

Curriculum Vitae

Fahad M. Al-Fadhli

I. Personal Data

Full Name: **Fahad M. Al-Fadhli**
Address: Chemical Engineering Department, College of Engineering
& Petroleum, Kuwait University, 13060 Safat, Kuwait
Email: alfadhli.f@ku.edu.kw

II. Academic Qualifications

Degree	University	Country	Years	Field of Specialization
Ph.D.	University of Texas at Austin	USA	2010-2012	Chemical Engineering
M. S.	University of Texas at Austin	USA	2008-2010	Chemical Engineering
B. S.	Kuwait University	Kuwait	2000-2005	Chemical Engineering

Ph.D. Thesis Title: Reducing Environmental Impacts of Petroleum Refining; A Case Study of Industrial Flaring.

MSc. Thesis Title: Impact of flare Destruction Efficiencies on Ozone Concentrations; A case Study for Houston, Texas.

Languages: Arabic and English

III. Professional Experience

Academic Positions

Title	University	Country	Years
Associate Professor	Kuwait University	Kuwait	2020-Present
Visiting Professor	Texas A&M University	USA	2017-2018
Assistant Professor	Kuwait University	Kuwait	2012-2020

Administrative Duties

- Acting Chairman, Chemical Engineering Department, Kuwait University, October 2016
- Acting Chairman, Chemical Engineering Department, Kuwait University, April 2016
- Acting Chairman, Chemical Engineering Department, Kuwait University, August 2016
- Acting Vice President for Academic Affairs, August 2022
- Acting Vice President for Academic Affairs, February 2023
- Acting Vice President for Academic Affairs, March 2023
- Acting Vice President for Academic Affairs, May 2023
- Acting Vice President for Academic Affairs, August 2023
- Assistant Vice President for Academic Affairs-Academic Development, January 2021 to present.
- Acting Vice President for Academic Affairs, September 2023 to present.

Administrative Experience:

a) Departmental Level

No.	Committee	Role
1	Scholarship committee	Member
2	Hiring and Contract renewal Committee	Member
3	Capstone Project Evaluation	Coordinator
4	New Campus Follow Up	Coordinator
5	Chemical Engineering comprehensive exam	Member
6	Course Schedule	Coordinator
7	Computers	Coordinator
8	Graduate Program	Member
9	Undergraduate Program Curriculum	Member
10	Professional society & training	Member
11	Students' affairs	Coordinator
12	Annual report	Coordinator
13	Library Committee.	Coordinator

b) Faculty Level

No.	Committee	Role
1	High School Engineering Competition	Member
2	Studying the Establishment of Environmental Engineering Program	Member
3	Numerical Methods for Engineers ENG 308	Coordinator
4	Engineering common courses	Member
5	Initiating the course on Applied Numerical Methods and Programing in Engineering	Member
6	Executive committee of the first Engineering Forum and College council	Member
7	College Council	Member

c) University Level

No.	Committee	Role
1	Steering committee of National Unit for Environmental Research and Services	Member
2	Enhancing Kuwait university international rankings	Coordinator
3	Scientific affairs committee	Chairman
4	Academic support staff appointment and promotion committee	Chairman
5	GPA equivalency committee	Chairman
6	Grade corrections committee	Chairman
7	Study the situation of the PhD holders from the Academic support staff	Member
8	Amendments of Kuwait university regulations.	Member
9	Amendments of public universities law.	Member
10	The General Scholarship committee	Chairman
11	Student exchange program	Chairman
12	Kuwait university regulations for academic support staff	Chairman
13	Summer salaries for academic and academic support staff regulations	Chairman
14	University Council	Member

d) Community Level

No.	Type Service	Role	Years of Service
1	Studying the possibility of adding a new undergraduate program in engineering for private universities, General Secretariat of Private Universities Council, Kuwait, June, 2018	Member	2018 – 2019
2	Engineering Classification Council, Kuwait Society of Engineers (KSE)	Member	2015-2017
3	Engineering Exam Committee for KSE	Member	2016-2019
4	Preparing Professional Exams for Supervising Jobs at Ministry of Electricity and Water	Chairman	2019- 2021
5	Universities approval for the purpose of appointment of academic and academic support members in governmental Universities.	Member	2022-present

