Curriculum Vitae
Prof. Deeb Abu Fara

Chemical Engineering Department,
University of Jordan

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Research Gate: https://www.researchgate.net/profile/Deeb-Abu-Fara/research

Education

Ph.D In Chemical Engineering , McGill University. Montreal, Canada, 1988.
M.Eng In Chemical Engineering, McGill University. Montreal, Canada, 1983.
B.Sc In Chemical Engineering, Alexandria University, Egypt, 1977.

Work Experience

Present **Professor**
Chemical Engineering Department
School of Engineering
University of Jordan.

2010 – 2012 Associate Professor, Chemical Engineering Department, King Faisal University
2003 – 2007 Associate Professor, Chemical Engineering Department, University Bahrain, Bahrain. (Leave of absence from University of Jordan)
Summer 2002 Visiting Researcher at the Process Engineering Department, University of Kaiserslautern, Germany.

Summer 98	Visiting Researcher at the Polymer Processing and Research Center, (PPRC) at Queen' s University of Belfast, UK.
Summer 95	Visiting Researcher at the Polymers Department, Ulm University, Germany.
Summer 95	Visit to Buss Company, Basel, Switzerland. (one week)
Summer 94	Visiting researcher at HIMONT Research Center, Ferrara, Italy.
Summer 93 & 92	Visiting Professor at the Department of Chemical Engineering, McGill University, Montreal, Canada.

Professional Affiliations

1. Center for Chemical Process Safety (CCPS)
2. American Institute of Chemical Engineers (AIChE)
3. Jordanian Chemical Process Safety Engineers Society
4. Jordanian Engineers Association.
5. Society of Plastics Engineers in North America (SPE).
6. Mediterranean Network on Science and Technology of Advanced Polymer-Based Materials.

Honors and Awards

2018	Consultant Engineer (JEA)
2002	DAAD Scholarship at University of Kaiserslautern, Germany
1995	DAAD Scholarship at Ulm University, Germany
1986	Best Technical Paper award from the Injection Molding Division of the Society of Plastics Engineers (JEA).
1983	Best Technical Paper award from the Injection Molding Division of the Society of Plastics Engineers.
1980 - 1986	University- of Jordan Scholarship.

Academic

Research Areas of Interest

Polymers for medical and pharmaceutical applications:

Controlled drug release

Polymers for pharmaceutical excipients

Polymer Engineering and processing
Biodegradable polymers
Environmental impact of plastics industry and plastics applications
Plastic waste management
Recycling of plastics

Process dynamics and Control
Neural network control systems
Process Modeling and Simulation
Modernization of old polymer processing machines by computer interfacing and modern control soft-ware

Funded Research Projects:

1. Structural Analysis and Crystallinity Correlation of Chitins using Different Spectroscopic Methods
2. Effect of Processing Parameters on the Functional Properties of Spray Dried Camel
3. Milk Powder. Project No. (130257).
4. Modification of the Rheological Behavior of Sodium Alginate by Chitosan System.
5. The Effect of Emulsified fuel combustion on the formation of Poly Aromatic Hydrocarbons. Project No. (120032).
6. Computer Interfacing of Thermal Conductivity Apparatus for Molten Polymers

KFU – Funded Projects

1- The Effect of Emulsified fuel combustion on the formation of Poly Aromatic Hydrocarbons. Project No. (120032).
2- Effect of Processing Parameters on the Functional Properties of Spray Dried Camel Milk Powder. Project No. (130257).

