **Abas, M\***, Tufail Habib, Sahar Noor, Bashir Salah, and Dominik Zimon. (2022). "Parametric Investigation and Optimization to Study the Effect of Process Parameters on the Dimensional Deviation of Fused Deposition Modeling of 3D Printed Parts". *Polymers* 14 (17), 3667. <https://doi.org/10.3390/polym14173667>. (IF 4.967, SCI, Q1)
  19. Waseem, M., Habib, T., Ghani, U., **Abas, M\***, Jan, Q. M. U., & Khan, M. A. Z. (2022). Optimisation of tensile and compressive behaviour of PLA 3D printed parts using categorical response surface methodology. *International Journal of Industrial and Systems Engineering*, 41(4), 417-437. <https://doi.org/10.1504/IJISE.2022.124997>. (Scopus Index).
  20. **Abas, M.** Mohammed Alkahtani, Qazi S. Khalid, Ghulam Hussain, Mustafa H. Abidi, and Johannes Buhl. (2022). "Parametric Study and Optimization of End-Milling Operation of AISI 1522H Steel Using Definitive Screening Design and Multi-Criteria Decision-Making Approach" *Materials* 15 (12), 4086. (IF 3.748, SCI, Q2).
  21. Ahmad, F., Awadh, M. A., **Abas, M.**, Noor, S., & Hameed, A. (2022). Optimization of Carbon Fiber Reinforced Plastic Curing Parameters for Aerospace Application. *Applied Sciences*, 12(9), 4307. (IF 2.838, SCI, Q2).
  22. **Abas, M.**, Khattak, S. B., Habib, T., & Nadir, U. (2022). Assessment of critical risk and success factors in construction supply chain: a case of Pakistan. *International Journal of Construction Management*, 22 (12), 1-9. (IF 3.9, ESCI, Q2).

23. Asad Kamal, *Abas, M\**, Dildar Khan & Rai Waqas Azfar (2022). Risk factors influencing the building projects in Pakistan: from perspective of contractors, clients and consultants, *International Journal of Construction Management*, 22(6), 1141-1157. (IF 3.9, ESCI, Q2).
24. Khan, M. U., *Abas, M\**, Noor, S., Salah, B., Saleem, W., & Khan, R. (2021). Experimental and Statistical Analysis of Saw Mill Wood Waste Composite Properties for Practical Applications. *Polymers*, 13(22), 4038. (IF 4.329, SCI, Q1).
25. Wang, W., Khalid, Q. S., *Abas, M.*, Li, H., Azim, S., Babar, A. R. & Khan, R. (2021). Implementation of POLCA Integrated QRM Framework for Optimized Production Performance-A Case Study. *Sustainability*, 13(6), 3452. (IF 3.889, SCI, Q2).
26. Qazi, M. I., *Abas, M\**, Khan, R., Saleem, W., Pruncu, C. I., & Omair, M. (2021). Experimental investigation and multi-response optimization of machinability of AA5005H34 using composite desirability coupled with PCA. *Metals*, 11(2), 235. (IF 2.351, SCI, Q2).
27. Khalid, Q. S., Azim, S., *Abas, M.*, Babar, A. R., & Ahmad, I. (2021). Modified particle swarm algorithm for scheduling agricultural products. *Engineering Science and Technology, an International Journal*, 24(3), 818-828. (IF 5.155, SCI, Q1).
28. *Abas, M.*, Naeem, K., Habib, T., Khan, I., Farooq, U., Khalid, Q. S., & Rahman, K. (2021). Development of prediction model for conductive pattern lines generated through positive displacement microdispensing system using artificial neural network. *Arabian Journal for Science and Engineering*, 46(3), 2429-2442. (IF 2.334, SCI, Q2).
29. *Abas, M\**, Salah, B., Khalid, Q. S., Hussain, I., Babar, A. R., Nawaz, R., ... & Saleem, W. (2020). Experimental investigation and statistical evaluation of optimized cutting process parameters and cutting conditions to minimize cutting forces and shape deviations in Al6026-T9. *Materials*, 13(19), 4327. (IF 3.623, SCI, Q2).
30. Kamal, A., Azfar, R. W., Salah, B., Saleem, W., *Abas, M.*, Khan, R., & Pruncu, C. I. (2021). Quantitative analysis of sustainable use of construction materials for supply chain integration and construction industry performance through Structural Equation Modeling (SEM). *Sustainability*, 13(2), 522. . (IF 3.889, SCI, Q2).
31. Waseem, M., Salah, B., Habib, T., Saleem, W., *Abas, M\**, Khan, R. and Siddiqi, M. U. R. (2020). Multi-response optimization of tensile creep behavior of PLA 3D printed parts using categorical response surface methodology. *Polymers*, 12(12), 2962. (IF 4.329, SCI, Q1).
32. *Abas, M.*, Sayd, L., Akhtar, R., Khalid, Q. S., Khan, A. M., & Pruncu, C. I. (2020). Optimization of machining parameters of aluminum alloy 6026-T9 under MQL-assisted turning process. *Journal of Materials Research and Technology*, 9(5), 10916–10940. (IF 5.289, SCI, Q1)
33. Qazi, M. I., Akhtar, R., *Abas, M.*, Khalid, Q. S., Rehman Babar, A., & Pruncu, C. I. (2020). An Integrated Approach of GRA Coupled with Principal Component Analysis for Multi-Optimization of Shielded Metal Arc Welding (SMAW) Process. *Materials*, 13, 3457. (IF 3.057, SCI, Q2).
34. Khan, R.; Pruncu, C.I.; Khan, A.S.; Naeem, K.; *Abas, M.*; Khalid, Q.S.; Aziz, A. A Mathematical Model for Reduction of Trim Loss in Cutting Reels at a Make-to-Order Paper Mill. *Appl. Sci.* 2020, 10, 5274. (IF 2.474, SCI, Q2).
35. Riaz, R. M., Naeem, K., Khan, A. S., *Abas, M.*, & Ullah, M. (2020). The Relationship between General Aviation Pilot Age and Accident Rate. *Mehran University Research Journal of Engineering and Technology*, 39(3), 506-516. (IF 0.6, ESCI, Q3)
36. Ali, U., Salah, B., Naeem, K., Khan, A.S., Khan, R., Pruncu, C.I., *Abas, M.* and Khan, S., (2020). Improved MRO inventory management system in oil and gas company: Increased service level and reduced average inventory investment. *Sustainability*, 12(19), 8027. (IF 3.251, SCI, Q2).
37. Jan, Q. M. U., Habib, T., Noor, S., *Abas, M.*, Azim, S., & Yaseen, Q. M. (2020). Multi response optimization of injection moulding process parameters of polystyrene and polypropylene to minimize surface roughness and shrinkage's using integrated approach of S/N ratio and composite desirability function. *Cogent Engineering*, 7(1), 1781424 (IF 1.9, ESCI, Q2).