IV. Teaching Experience

a) Undergraduate Courses

No.	Course Number	Course Title
1	0640-291	Fundamental of Chemical Engineering Design
2	0640-211	Chemical Engineering Principles
3	0640-324	Kinetics and Reactor Design
4	0640-465	Air pollution
6	0600-308	Numerical Methods
7	0640-443	Mass Transfer Operations Laboratory

b) Graduate Courses

No.	Course Number	Course Title
1	0640-552	Waste Minimization
2	2040522	Air pollution Control

c) Supervision of Graduates Students

No.	Title	Type	Name of Student	Date of Completion
1	Investigation of Volatile Organic Compounds: Exposure and Health Hazard Risk Assessment in Beauty Salons in Kuwait	Project	Bashayer Al-Khalidi	May 2015
2	Evaluation of Solar Energy Generation and Distribution in Kuwait	Project	Hiba Al-Ghareeb	May 2017
3	Assessing the Impact of Adopting Electrically Powered Vehicles on Kuwait's Air Quality	Thesis	Ahmed Z. Aly	March 2019
4	Assessing the performance of CALPUFF vs. AERMOD to evaluate the Air Quality Impact of Power Plants in Kuwait	Thesis	Mohamed M. Al-Shammari	July 2022
5	Indoor Air Quality of Beauty Salons in the state of Kuwait: Assessment and analysis of PM2.5 Exposures	Thesis	Haya Alsleem	March 2023
6	Assessing the levels of PM2.5 in different indoor environment of Kuwait.	Thesis	Zahraa M. Hadi	July 2023
7	Assessment and Analysis of the Air Quality impact in Northern region of Kuwait	Thesis	Ahmed Abdulrahman	January 2024
8	Planning and Optimization of Power and Desalination Plants in Kuwait: Sensitivity Analysis	Thesis	Noor Kanbaz	In progress
9	Attendant Exposure to VOCs in Gas Fueling Stations: Comparison of Weekdays and Weekends	Thesis	Rukia Masarani	In progress
10	Individual Exposure to VOCs in Gas Stations	Thesis	Ghazal Suleiman	In progress

d) Co-Supervision of Graduates Students

No.	Title	Type	Name of Student	Date of Completion
1	Analyzing the Operational Processes in Kuwait Power Plants to Control the Energy Consumption of Cogeneration plants	Thesis	Asma S. Al-Sallal	December 2018

2	Simulating the air quality impact of petrochemical systems in the Southern region of Kuwait	Thesis	Fatemah M. Ajeel	January 2018
3	Optimization of Operational Processes at Cogeneration Plants in Kuwait	Thesis	Fajer N. Al-Ajmi	March 2019
4	Modeling and analysis of Multistage flash Desalination Powered by Parabolic Trough Concentrated Solar Power	Thesis	Hessah Alajmi	April 2023
5	Assessment of Indoor Air Quality in Auto Repair Workshops	Thesis	Lama Al-Otaibi	January 2024
6	Planning and Optimization of Energy and Water Resources in Kuwait: Sensitivity Analysis	Thesis	Fatima Ashraf Hafez	In progress
7	Agro Farming in Kuwait Modeling and Analysis	Thesis	Maram Ghadban	In progress

V. Research Experience

a) Research areas

- Air pollution and quality.
- Pollution prevention.
- Pollutants dispersion modeling.
- Process Integration.
- Waste minimization.
- Water-Energy Nexus.
- Water-Energy-Food Nexus.
- Hydrogen Production

b) Research Grants

No.	Title of the Grant	Code	Amount	Funding Agency	Role	Date
1	Optimization of Water-Energy-Food Nexus in Kuwait via an Integrated System of Solar-Assisted Desalination and Farming	CN19-35EM-01	\$97,230	<ul style="list-style-type: none"> ▪ Kuwait Foundation for the Advancement of Science (KFAS) ▪ Kuwait University (KU) 	PI	Nov. 2020 to June 2023
2	Characterization of wastewater in Kuwait and the impact of covid-19	RE04-21	\$125,400	<ul style="list-style-type: none"> ▪ KU 	Co-PI	Oct. 2022 to Sept. 2025