Current Research Projects:

1. Upgrading of naturally existing $CaCO_3$ powder for pharmaceutical applications.

2. Developing of chitin-$CaCO_3$ composites.

3. Developing pharmaceutical excipients of chitin from different marine sources.

4. Application of QbD strategy in pharmaceutical industry

5. Application of roller compaction for preparation of direct compression excipients.
6. Structural Analysis and Crystallinity Correlation of Chitins using Different Spectroscopic Methods

Supervision of Projects

A) Master Projects:

1. Dissolvable microneedles: A new way to support non-invasive protein delivery (Present)
2. Controlled release universal mixture from Xantan gum and Chitosan (present).
3. Mechanical Properties Enhancement of Biodegradable Polystyrene by using Nano Fillers (present)
4. Computer Aided-Design and Optimization for Acidic Gas Capturing Unit for Risha Natural Gas Dehydration Plant. (Present)
5. Modeling and Simulation of the Diethyl Oxalate Process using Coupling-Regeneration Reactions (2021).
6. Impact of integrated management system (IMS) on safety , quality and environment of ready mixed concrete plant (2020)
7. Response surface methodology optimization of factors affecting the characteristics of polymeric films used in enteric coating in some pharmaceutical solid dosage forms (2018).
8. The Impact of Magnesium Silicate on Compression Properties of Different Pharmaceutical excipient (2016)
9. Characterization of the Compression Properties of Binary Excipient Mixture of Chitosan and Xanthan Gum (2015).
10. Application of percolation theory on controlled drug release systems (2002)
11. Immobilization of Antibodies in Film Forming Polymers (1999)
12. Dynamic Modeling of Packed Bed Glycerol-Water Distillation Column (1997)
13. Drug Release from Some Hydrophilic Polymer Matrices (1996).
14. Modeling Absorption of C02 into Ammoniated Brine Solutions (1992).
15. Computer Simulation of Adaptive control for Thermoplastics Injection Molding Process (1992).

B) Selected Design Projects:

1. Inherently safe design (ISD) of Potassium Nitrate (NOP) fertilizer and Nitric Acid plant
2. Production of Bioethanol from Sugar beet.
3. Production of Methyl Amines
4. Production of Ethylene Vinyl Acetate (EVA)
5. Production of Acetone
6. Production of Isopropyle Alcohol
7. Production of Polyethylene

8. Production of Citric Acid
9. Recycling of Plastics
10. Production of PA & EG from Recycled PET
11. Solid Waste Management-Plastic Waste as Case Study
12. Production of Agricultural Plastic Films and Irrigation Pipes

C) Selected Practical Projects:

1. Pressure Control
2. pH Control
3. Computer Interfacing of Thermal Conductivity Apparatus for Molten Polymers
4. Thermal Conductivity of Thermoplastics
5. The use of Polymer Resins for Water Treatment
6. Production of Energy from Waste Plastics
7. Swelling of polymer gels
8. Hydration of cross-linked alginate films

Research & Publications

Books / Chapters

Deeb Abu Farah, Linda Al-Hmoud, Iyad Rashid, Babur Z Chowdhry, Adnan Badwan. Understanding the Performance of a Novel Direct Compression Excipient Comprising Roller Compacted Chitin. Marine Chitin 2019. Hitoshi Sashiwa Hironori Izawa (Eds), MDPI (2020). 4052 Basel, Switzerland.. ISBN 978-3-03936-072-7 (Pbk); ISBN 978-3-03936-073-4 (PDF). https://doi.org/10.3390/books978-3-03936-073-4 (registering DOI

Journals and Conferences

1. Mohammad Dudin, Mamdouh Allawzi, **Deeb Abu Fara.** Implementing gain scheduling approach to control large-scale production of diethyl oxalate in a catalytic fixed bed multi-tubular reactor, Chemical Engineering Research and Design 201 (2024) 483–502
2. Yousef A. Mubarak and **Deeb Abu Fara**. Mechanical Properties of Bio-Based Composite from Orange Peels. SPE ANTEC 2023.
3. M. Dudeen, **D. Abu Fara**, M, Allawzi. Modeling and Simulation of the Startup of the Coupling Reactor for an Industrial Scale Production of Diethyl Oxalate. Journal of King Saud University – Engineering Sciences. Accepted, May 2022.