38. **Abas, M.**, Salman, Q., Khan, A. M., & Rahman, K. (2019). Direct ink writing of flexible electronic circuits and their characterization. *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, 41(12), 563. (IF 1.755, SCI)
39. Farooq, Umer, Imran Khan, Salman Ahmad, **Abas, M.**, Muhammad Alam Zaib Khan, and Khalid Rahman. "Fabrication of PEDOT: PSS conductive patterns on photo paper substrate through electro-hydrodynamic jet printing process." *International Journal of Lightweight Materials and Manufacture* (2019), 2(4), 318-329. (Scopus Index).
40. Khalid, Q., **Abas, M.**, Rauf, M., Jenhanzaib, M., & Maqsood, S. (2019, June 28). Hybrid particle swarm algorithm for scheduling in cellular manufacturing system- a case study. *Journal of engineering and applied sciences*, 38(1). (HEC Category - X)
41. **Abas, M.**, Rahman, K. Fabrication of flex sensors through direct ink write technique and its electrical characterization. *Applied Physics. A Material Science and Processing*, 122 (11), 972. doi:10.1007/s00339-016-0507-8. (IF 1.441, SCI, Q2)
42. **Abas, M.**, Abbas, A, Khan, W.A. (2016). Scheduling a Job Shop- A Case Study. *IOP Conf. Series: Materials Science and Engineering*, 146 (1). DOI:10.1088/1757-899X/146/1/012052. (Scopus Index)
43. **Abas, M.**, SB Khattak, R.Akhtar, I.Ahmad, M.Ullah, I.U.Haq. Identification of Factors Affecting Cost Performance of Construction Projects. *Technical Journal, University of Engineering and Technology (UET) Taxila, Pakistan Vol. 21 No.1-2016*. (HEC Category - Y).
44. **Abas, M.**, SB Khattak, I Hussain, S Maqsood, I Ahmad. Evaluation of Factors Affecting the Quality of Construction Projects. *Technical Journal, University of Engineering and Technology (UET) Taxila, Pakistan Vol. 20(SI) No.II(S)-2015*. (HEC Category - Y)
45. SB Khattak, **Abas, M.**, S Maqsood, M Omair, R Nawaz, I Ul Haq. Identification and Evaluation of Risk Factors Affecting the Supply Chain Environment of Construction Industry of Khyber Pukhtunkhwa (KPK). *Technical Journal, University of Engineering and Technology (UET) Taxila, Pakistan Vol. 20(SI) No.II(S)-2015*. (HEC Category - Y)

## References

- Dr. Sahar Noor  
Professor  
Department of Industrial Engineering  
University of Engineering and Technology  
Peshawar, Pakistan  
Email: [sahar@uetpeshawar.edu.pk](mailto:sahar@uetpeshawar.edu.pk)
- Dr. Khalid Rahman  
Associate Professor  
Faculty of Mechanical Engineering  
GIK Institute  
Topi, Pakistan  
Email: [khalid.rehman@giki.edu.pk](mailto:khalid.rehman@giki.edu.pk)
- Dr. Tufail Habib  
Associate Professor  
Department of Industrial Engineering  
University of Engineering and Technology  
Peshawar, Pakistan  
Email: [tufailh@uetpeshawar.edu.pk](mailto:tufailh@uetpeshawar.edu.pk)