	epidemic on wastewater characteristics					
3	Sustainable Agriculture Using Solar Desalination: A Pathway to Food Security in the State of Kuwait.	CN19-35EM-05	\$100,000	<ul style="list-style-type: none"> ▪ KFAS ▪ KU 	Co-PI	Feb. 2021 to Feb. 2024
4	Modelling and Assessing the Impact of Kuwait's Partial Lockdown Due to COVID-19 on Air Pollution.	PN20-15EV-01	\$25,410	<ul style="list-style-type: none"> ▪ KFAS ▪ KU 	Co-PI	February 2021 to February 2022
5	Air Quality Monitoring – Citizens Sciences Project.	XK41-18	\$30,000	<ul style="list-style-type: none"> ▪ KFAS 	Co-PI	January 2019 to January 2022
6	Approaches to Enhance the Sustainability of Energy Systems in Kuwait Environmental Impact and Cost Estimation of Changing Fuels in Kuwait's Electricity Grid.	P214-42WE-02	\$195,000	<ul style="list-style-type: none"> ▪ KFAS ▪ KU 	Co-PI	September 2015 to September 2018
7	Impact of Doha East Power Station on Ambient Air Quality of Kuwait	ZE01-14	\$6,500	<ul style="list-style-type: none"> ▪ Kuwait University 	PI	March 2013 to March 2015

c) Journal Publications

1. N.S. Alhajeri, A. Tawfik, M. Elsamadony, **F.M. Al-Fadhli**, F. Meng, Synergistic Algal/Bacterial Interaction in Membrane Bioreactor for Detoxification of 1, 2-Dichloroethane-Rich Petroleum Wastewater, Journal of Hazardous Materials, (2024) 134125, <https://doi.org/10.1016/j.jhazmat.132024.134125>.
2. N.S. Alhajeri, **F.M. Al-Fadhli**, A.Z. Aly, Impact of COVID-19 Lockdowns on NOx Emissions: A Sector-Specific Analysis of Transportation and Power Generation, Journal of Engineering Research, (2024) <https://doi.org/10.1016/j.jer.2024.1004.1004>.
3. N.S. Alhajeri, **F.M. Al-Fadhli**, A. Aly, D.T. Allen, Quantifying the impact of urban road traffic on air quality: activity pre-pandemic and during partial and full lockdowns, Environmental Monitoring and Assessment, 196 (2024) 418, <https://doi.org/10.1007/s10661-024-12572-10668>.
4. N. Alhajeri, A. Tawfik, **F. Al-Fadhli**, M. Nasr, Enhancing hydrogen production and biochar recovery from algal biomass: A novel techno-economic synergism with gelatinous digestate, Journal of Water Process Engineering, 61 (2024) 105270, <https://doi.org/10.1016/j.jwpe.102024.105270>.

