Dr. Fahim Uddin

Department of Chemical Engineering
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Experience:

Jan 2022- Present	**NED University of Engineering & Technology** Associate Professor (Chemical Engineering Dept.)
March 2018 – Jan 2022	**NED University of Engineering & Technology** Assistant Professor (Chemical Engineering Dept.)
April 2011 – March 2018	**NED University of Engineering & Technology** Lecturer (Chemical Engineering Dept.)

Contributing to the intellectual life of the university by teaching undergraduate students and supervising high quality research projects. Also participating in other department activities.

Undergraduate Teaching:

✓ Reaction Engineering	Third year	(Chemical Engineering)
✓ Process Modelling & Simulation	Final year	(Chemical Engineering)
✓ Chemical Engineering Principles	Second year	(Polymer & Petrochemical Engineering)
✓ Process Control	Third year	(Chemical Engineering)
✓ Process Optimization	Final year	(Chemical Engineering)
✓ Separation Processes	Third year	(Chemical Engineering)
✓ Mass Transfer Operations	Third year	(Polymer & Petrochemical Engineering)
✓ Particulate Technology	Third year	(Chemical Engineering)
✓ Organic Synthesis	Second year	(Chemical Engineering)
✓ Industrial Organization & Management	Final year	(Chemical Engineering)

Final Year Projects' Supervision:

- ✓ Naphtha Cracking for Olefins' Production
- ✓ Water Purification using Activated Carbon
- ✓ Production of Aniline from Ammonia
- ✓ Isomerisation of Light Naphtha
- ✓ Production of Bio Diesel by Reactive Distillation
- ✓ Molex® Process
- ✓ LPG Recovery from Gas Separation Process

Other Responsibilities:

- ✓ Carrying out administrative tasks related to the department, such as:
  - **QEC Nominee/Area Cordinator** of Chemical Engineering Deparment
  - Departmental **Board of Studies** (Member)
  - Duty Society (Member)
  - Student admissions duties
  - Masters' induction programmes
  - Involvement in student society (**SCHEME, AIChE**), committees and boards
  - Faculty Coordinator of Department Magazine, **Panorama 2013-14**.
- ✓ Writing research proposals, papers and other publications
- ✓ Representing the institution at professional conferences and seminars, and contributing to these
- ✓ Organising conferences/events for technical and personality nourishment
- ✓ Completing Continuous Professional Development (CPD) and participating in staff training activities
- ✓ Establishing collaborative links with industrial, commercial and public organisations.
- ✓ Interviewing applicants of M.E (Chemical Engineering).

Publications

Journal Papers:

1. Qadir, D., **Uddin, F.**, Nasir, R., Mukhtar, H. (2022).
   Rejection analysis and performance prediction of tubular membranes for dissolved salts
   Materialwissenschaft und Werkstofftechnik 53 (5), 636-643
2. Rubab, S., Khan, M. M., **Uddin, F.**, Bangash, Y. A., Taqvi, S. A. (2022).
   A Study on AI-based Waste Management Strategies for the COVID-19 Pandemic
   ChemBioEng Reviews 9 (2), 212-226
3. Taqvi, S. A., Zabiri, H., **Uddin, F.**, Naqvi, M., Tufa, L. D., Kazmi, M., Rubab, S. (2022).
   Simultaneous fault diagnosis based on multiple kernel support vector machine in nonlinear dynamic distillation column
   Energy Science & Engineering, https://doi.org/10.1002/ese3.1058
4. Ul Haq, S.E., **Uddin, F.**, Taqvi, S. A., Naqvi, M., Naqvi, S.R. (2021).
   Multistage carbon dioxide compressor efficiency enhancement using waste heat powered absorption chillers.
   Energy Sci Eng. 2021; 00: 1– 12. https://doi.org/10.1002/ese3.898.
5. Hussain, M., Zabiri, H., **Uddin, F.** et al.
   Pilot-scale biomass gasification system for hydrogen production from palm kernel shell (part A): steady-state simulation.
   Biomass Conv. Bioref. (2021). https://doi.org/10.1007/s13399-021-01474-1
6. Hussain, M., Zabiri, H., **Uddin, F.**, Yusup, S. and Tufa, L.D., 2021.
   Pilot-scale biomass gasification system for hydrogen production from palm kernel shell (part B): dynamic and control studies.
   Biomass Conversion and Biorefinery, pp.1-23.
7. Malik, A., Hussain, M., **Uddin, F.**, Raza, W., Hussain, S., Habiba, U.E., Malik, T. and Ajmal, Z., 2021. Investigation of textile dyeing effluent using activated sludge system to assess the removal efficiency. *Water Environment Research*.
8. Qadir, D., Nasir, R., Mukhtar, H., **Uddin, F.** (2021).
   Performance prediction of flat sheet commercial nanofiltration membrane using Donnan-Steric Pore Model.
   Membrane Water Treatment, 12 (2), 59-64. DOI: http://dx.doi.org/10.12989/mwt.2021.12.2.059
9. Taqvi, S. A. A., Zabiri, H., Tufa, L. D., **Uddin, F**., Fatima, S. A., & Maulud, A. S., (2021).
   "A Review on Data-Driven Learning Approaches for Fault Detection and Diagnosis in Chemical Processes".
   ChemBioEng Review.
10. Taqvi, S. A. A., Zabiri, H., Tufa, L. D., **Uddin, F**., Fatima, S. A., & Maulud, A. S. (2020).
    NARX Network based Data-Driven Algorithm for Detection of Tray Faults in Nonlinear Dynamic Distillation Column. *Jurnal Teknologi*, 82(5). (Q2, SCOPUS Indexed).
11. Shakeel, K., Javaid, M., Muazzam, Y., Naqvi, S. R., Taqvi, S. A. A., **Uddin, F**., ... & Niazi, M. (2020).
    Performance Comparison of Industrially Produced Formaldehyde Using Two Different Catalysts. *Processes*, *8*(5), 571.Uddin, F., Tufa, L. D. & Maulud, A. S. (2018).
    Consistent and Effective Nonlinearity Index and its Application on Model Predictive Controller Performance Deterioration. *Industrial & Engineering Chemistry Research 57 (43), 14596–14606*

