

ENGR. DR. MUSTABSHIRHA GUL

(MECHANICAL ENGINEER & LECTURER)

AREA OF INTEREST:

Management, Engineering Services, Thermodynamics, HVAC, IC Engines, Bio-Fuels, Mechanics

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ADDRESS:

Mechanical Engineering dept, Faculty of Engineering and Technology BZU Multan

Objective:

To bring unmatched success to the organization. I work through maximum possible value addition, excellent logical aptitude, utilization of my cognitive ability and creative thought process.

Academic Qualifications

PhD Engineering and Engineering Trades (Mechanics and Metal Works)	Universiti Malaya, Malaysia.
M.Sc (Thermal Power Engg)	University of Engineering and technology Lahore.
B.Sc (Mechanical Engineering.) (2011)	University college of Engineering and technology BZU Multan.
F.Sc Pre-Engineering	F.G Degree College Multan,Cant.
Matriculation	Govt. Noor jehan girls high school, ismailabad , Multan.

Research Papers:

1. **Mustabshirha Gul**, Asad Naeem Shah, Younis Jamal, Imran Masood (2015) Multi-variable optimization of diesel engine fuelled with biodiesel using grey-Taguchi method. *Journal of the Brazilian Society of Mechanical Sciences and Engineering (Springer)*. 38: 621–632, ISSN 1678-5878. doi: [10.1007/s40430-015-0312-x](https://doi.org/10.1007/s40430-015-0312-x). Impact Factor: 1.235, Q2
2. M. I. Masood, A. N. Shah, A. Aslam, **M. Gul**, A. Naveed, M. Usman (2015) Combustion and Emission Based Optimization of Turbocharged Diesel Engine Run on Biodiesel using Grey-Taguchi Method. *Technical Journal, University of Engineering and Technology Taxila*. 20 (3). ISSN: 2313-7770 (Online), ISSN: 1813-1786 (Print).
3. Naveed Husnain, Enlu Wang, Kai Li, Muhammad Tuoqeer Anwar, Aamir Mehmood, **M. Gul**, Deli Li and Jinda Mao (2018) Iron oxide-based catalysts for low-temperature selective catalytic reduction of NO_x with NH₃. *Reviews in Chemical Engineering (De Gruyter)*. 35(2):239–264, eISSN 2191-0235, ISSN 0167-8299. doi:[10.1515/revce-2017-0064](https://doi.org/10.1515/revce-2017-0064), Impact Factor: 6.299, Q1
4. **M. Gul**, Asad Naeem Shah, Umair Aziz, Naveed Husnain, M. A. Mujtaba, Tasmiya Kousar, Rauf Ahmad & Muhammad Farhan Hanif (2019) Grey-Taguchi and ANN based optimization of a better performing low-emission diesel engine fueled with biodiesel. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects (Taylor & Francis online)*. Vol: 41. ISSN: 1556-7036. doi: [10.1080/15567036.2019.1638995](https://doi.org/10.1080/15567036.2019.1638995). Impact Factor: 3.447, Q2
5. M. K. G. Abbas, Galal M. Abdella, Elsadig. O. Eltai and **M Gul** (2019). Effect of corrosion on mechanical properties of the joining of materials. *Journal of Mechanical Engineering and Sciences (Jmes)*, 14(2): 6822 – 6834 ISSN: 2289-4659 e-ISSN: 2231-8380. doi.org/[10.15282/jmes.14.2.2020.22.0534](https://doi.org/10.15282/jmes.14.2.2020.22.0534).