2. B. Salameh, S. Yasin, **D. Abu Fara** and A. M. Zihlif. Dependence of the Thermal Conductivity of Polymeric Materials (PMMA, PS and PE) on

Temperature and Crystallinity. Polymers and Polymer Composites. Under review

3. **Deeb Abu Fara,** Iyad Rashid, A.A. Badwan**.** Understanding the significance of Kawakita model parameters through the in-die force-displacement curve. Under Preparation.
4. Linda Al-Hmoud, **Deeb Abu Fara**, Iyad Rashid, Babur Z. Chowdhry, Adnan A. Badwan. Influence of Chitin Source and Polymorphism on Powder Compression and Compaction: Application in Drug Delivery, Molecules 2020, 25, 5269; doi:10.3390/molecules25225269

5. **Deeb Abu Fara**, Linda Al-Hmoud, Iyad Rashid, Babur Z. Chowdhry, Adnan A. Badwan A New Perspective of Multiple Roller Compaction of Microcrystalline Cellulose for Overcoming Re-Compression Drawbacks in Tableting Processing, Applied Sciences, 11 (2020) 4809-4787, 10.3390/app10144787

6. **Deeb Abu Fara**, Iyad Rashid, Linda Hmoud, Shatha al-Qatamin, Babur Z. Chowdhry, Adnan A. Badwan, Enhancement of compression and compaction properties of calcium carbonate powder by granulation with HPC, HPMC, and Na-alginate as binders for pharmaceutical applications: an optimization case study**.** J. of Excipients and Food Chemicals. 11 (2) 2020.

7. **Deeb Abu Farah**, Linda Al-Hmoud, Iyad Rashid, Babur Z Chowdhry, Adnan Badwan. Understanding the Performance of a Novel Direct Compression Excipient Comprising Roller Compacted Chitin. Marine Drugs. 2020, 18, 115; doi:10.3390/md18020115

8. **Deeb Abu Fara**, Suha M. Dadou, Iyad Rashid, Riman Al-Obeidi, Milan D. Antonijevic, Babur Z. Chowdhry, Adnan Badwan. A Direct Compression Matrix Made from Xanthan Gum and Low Molecular Weight Chitosan Designed to Improve Compressibility in Controlled Release Tablets. Pharmaceutics 2019, 11, 603; doi:10.3390/pharmaceutics11110603.

9. **Deeb Abu Fara.** A comparison of industrial lactose obtained by roller compaction with spray-dried lactose and α-lactose monohydrate using compression analysis techniques. J. of Excipients and Food Chemicals, vol. 10 (2) 2019

10. **Deeb Abu Fara**, Iyad Rashid, and Adnan Badwan**.** Modification of a naturally existing calcium carbonate for pharmaceutical applications. 23rd World Conference on Applied Science, Engineering and Technology (WCASET-19), Melbourne, Australia, 24- 25 October -2019

11. **Deeb Abu Fara**, Iyad Rashid, Khouloud Alkhamis, Mahmoud Al-Omari, B. Z. Chowdhry & Adnan Badwan. Modification of α-lactose monohydrate as a direct compression excipient using roller compaction, Drug Dev. Ind. Pharmacy, 44, (2018) 2038-2047.

12. Deeb Abu-Fara, Iyad Rashid, khouloud Alkhamis, Mohammed Shubair, Mahmoud Al-Omari, Adnan Badwan. Roll Compaction as an Alternative to Spray-Drying for the Processing of Lactose Monohydrate in Direct Compression Applications. Granulation Workshop,

13. Abu-Jdayil, B., **D. Abu-Fara**, Modification of the Rheological Behavior of Sodium Alginate by Chitosan and Multivalent Electrolytes, Ital. J. Food Sci., vol. 25 - 2013
14. D. Abu Al-Nadi, **D. Abu Fara**, I. Rawabdeh, "Control of Rotational Molding Process using Adaptive Fuzzy Control", Advances in Polymer Technology 24,4 (2005) 266-277.