5. N.S. Alhajeri, **F.M. Al-Fadhli**, A.A. Deshpande, M.M. El-Halwagi, Optimization of water-energy-food nexus via an integrated system of solar-assisted desalination and farming, *Journal of Cleaner Production*, 434 (2024) 140362, <https://doi.org/140310.141016/j.jclepro.142023.140362>.
6. M. Alotaibi, N.S. Alhajeri, **F.M. Al-Fadhli**, S. Al Jabri, M. Gabr, Impact of climate change on crop irrigation requirements in arid regions, *Water Resources Management*, 37 (2023) 1965-1984, <https://doi.org/1910.1007/s11269-11023-03465-11265>.
7. **F.M. Al-Fadhli**, N.S. Alhajeri, R. Sholapurmath, H. Ettouney, D. Sengupta, M. Holtzapple, M.M. El-Halwagi, Optimizing cogeneration and desalination plants by incorporating solar energy, *Desalination*, 549 (2023) 116320, <https://doi.org/116310.111016/j.desal.112022.116320>.
8. N. Alhajeri, **F.M. Al-Fadhli**, M. Alshawaf, A.Z. Aly, An integrated framework for exploring the tradeoffs between cost-optimized fuel allocation and regional air quality impacts in a water-energy nexus infrastructure, *Environmental Science and Pollution Research*, 29 (2022) 62561-62578, <https://doi.org/62510.61007/s11356-62022-20118-z>.
9. **F.M. Al-Fadhli**, N.S. Alhajeri, A.Z. Aly, A. Alsulaili, Modeling the impact of reducing sulfur content of liquid fuels consumed by power plants on the air quality of Kuwait using AERMOD, *Journal of Engineering Research*, 10 (2022) 44-58, <https://doi.org/10.36909/jer.17637>.
10. **F.M. Al-Fadhli**, N. Alhajeri, H. Ettouney, D. Sengupta, M. Holtzapple, M.M. El-Halwagi, Simultaneous optimization of power generation and desalination systems: a general approach with applications to Kuwait, *Clean Technologies and Environmental Policy*, 24 (2022) 2129–2141, <https://doi.org/2110.1007/s10098-10022-02303-10093>.
11. **F.M. Al-Fadhli**, H. Baaqeel, M.M. El-Halwagi, Designing an Eco-Industrial Park with Planning over a Time Horizon, *ACS Sustainable Chemistry & Engineering*, 8 (2020) 18324–18334, <https://dx.doi.org/18310.11021/acssuschemeng.18320c07061>.
12. N.S. Alhajeri, **F.M. Al-Fadhli**, A.Z. Aly, Unit-Based Emissions Inventory for Electric Power Systems in Kuwait: Current Status and Future Predictions, *Sustainability*, 11 (2019b) 5758, <https://doi.org/5710.3390/su11205758>.

13. N.S. Alhajeri, **F.M. Al-Fadhli**, D.S. Alrukaibi, In-vehicle exposure of carbon monoxide, nitrogen dioxide and total volatile organic compounds from ethanol versus gasoline fuel, *International Journal of Environmental Science and Technology*, 16 (2019) 2207-2720, <https://doi.org/2210.1007/s13762-13018-11837-13761>.
14. **F.M. Al-Fadhli**, H. Baaqeel, M.M. El-Halwagi, Modular Design of Carbon-Hydrogen-Oxygen Symbiosis Networks over a Time Horizon with Limited Natural Resources, *Chemical Engineering and Processing-Process Intensification*, 141 (2019) 107535, <https://doi.org/107510.101016/j.cep.102019.107535>.
15. **F.M. Al-Fadhli**, N.S. Alhajeri, A.Z. Aly, D.T. Allen, The impact of power plant emission variability and fuel switching on the air quality of Kuwait, *Science of The Total Environment*, 672 (2019) 593-603, <https://doi.org/510.1016/j.scitotenv.2019.1003.1441>.
16. N.S. Alhajeri, **F.M. Al-Fadhli**, A.Z. Aly, A. Reimers, M.E. Webber, Electric Power System Profile in Kuwait: Electricity and Water Generation, Fuel Consumption and Cost Estimation, *ACS Sustainable Chemistry & Engineering*, 6 (2018) 10323-10334, <https://doi.org/10310.11021/acssuschemeng.10328b01672>.
17. R.A. Alenezi, **F.M. Al-Fadhli**, Thermal degradation kinetics of waste printed circuit boards, *Chemical Engineering Research and Design*, 130 (2018) 87-94, <https://doi.org/10.1016/j.cherd.2017.1012.1005>.
18. **F.M. Al-Fadhli**, R. Mukherjee, W. Wang, M.M. El-Halwagi, Design of Multiperiod C-H-O Symbiosis Networks, *ACS Sustainable Chemistry & Engineering*, 6 (2018) 9130-9136, <https://doi.org/9110.1021/acssuschemeng.9138b01462>.
19. M. Yassin, H. Almutairi, N. Alhajeri, **F. Al-Fadhli**, M. Al Rashidi, T. Shatti, Assessment of noise exposure and associated health risk in school environment, *International Journal of Environmental Science and Technology*, 13 (2016) 2011-2024, <https://doi.org/2010.1007/s13762-13016-11035-y>.
20. V.M. Torres, S. Herndon, E. Wood, **F.M. Al-Fadhli**, D.T. Allen, Emissions of Nitrogen Oxides from Flares Operating at Low Flow Conditions, *Industrial & Engineering Chemistry Research*, 51 (2012) 12600-12605, <https://doi.org/12610.11021/ie300179x>.
21. R.T. Pavlovic, **F.M. Al-Fadhli**, Y. Kimura, D.T. Allen, E.C. McDonald-Buller, Impacts of Emission Variability and Flare Combustion Efficiency on Ozone Formation in the Houston–Galveston–Brazoria Area, *Industrial & Engineering Chemistry Research*, 51 (2012) 12593-12599, <https://doi.org/12510.11021/ie203052w>.