6. Waqar Ahmed, S. N. Kazi, Z. Z. Chowdhury, M. R. B. Johan, Naveed Akram, M. A. Mujtaba, **M. Gul**, C. S. Oon (2020). Experimental investigation of convective heat transfer growth on ZnO@TiO₂/DW binary composites/hybrid nanofluids in a circular heat exchanger. *Journal of Thermal Analysis and Calorimetry (Springer)*, doi.org/10.1007/s10973-020-09363-x. Impact Factor: 4.626, Q2
7. **M. Gul**, H. H. Masjuki, M. A. Kalam, N. W. M. Zulkifli & M. A. Mujtaba (2020) A Review: Role of Fatty Acids Composition in Characterizing Potential Feedstock for Sustainable Green Lubricants by Advance Transesterification Process and its Global as Well as Pakistani Prospective. *Bioenergy Research (Springer)*, 13: 1–22. doi.org/10.1007/s12155-019-10040-7. Impact Factor: 3.852, Q3
8. Mujtaba MA, Masjuki HH, Kalam MA, Ong HC, **Gul M**, Farooq M, Soudagar MEM, Ahmed W, Harith MH, Yusoff MNAM (2020) Ultrasound-assisted process optimization and tribological characteristics of biodiesel from palm-sesame oil via response surface methodology and extreme learning machine - Cuckoo search. *Renewable Energy (Elsevier)* 158:202-214. doi:https://doi.org/10.1016/j.renene.2020.05.158. Impact Factor: 8.001, Q1
9. M.A. Mujtaba, M.A. Kalam, H.H. Masjuki, **M Gul**, Manzoore Elahi M. Soudagar, Hwai Chyuan Ong, Waqar Ahmed, A.E. Atabani, L. Razzaq, Mnam Yusoff (2020). Comparative study of nanoparticles and alcoholic fuel additives-biodieseldiesel blend for performance and emission improvements. *Fuel (Elsevier)*, 279: 118434. doi.org/10.1016/j.fuel.2020.118434. Impact Factor: 6.609, Q1
10. **M. Gul**, N.W.M. Zulkifli, H.H. Masjuki, M.A. Kalam, M.A. Mujtaba, M.H. Harith, A.Z. Syahir, Waqar Ahmed, Abdul Bari Farooq (2020). Effect of TMP-based-cottonseed oil-biolubricant blends on tribological behavior of cylinder liner-piston ring combinations. *Fuel (Elsevier)*, 278: 118242. doi.org/10.1016/j.fuel.2020.118242. Impact Factor: 6.609, Q1
11. M. A. Mujtaba, H. H. Masjuki, M. A. Kalam, Fahad Noor, Muhammad Farooq, Hwai Chyuan Ong, **M. Gul**, Manzoore Elahi M. Soudagar, Shahid Bashir, I. M. Rizwanul Fattah, and L. Razzaq (2020). Effect of Additivized Biodiesel Blends on Diesel Engine Performance, Emission, Tribological Characteristics, and Lubricant Tribology. *Energies (MDPI)*, 13: 3375. ISSN 1996-1073. doi:10.3390/en13133375. Impact Factor: 3.004, Q2
12. M.A.Mujtaba HaengMuk Cho, H.H.Masjuki M.A.Kalam, H.C.Ong, **M.Gul**, M.H.Harith, M.N.A.M.Yusoff (2020). Critical review on sesame seed oil and its methyl ester on cold flow and oxidation stability. *Energy Reports (Elsevier)*, 6: 40-54. doi.org/10.1016/j.egyr.2019.11.160. Impact Factor: 6.87, Q1
13. **M. Gul**, M.A. Kalam, M.A. Mujtaba, Saira Alam, M. Nasir Bashir, Iqra Javed, Umair Aziz, M. Rizwan Farid, M. Tahir Hassan, Shahid Iqbal (2020). Multi-objective-optimization of process parameters of industrial-gas-turbine fueled with natural gas by using Grey-Taguchi and ANN methods for better performance. *Energy Reports (Elsevier)*. 6: 2394–2402. doi.org/10.1016/j.egyr.2020.08.002. Impact Factor: 6.87, Q1
14. WaqarAhmed, S.N.Kazi, Z.Z.Chowdhury, Mohd Rafie BinJohan, Manzoore Elahi M.Soudagar, M.A.Mujtaba, **M.Gul**, Irfan Anjum Badruddin, Sarfraz Kamangar (2020). Ultrasonic assisted new Al₂O₃@TiO₂-ZnO/DW ternary composites nanofluids for enhanced energy transportation in a closed horizontal circular flow passage. *International Communications in Heat and Mass Transfer (Elsevier)*. doi.org/10.1016/j.icheatmasstransfer.2020.105018. Impact Factor: 3.971, Q1
15. Ahmed W, Zaman Chowdhury Z, Kazi SN, Johan MRB, Badruddin IA, Soudagar MEM, Kamangar S, Mujtaba MA, **Gul M**, Khan TMY (2021) Evaluation on Enhanced Heat Transfer Using Sonochemically Synthesized Stable Zno-Eg@Dw Nanofluids in Horizontal Calibrated Circular Flow Passage. *Energies (MDPI)* 14 (9):2400. https://doi.org/10.3390/en14092400. Impact Factor: 3.004, Q2
16. Mujtaba MA, Muk Cho H, Masjuki HH, Kalam MA, Farooq M, Soudagar MEM, **Gul M**, Ahmed W, Afzal A, Bashir S, Raju VD, Yaqoob H, Syahir AZ (2021) Effect of alcoholic and nano-particles additives on tribological properties of diesel–palm–sesame–biodiesel blends. *Energy Reports (Elsevier)* 7:1162-1171. https://doi.org/10.1016/j.egyr.2020.12.009. Impact Factor: 6.87, Q1