15. **D. Abu Fara**, I. Abu Reesh, M. Attarakih, "Effect of the Type of Input on the Periodic Operation of a Bioreactor with Input Multiplicities", Mutah Lil-Buhuth wad-Dirasat, University of Mutah, Jordan, 18 (3), (2003)

16. **D. Abu Fara**, I. Rawabdeh, D. Abu Al-Nadi, "Neural Control for Cavity Pressure During Filling and Packing Stages of Thermoplastic Injection Molding Process", J. of Injection Molding Technology, 5 (2) (2001) 105-109.

17. M. Attarakih, **D. Abu Fara**, and S. Sayed, " Dynamic Modeling of Packed Bed Glycerol-Water Distillation Column", Industrial and Engineering Chemistry Research, 40 (2001) 4857-4865.

18. M. albarghouthi, **D. Abu Fara**, M. Saleem, T. El-Thaher, K. Matalka, and A. Badwan, "Immobilization of Antibodies on Alginate-Chitosan Beads", International Journal of Pharmaceutics, 206, 23 (2000).

19. **D. Abu Fara**, M. Kearns, and R. Crawford, "System Modelling for the Control of the Rotational Molding Process", SPE ANTEC Technical Papers, 45 (1999).

20. S. Al-Mousa, **D. Abu Fara,** and A. Badwan, "Evaluation of Parameters involved in the Preparation and Release of Drug Loaded in Crosslinked Matrices of Alginate, Journal of Controlled Release, 57 (1999) 223-232.

21. S. Btoush, N. Haimour, and **D. Abu Fara**, "Absorption of C02 into Ammonia Aqueous Solutions", Dirassat Engineering Sciences, 26, 66 (1999).

22. **D. Abu Fara**, "Recycling of Plastic Waste in Jordan", First International Conference "Role of Engineering Towards Better Environment", Alexandria, Egypt, (1996).

23. N. Haimour and **D. Abu Fara**, "Extraction of Olive Oil from Olives Expression Residues", Engineering and Technology, 14(9), 72 (1995).

24. N. Abdal-Jalil, Y. Al-Assaf, and **D. Abu Fara**, "Computer Simulation of Adaptive Control for Thermoplastics Injection Molding Process", First National Conference on Electrical Engineering. Mut'a University (1993).

25. **D. Abu Fara**, M.R. Kamal, and W.I. Patterson, "Comprehensive Strategies for Sequential Closed-Loop .Pressure Control Throughout the Injection Molding Cycle", SPE ANTEC Papers, 36, 239, (1990).

26. **D. Abu Fara**. W.I. Patterson, and M.R. Kamal, "Cavity Pressure Control in Injection Molding During Filling, Packing, and Holding", SPE ANTEC Technical Papers, 33,221 (1987).

27. M.R. Kamal. W.I. Patterson, N. Conley, and D. Abu Fara, "Dynamics and Control of Pressure in Thermoplastics Injection Molding", Polym. Eng. Sci. 27, 1403 (1987).

28. D. Abu Fara, MR. Kamal, and W.I. Patterson, "Evaluation of Simple Dynamic Models and Controllers for Hydraulic and Nozzle Pressure in Injection Molding", Polym. Eng. Sci., 25,714 (1985).

29. M.R. Kamal, W.I. Patterson, D. Abu Fara, A. Haber. A Study of Injection Molding Dynamics. Polym. Eng. Sci. 24, 686 (1984).

30. M.R. Kamal. W.I. Patterson, and D. Abu Fara. "Simple Models of Hydraulic and Nozzle Pressures in Injection Molding". SPE RETEC, NJ (1983).

31. A. Haber, W.I. Patterson, M.R. Kamal, and. D. Abu Fara, " A Microprocessor System for Control of Injection Molding". Mini-Symposium on Polymer Processing. NRCC, Montreal (1982).