22. A. Jagannath, M.M.F. Hasan, **F.M. Al-Fadhli**, I.A. Karimi, D.T. Allen, Minimize Flaring through Integration with Fuel Gas Networks, *Industrial & Engineering Chemistry Research*, 51 (2012) 12630-12641, <https://doi.org/10.1021/ie300308g>.
23. **F.M. Al-Fadhli**, V.M. Torres, D.T. Allen, Impacts of Air-Assist Flare Blower Configurations on Flaring Emissions, *Industrial & Engineering Chemistry Research*, 51 (2012) 12606-12610, <https://doi.org/10.1021/ie3012209>.
24. **F.M. Al-Fadhli**, Y. Kimura, E.C. McDonald-Buller, D.T. Allen, Impact of Flare Destruction Efficiency and Products of Incomplete Combustion on Ozone Formation in Houston, Texas, *Industrial & Engineering Chemistry Research*, 51 (2012) 12663-12673, <https://doi.org/10.1021/ie201400z>.

d) Conference Publications

25. Nawaf S. Alhajeri and **Fahad M. Al-Fadhli**. (2023). Integration of Solar Energy for Enhanced Efficiency of Cogeneration Plants. 6th International Conference on Desalination using Membrane Technology. 19-22 November 2023 | Melia Sitges, Spain.
26. **Fahad M. Al-Fadhli** and Nawaf S. Alhajeri (2023). Optimization of power generation and desalination systems. 6th International Conference on Desalination using Membrane Technology. 19-22 November 2023 | Melia Sitges, Spain.
27. Nawaf S. Alhajeri, **Fahad M. Al-Fadhli**, Salem Al Jabri, Mohamed Elsayed Gabr. (2023). Management and treatment of brine solutions: A review. 4th International Conference for Membrane Technology & Its Applications. 28-29 August 2023, Egypt.
28. Mohamed Gabr, Nawaf S. Alhajeri, **Fahad M. Al-Fadhli** and Salem Al Jabri. (2023). Technologies for wastewater treatment in aquaponics and their sustainability: A review. 4th International Conference for Membrane Technology & Its Applications. 28-29 August 2023, Egypt.
29. Nawaf S. Alhajeri, **Fahad M. Al-Fadhli** and Mohamed E. Gabr. (2023). Approaches to Assess the Water-Energy-Food Nexus in Arid Regions: Trade-offs, and Co-benefits. Kuwait University Scientific Research Conference 2023 “Brining Sciences Together: Innovation & Sustainability. Kuwait University. 14-15 March 2023.