17. Ahmed W, Amin M, Ahmed K, Mehmood S, Fayaz H, Mujtaba MA, Soudagar MEM, Gul M (2021) Characteristics investigation of silicone rubber-based RTV/ μ ATH@nSiO₂ micro/nano composites for outdoor high voltage insulation. *Journal of Dispersion Science and Technology* (Taylor & Francis online) :1-14. doi:10.1080/01932691.2020.1857262. Impact Factor: 1.7, Q2
18. Mujtaba MA, Muk Cho H, Masjuki HH, Kalam MA, Farooq M, Soudagar MEM, Gul M, Afzal A, Ahmed W, Raza A, Khan TMY, Bashir S, Ahmad Z (2021) Effect of primary and secondary alcohols as oxygenated additives on the performance and emission characteristics of diesel engine. *Energy Reports* (Elsevier) 7:1116-1124. https://doi.org/10.1016/j.egy.2020.12.008. Impact Factor: 6.87, Q1
19. Gul M, Zulkifli NWM, Kalam MA, Masjuki HH, Mujtaba MA, Yousuf S, Bashir MN, Ahmed W, Yusoff MNAM, Noor S, Ahmad R, Hassan MT (2021) RSM and Artificial Neural Networking based production optimization of sustainable Cotton bio-lubricant and evaluation of its lubricity & tribological properties. *Energy Reports* (Elsevier) 7:830-839. https://doi.org/10.1016/j.egy.2021.01.033. Impact Factor: 6.87, Q1
20. Mujtaba MA, Kalam MA, Masjuki HH, Soudagar MEM, Khan HM, Fayaz H, Farooq M, Gul M, Ahmed W, Ahmad M, Munir M, Yaqoob H, Samuel OD, Razaq L (2021) Effect of palm-sesame biodiesel fuels with alcoholic and nanoparticle additives on tribological characteristics of lubricating oil by four ball tribo-tester. *Alexandria Engineering Journal* (Elsevier) 60 (5):4537-4546. https://doi.org/10.1016/j.aej.2021.03.017. Impact Factor: 3.732, Q1
21. Ahmed W, Kazi SN, Chowdhury ZZ, Johan MRB, Mehmood S, Soudagar MEM, Mujtaba MA, Gul M, Ahmad MS (2021) Heat transfer growth of sonochemically synthesized novel mixed metal oxide ZnO+Al₂O₃+TiO₂/DW based ternary hybrid nanofluids in a square flow conduit. *Renewable and Sustainable Energy Reviews* (Elsevier) 145:111025. https://doi.org/10.1016/j.rser.2021.111025. Impact Factor: 14.982, Q1
22. Mujtaba MA, Kalam MA, Masjuki HH, Razaq L, Khan HM, Soudagar MEM, Gul M, Ahmed W, Raju VD, Kumar R, Ong HC (2021) Development of empirical correlations for density and viscosity estimation of ternary biodiesel blends. *Renewable Energy* 179:1447-1457. doi:10.1016/j.renene.2021.07.121. Impact Factor: 8.001, Q1
23. Ranganatha Swamy L, Banapurmath NR, Chandrashekar TK, Soudagar MEM, Gul M, Nik-Ghazali N-N, Mujtaba MA, Shahapurkar K, Ağbulut Ü, Alshehri HM, Sajjan AM, Goodarzi M (2021) Effect of injection timing and duration on the performance of diesel engine fueled with port injection of oxygenated fuels. *Chemical Engineering Communications* (Taylor & Francis online):1-13. doi:10.1080/00986445.2021.2013211. Impact Factor: 2.586, Q1
24. Gul M, Kalam MA, Mohd Zulkifli NW, Hj. Hassan M, Abbas MM, Yousuf S, Al-Dahiree OS, Gaffar Abbas MK, Ahmed W, Imran S (2022) Enhancing AW/EP tribological characteristics of biolubricant synthesized from chemically modified cotton methyl-esters by using nanoparticle as additives. *Industrial Lubrication and Tribology* (Emerald Insight) 74 (4):411-420. doi:10.1108/ILT-07-2021-0253 . Impact Factor: 1.6, Q3
25. Nasir Bashir M, Saad HM, Rizwan M, Bingöl S, Channa IA, Gul M, Haseeb ASMA, Naher S (2022) Effect of cobalt nanoparticles on mechanical properties of Sn–58Bi solder joint. *Journal of Materials Science: Materials in Electronics* (Springer) 33 (28):22573-22579. doi:10.1007/s10854-022-09035-6. Impact Factor: 2.779, Q1
26. Imran S, Gul M, Kalam MA, Zulkifli NWM, Mujtaba MA, Yusoff MNAM, Awang MSN (2023) Effect of various nanoparticle biodiesel blends on thermal efficiency and exhaust pollutants. *International Journal of Energy and Environmental Engineering* (Springer). doi:10.1007/s40095-023-00557-1. . Impact Factor: 2.6, Q2
27. Al-Dahiree OS, Ghazilla RA, Tokhi MO, Yap HJ, Gul M (2023) Design and Characterization of a Low-Cost and Efficient Torsional Spring for ES-RSEA. *Sensors* (MDPI) 23 (7). doi:10.3390/s23073705. . Impact Factor: 3.9, Q1
28. Bashir MN, Khan NB, Bashir S, Khan AF, Quazi MM, Gul M, Wakeel S, Saad HM (2023) Effect of Zn nanoparticle-doped flux on mechanical properties of SAC305 solder joint after electromigration. *Journal of Materials Science: Materials in Electronics* (Springer) 34 (4):321. doi:10.1007/s10854-022-09722-4. Impact Factor: 2.779, Q1