Reviewing Activities for Scientific Journals

Polymers and Polymer Composites
Arabian Journal for Science and Engineering
Engineering and Applied Sciences
Dirassat Engineering Sciences, University of Jordan
Mutah Lil-Buhuth wad-Dirasat, University of Mutah, Jordan

Conferences Attended

1. Workshop on the utilization of Dead Sea Ores, Higher Council of Science and Technology, Amman, May 27, 2024.
2. ANTEC, Society of Plastic Engineers Conference, 2023
3. 2nd Jordanian International Chemical Process Safety Conference (2nd JICPSC), Amman, July 2023.

4. 23rd World Conference on Applied Science, Engineering and Technology (WCASET-19), Melbourne, Australia, 24- 25 October -2019
5. The 6th Global Conference on Renewables and Energy Efficiency for Desert Regions **(**GCREEDER 2018), April 2018.
6. The 8th Jordan International Chemical Engineering Conference (JIChEC 2017) ,7-9 November, 2017.
7. The Seventh Jordan International Chemical Engineering (JIChE 07) Conference, Nov. 2014
8. Engineering Education, Bahrain,2004
9. Jordanian Chemical Engineering Conference III, Amman, October, 2002.
10. 57 th Annual Technical Conference of Society of Plastics Engineers, NYC, May 2-6, 1999.
11. Second Mediterranean Exhibition of Technological Innovation, Naples, Italy, November 5 - 9, 1996.
12. Jordanian Chemical Engineering Conference II, Amman, September 2-4, 1996.
13. The Fifth International Conference of Chemical Engineering, Cairo, March 23 -25, 1996.
14. German - Egyptian Polymer Seminar, Cairo, September 9 - 10, 1995
15. Fourth Mediterranean School on Science and Technology of Advanced Polymer-Based Materials, Crete, Greece, June 5 - 9, 1995.
16. First Mediterranean Exhibition of Technological Innovation, Naples, Italy, November 5 - 12, 1994.
17. Jordanian Chemical Engineering Conference I, Amman, October 18-20, 1993.
18. 37th Canadian Chemical Engineering Conference, Montreal, May 18-22. 1987.
19. 44th Annual Technical Conference of Society of Plastics Engineers, Boston, April 28-May 1, 1986.
20. Polymer Processing Society, Second International Annual Meeting, Montreal, April 1-4. 1986.
21. 41st Annual Technical Conference of Society of Plastics Engineers, Chicago, May 1983.
22. Society of Plastics Engineers Regional Technical Conference (RETEC), Montreal, September 30`h - October 15` 1982.
23. 2nd World Congress of Chemical Engineering, Montreal, October 4-9, 1981.
24. 38 th Annual Technical Conference of Society of Plastics Engineers, N.Y. May 5-8, 1980.

Principal Courses Taught at University

Graduate Program:

1. Advanced Process Control and Simulation.
2. Advanced Polymer Processing.
3. Transport Phenomena
4. Special Topic: Advanced Process Troubleshooting and Root Cause Analysis.
5. Particulate Technology

Under Graduate Program:

1. Process Dynamics and Control
2. Polymer Engineering
3. Polymer Processing
4. Plant Design
5. Process Design
6. Process Optimization
7. Engineering Economy and Management
8. Principles of Safety
9. Process Instrumentation and Instrumental Analysis
10. Transport Phenomena
11. Strength of Materials and Equipment Design
12. Petrochemicals
13. Engineering thermodynamics
14. Local Chemical Industries
15. Special topics: Process Troubleshooting

Administrative Duties:

1. Chairman, Chemical Engineering Department, University of Jordan, 2023 – present.
2. Dean Deputy, School of Engineering, University of Jordan.
3. Member of the consulting committee for engineering education, Jordan Engineers Association, Amman, Jordan
4. ABET Accreditation Committee, Chemical Engineering Dept, University of Jordan.
5. ABET Accreditation Committee, Chemical Engineering Dept, University of Bahrain.
6. Academic Committee, Chemical Engineering Dept., University of Bahrain.
7. Labs Maintenance Committee, Chemical Engineering Dept, University of Bahrain.
8. Research Committee in the Faculty of Engineering and Technology, University of Jordan.
9. Graduate Studies and Research in the Department of Chemical Engineering, University of Jordan.
10. Faculty of Engineering Graduates Committee.
11. Representative of the Chemical Engineering Department in the Faculty Council for two years.
12. Representative of the Faculty of Engineering in the University Council for the year 93/94.
13. Several Committees on the Specification of the Plastics Products, Ministry of Industry, Jordan.