30. Mohamed ELSayed Gabr, Nawaf S. Alhajeri, Salem Ali Al Jabri, **Fahad M. Al-Fadhli**. (2023) Water, Food, And Energy: A Nexus For Advancing Food Security And Sustainable Agriculture. Twenty-third International Water Technology Conference, IWTC23, Port Said, 9-11 March 2023, Egypt.
31. Mohamed ELSayed Gabr, Nawaf S. Alhajeri, Salem Ali Al Jabri, **Fahad M. Al-Fadhli**. (2023) Prospective and Challenges of Sustainable Water Resources for Irrigation in Kuwait. Twenty-third International Water Technology Conference, IWTC23, Port Said, 9-11 March 2023, Egypt.
32. Nawaf S. Alhajeri, **Fahad M. Al-Fadhli**, Ahmed Z. Aly. (2022). The Impact of Partial and Full Lockdowns of COVID-19 on Vehicular Traffic Flow, Transportation-Related Emissions and Concentrations in Kuwait. First Scientific Research Conference. Research Sector, Kuwait University. 8-9 March 2022.
33. Nawaf S. Alhajeri, **Fahad M. Al-Fadhli**, Ahmed Z. Aly. (2021). COVID19 Impact on Vehicular Emissions of Carbon Dioxide. Climate Change 2021 Conference: The Push to Carbon Neutrality, Adaptation, and Resiliency. Air and Waste Management Association Conference (AWMA). 1-2 December 2021.
34. Nawaf S. Alhajeri, Ahmed Z. Aly, **Fahad M. Al-Fadhli**. (2018). Assessing the Impact of Adopting Electrically Powered Vehicles on Kuwait' s Air Quality. (CITI2018_0335). Urban Transitions 2018 Conference - Integrating Urban and Transport Planning, Environment and Health for Healthier Urban Living. 25 - 27 November 2018 | Sitges, Barcelona Spain.
35. Nawaf S. Alhajeri, **Fahad M. Al-Fadhli**, Ahmed Z. Aly, Andrew Reimers, and Michael E. Webber. (2018). A Quantitative Assessment of Electric Power System Contributions to Atmospheric Pollutants In Kuwait. 11th International Conference On Sustainable Energy & Environmental Protection - (SEEP100465) 8-11 May 2018. University of West Scotland. United Kingdom.
36. Ahmed Z. Aly, **Fahad M. Al-Fadhli**, Nawaf S. Alhajeri, Andrew Reimers, and Michael E. Webber. (2018). Impact of Power plants on the Ambient Air Quality of Kuwait. 11th International Conference On Sustainable Energy & Environmental Protection - (SEEP) 8-11 May 2018. University of West Scotland. United Kingdom.
37. O. Alqabandi, N. S. Alhajeri, M. F.Yassin, **F. Al-Fadhli**. (2016). Assessment of the Exposure to Volatile Organic Compounds (VOCs) in Service Stations in Kuwait. Second Kuwait International Conference on Life Sciences. April 4-6, 2016, Kuwait University, Kuwait.
38. B. Al-Khaldi, **F. Al-Fadhli**, N. S. Alhajeri , M. F.Yassin. (2016). Investigation of Volatile Organic Compounds Exposure and Health Hazard Risk Assessment in

Beauty Salons in Kuwait. Second Kuwait International Conference on Life Sciences. April 4-6, 2016, Kuwait University, Kuwait.

39. A.Mahmoud, N. S. Alhajeri, M. F.Yassin, **F. Al-Fadhli**. (2016). Assessment of Air Quality and Pollution Sources in the Southern Region of Kuwait using Open Air R Model. Second Kuwait International Conference on Life Sciences. April 4-6, 2016, Kuwait University, Kuwait.
40. Anwaar Albeeshi, Abdalrahman Alsulaili, **Fahad Al-Fadhli**. Food Waste Management in Kuwait Current Situation and Future Needs, 5th EurAsia Waste Management Symposium, İstanbul/Türkiye, Oct, 2020
41. **Al-Fadhli, F. M.**, Mcdonald-Buller, E. C., Allen, D. T. Impact of flare DRE and PICs on ozone formation, Air and Waste Management Association Conference, AWMA, San Antonio, June 2012
42. **Al-Fadhli, F. M.**, Torres, V. M., Allen, D. NO_x emissions from industrial flaring, Air and Waste Management Association Conference, AWMA, San Antonio, June, 2012
43. Pavlovic, R., **Al-Fadhli, F. M.**, Mcdonald-Buller, E. C., Allen, D. T Impacts of Refinery Flare Operations and Emissions Variability on Ozone Formation in the Houston-Galveston-Brazoria Area, Waste Management Association Conference, AWMA, Canada, Jun, 2010

VI. Honors and Awards

1. Kuwait University incentive award for early completion of Ph.D. degree, Kuwait University 2012
2. Scholarship for Master's and Ph.D., Kuwait University Jun, 2008 - Jul, 2012
3. Distinguished Student List (2004-2005 Academic year), Kuwait University
4. Dean's List (Three semesters), Kuwait University
5. Top Performing Student List (Academic years), Kuwait University

VII. Membership in Professional Societies

1. Kuwait Society of Engineers (KSE), Chemical Engineering, Kuwait, 2012-present
2. Kuwait University Faculty Association, Kuwait University, 2012-Present.