29. Sumra Y, Payam S, Iftikhar AC, Rizwan M, Tanveer AK, Belal A, Mustabshirha G (2023) Chemical and Thermal Characterization of Cement Mortar Containing Ground Palm Oil Fuel Ash as a Partial Cement Replacement. *Journal of Wuhan University of Technology-Mater Sci Ed (Springer)* 38 (3):575-581. doi:10.1007/s11595-023-2733-1. Impact Factor: 1.6, Q2
30. Abbas MKG, Ramesh S, Tasfy SFH, Lee KYS, Gul M, Aljaoni B (2023) Effect of sintering additives on the properties of alumina toughened zirconia (ATZ). *MRS Communications* 13 (4):618-626. doi:10.1557/s43579-023-00400-y. Impact Factor: 1.9, Q1

Conference Paper:

1. Gul M, Kalam MA, Zulkifli NWM, Masjuki HH, Mujtaba MA The Comparison of Tribological Characteristics of TMP Based Cotton-Bio Lubricant and Commercial Lubricant for Cylinder Liner-Piston Ring Combination. In: Samion S, Abu Bakar MA, Kamis SL, Sulaiman MH, Mohd Zulkifli NW (eds) Proceedings of the 3rd Malaysian International Tribology Conference, Singapore, 2022// 2022. Springer Singapore, pp 22-28

Book Chapters:

1. **Book Ch:9**
Gul M, Mujtaba MA, Masjuki HH, Kalam MA, Zulkifli NWM (2021) Methods for Biodiesel Production. In: *Biodiesel Technology and Applications*. pp 267-283. <https://doi.org/10.1002/9781119724957.ch9>.
2. **Book Ch:2**
Mujtaba MA, Kalam A, Masjuki HH, Gul M, Ahmed W, Soudagar MEM, Razzaq L (2023) Comparative investigation of the suitability of fuel properties of oxygenated biofuels in internal combustion engines. In: Kumar N, Mathiyazhagan K, Sreedharan VR, Kalam MA (eds) *Advancement in Oxygenated Fuels for Sustainable Development*. Elsevier, pp 7-25. doi:10.1016/B978-0-323-90875-7.00010-1

Science Competition, CPD Certifications, Seminars, Workshop, & Trainings:

1. **Participation in FBISE Inter-Directorate Science Competition** (FGEI.C/G Inter- Regional- level) held on 2004 at F.G Postgraduate college for Women, Kashmir Road, Rawalpindi Cantt.
2. **CPD Programme:** C-Lecture on Stone Mastic Asphalt Credit Point 0.5 held on 18 November 2015 at BZU Multan Organized by Engr Dr. M.Imran Malik PEB Coordinator BZU Multan, Pakistan.
3. **CPD Programme:** C-Lecture on Conservation and Adaptive Reuse of Historical Buildings Credit Point 0.5 held on 15 December 2015 at BZU Multan Organized by Engr Dr. M.Imran Malik PEB Coordinator BZU Multan, Pakistan.
4. **Seminar:** HORIZON-2020, Building a science bridge between the EU and Pakistan, EU Research, and Innovation Programme, held on 24 August 2017 at BZU Multan, Pakistan.
5. **Training:** Dynamic Teaching Skills, held on 28 March 2018, held at BZU Multan. Organized by Dr. Saeed Akhter Director ORIC BZU Multan Pakistan.
6. **Training:** Faculty Teaching Program (Success Mind set of Faculty) held on 19 April 2018 at BZU Multan Organized by Dr. Saeed Akhter Director ORIC BZU Multan, Pakistan.

7. **One Day Workshop:** for Capacity Building of Young Scientists on ‘Communicating Science to Society’, Technology Times, held on **30 April 2018**, at BZU Multan Pakistan.
8. **Seminar:** Technology Development Fund (TDF) held on **15 May 2018**, at IMS Hall, BZU Multan. Organized by Dr. Saeed Akhter Director ORIC BZU Multan, Pakistan.
9. **Workshop:** Two days Training, Understanding ENDNOTE and NVIVO-Research made Easy at BZU Multan Organized by Dr. Saeed Akhter Director ORIC BZU Multan, Pakistan.

Professional Experience (Internships):

- **Industry: Pak Railway Mugalpura workshop Lahore.**
Duration: 1 month
 - Assembling & Disassembling of engine parts, Casting, Welding.
 - Heat treatment process
- **Industry: SNGPL Multan (Transmission Session).**
Duration: 1 month

Teaching Experience

- **8 Years Teaching** at Department of Mechanical Engineering, Faculty of Engineering & Technology, BZU Multan.
- **2 Years Teaching** at Institute of southern Punjab Multan

Project Experience:

- ✓ Fabrication of Vertical Axis Wind Turbine.
- ✓ Modeling and simulation of IC Engine with the help of PRO-E and ANSYS
- ✓ Troubleshooting and maintenance of centrifugal compressor of SNGPL Multan.
- ✓ Optimization of performance and combustion parameters of engine fuelled with biodiesel.
- ✓ Cotton Bio-diesel /Bio-lubricant Synthesis
- ✓ Tribological Analysis of Bio-fuels
- ✓ Synthesis, Characterizations, and Tribological Evaluation of a Sustainable Bio-Lubricant derived from Pakistani Cottonseed Oil

Computer skills:

- Expert in Micro-soft office, Micro-soft world, excel, Endnotes.
- AutoCAD
- MATLAB
- Artificial Neural Networking
- Response Surface Methodology