12. Uddin, F., Tufa, L. D., Maulud, A. S. & Taqvi, S. A. (2018).
System Behavior and Predictive Controller Performance Near the Azeotropic Region. *Chemical Engineering & Technology 41 (4), 806-818*
13. Uddin, F., Tufa, L. D., Taqvi, S. A., & Vellen, N.
Development of Regression Models by Closed–Loop Identification of Distillation Column-A Case Study. *Indian Journal of Science and Technology, 10(2).*
14. Taqvi, S. A., Tufa, L. D., Zabiri, H., Maulud, A. S., & Uddin, F.
Multiple Fault Diagnosis in Distillation Column Using Multikernel Support Vector Machine. *Industrial & Engineering Chemistry Research 57 (43), 14689-14706*
15. Taqvi, S. A., Tufa, L. D., Zabiri, H., Maulud, A. S., & Uddin, F.
Fault detection in distillation column using NARX neural network. *Neural Computing and Applications, 1-17*
16. Uddin, F., Taqvi, S.A., & Memon, I. (2016).
Process simulation and sensitivity analysis of indirect coal gasification using aspen plus® model. *ARPN Journal of Engineering and Applied Sciences, 11 (17), pp. 10546-10552.*
17. Idris, A., Man, Z., Maulud, A. S., & Uddin, F.
Modified Bruggeman Models for Prediction of CO2 Permeance in Polycarbonate/Silica Nanocomposite Membranes. *The Canadian Journal of Chemical Engineering. DOI:10.1002/cjce.22933*
18. Shahbaz, M., Taqvi, S. A., Loy, A. C. M., Inayat, A., Uddin, F., Bokhari, A., Naqvi, S. R.
Artificial neural network approach for the steam gasification of palm oil waste using bottom ash and CaO. *Renewable energy 132, 243-254*
19. Taqvi, S. A., Uddin, F., Tufa, L. D., Memon, I., & Hussain, M. (2015).
Aspen Plus® Simulation of a Coal Gasification Process (Geometric Analysis). *Journal of Chemical Engineering & Process Technology, 6(6), 1.*
20. Taqvi, S.A., Sohail, M., & Uddin. F (2016).
Utilization of Ion- Exchange Technology for Boiler Feed Water Production-Design and Testing. *Chemical Engineering, 1, 26-35.*

Conference Papers:

21. Uddin, F., Tufa, L. D., Yousif, S. M. T., & Maulud, A. S. (2016).
Comparison of ARX and ARMAX decorrelation models for detecting model-plant mismatch. *Procedia Engineering, 148, 985-991.*
22. Uddin, F., Memon, I., & Taqvi, S. A. (2016).
Sensitivity Analysis of Thar Coal Gasification Using Steam. *Proceedings of AMPE, 2015, Karachi, Pakistan.*
23. Uddin, F., Taqvi, S.A., & Memon, I. (2013, November).
Mitigating Energy Crisis by Coal Gasification using Steam - Sensitivity Analysis using Aspen-Plus® Simulation. *Proceedings of 1st International Coal Conference ICC2013.*
24. Vohra, F. I., Uddin, F., & Taqvi, S. A. (2016).
Development of a Proto-type Model for Drinking Water Treatment using Activated Carbon. *Proceedings of AMPE, 2015, Karachi, Pakistan.*
25. Chohan, M. S., Uddin, F, Awan Z., & Hashmi, S. (2015).
Production of Biodiesel by Reactive Distillation - Simulation Studies Using Aspen Plus®. *In 5th International Mechanical Engineering Congress.*
26. Taqvi, S. A., Memon, I., & Uddin, F. (2013).
To Study the Behaviour of Gasifier and Simulation of Coal Gasification using Steam using Aspen Plus® Model (Geometric Analysis). *Proceedings of 1st International Coal Conference ICC2013.*
27. Taqvi, S. A., Memon, I., & Uddin, F. (2013).
Future of Clean Energy and Environment - Coal Gasification. *Proceedings of 4th National Conference on Energy and Environment.*
28. Taqvi, S. A., Tufa, L. D., Zabiri, H., Mahadzir, S., Maulud, A. S., & Uddin, F. (2017, August).
Rigorous dynamic modelling and identification of distillation column using Aspen Plus. *In Control and System Graduate Research Colloquium (ICSGRC), 2017 IEEE 8th (pp. 262-267). IEEE.*
29. Taqvi, S. A., Tufa, L. D., Zabiri, H., Mahadzir, S., Maulud, A. S., & Uddin, F. (2017, August).
Artificial Neural Network for Anomalies Detection in Distillation Column. *In Asian Simulation Conference (pp. 302-311). Springer, Singapore.*

Book:

30. Taqvi, S. A., Uddin, F., & Memon, I. (2016).
Indirect Coal Gasification using Aspen-Plus® Model, Simulation Studies and Geometric Analysis.
Lambert Academic Publishing. ISBN: 978-3-659-79355-4

Educational Achievements

2015 – 2019	**Ph. D. (Chemical Engineering)** Universiti Teknologi PETRONAS	-
2011 – 2013	**M. Engg. (Chemical)** N.E.D. University of Engineering & Technology	GPA: **3.92/4.0**
2007 – 2010	**B.E. (Chemical)** N.E.D. University of Engineering& Technology	GPA: **3.70/4.0**

Test Scores

April 2014	**Graduate Record Examinations (GRE - General)** Educational Testing Service (ETS)	**QR: 165** **Percentile: 91%**
Dec 2013	**International English Language Testing System (IELTS)** Australian Education Office (AEO - Pakistan)	**Score: 7.5** **(Listening: 8.5)**
April 2013	**Graduate Assessment Test (GAT - General)** National Testing Service (NTS)	**Score:84,** **Percentile:99.8%**
April 2011	**Graduate Assessment Test (GAT - General)** National Testing Service (NTS)	**Score:81,** **Percentile:99.8%**

Courses and Certifications

- ✓ **Aspen HYSYS Steady State Simulation Course**
  TUSDEC Karachi (SkillTech International)
- ✓ **Research Methodology**
  Universiti Teknologi Petronas,
  NED University of Engineering & Technology
- ✓ **Technical Writing with LATEX**
  NED University of Engineering & Technology
- ✓ **Technology in Teaching and Learning**
  NED University of Engineering & Technology
- ✓ **Effective Teaching Practices**
  NED University of Engineering & Technology
- ✓ **Oral Proficiency (English)**
  NED University of Engineering & Technology

Computer Skills

- **Aspen HYSYS®** (Competent)
- **Aspen Plus®** (Competent)
- **Microsoft Office** (Competent)
- **Polymath v.5.1** (Competent)
- **MATLAB** (Competent)
- **LATEX** (Awareness)
- **ANSYS®** (Awareness)
- **Mathcad®** (Awareness)

Professional Affiliations

- ✓ **Pakistan Engineering Council**
  Registered Engineer (PEC/CHEM/08931)
- ✓ **Institute of Engineers Pakistan**
  Member M-17990/Chemical

Professional Conferences and Seminars

- ✓ **4th International Conference on Process Engineering & Advanced Materials - ICPEAM 2016**
  ESTCON 2016, Kuala Lumpur Conventional Centre.
- ✓ **1st International Coal Conference - ICC2013**
  Mehran University of Engineering & Technology, Jamshoro
- ✓ **Conference of Energy and Sustainability**
  NED University of Engineering & Technology, Karachi
- ✓ **4th National Conference on Energy and Environment:**
  Role of Energy Resources in Sustainability of Environment
  Quaid-e-Awam University of Science, Engineering and Technology
- ✓ **PRISM, Spreading the Colors of Professionalism (Seminar)**
- ✓ **Professional Psychometry (Seminar)**
- ✓ **Your Next Step (Seminar)**
- ✓ **FiXtress (Seminar)**