KFU - Committees

University Level

1- Scientific Chairs Committee
2- Cultural Exchange Committee (اللجنة الدائمة للتبادل والتعاون المعرفي)
3- Community Service Committee

College of Engineering Level

1- Academic and Industrial Relations
2- Industrial Training

Industrial Training Courses

Process Safety

1. Analysis of Major Disasters in the Petrochemical and Petroleum Industry - Advanced – KSA, Jan 2019
2. Technical Process Safety Investigation, Advanced Petrochemicals, KSA, Sept. 19-21, 2017
3. Preventing Human Error, SABIC, KSA, Aug. 30, 2015.
4. Safety Leadership, SABIC, Jubail, KSA, November, 2014
5. Industrial Safety, SABIC, Jubail, KSA, August, 2014
6. Safety in Industrial Plants, SABIC. Jubail, October 27, 2013.
7. Lab Safety, Al-Khobar, KSA, Sept., 2013
8. Safety in Industrial Plants, SABIC. Jubail, April 28-May 2, 2012.
9. Management of Change (MOC) and Pre-Startup Safety Review (PSSR), SABIC, Jubail, March 24-24, 2012.
10. Industrial Hygiene, SABIC, Riyadh, KSA, March 5-7, 2012
11. Process Safety Analysis, SABIC, Riyadh, KSA, October 1-5, 2011.
12. HAZOP Analysis, Jordanian Engineer Association, August 6, 2011.
13. Industrial Safety Strategies, Bahrain Engineers Association, October, 2010
14. HAZMAT Analysis and Hazardous Chemical Handling, Jordanian Engineer Association, February 2010.
15. Safety, Health and Environment, Bahrain Engineers Association, May 2009

Chemical Plants Troubleshooting

1. Troubleshooting and Improvement, GASCO, Abu Dhabi, 2017
2. Troubleshooting of Chemical Plants, SABIC, KSA, Sept. 6, 2015.

3. Process Plant Troubleshooting & Engineering Problem Solving - Sipchem, KSA, Feb 8-12- 2015
4. Troubleshooting of Gas Production Processes, Morocco, Sept. 1st, 2013
5. Troubleshooting of Process Operations, Malaysia, Kuala Lumpur, Fleming Gulf, July 2-4-2013
6. Troubleshooting of Process Operations, KSA, Advanced Petrochemicals, March 2-6-2013
7. Process Troubleshooting Techniques, KSA, Al-Khubar, July 9-13, 2011.
8. Process Plant Start-up and Commissioning , SABIC, Saudi Arabia, October 24-28, 2009.
9. Troubleshooting in Chemical Plants, SABIC, Saudi Arabia, October 10-14, 2009.
10. Process Plant Troubleshooting & Engineering Problem Solving, SABIC, Saudi Arabia, August 15-19, 2009.
11. Troubleshooting in Chemical Plants, SABIC, Saudi Arabia, July 4-8, 2009.
12. Troubleshooting in Chemical Plants, SABIC, Saudi Arabia, June 13-17, 2009.
13. Troubleshooting of Chemical Plants, SABIC, June 14-18, 2008.
14. Process Plant Troubleshooting and Engineering Problem Solving, SABIC, June 2-6,2007.
15. Troubleshooting of Chemical Plants, SABIC, May 5-9, 2007.
16. Troubleshooting of Chemical Plants, SABIC, June 17-21, 2006.

Maintenance & Maintenance Management

1. Maintenance Strategies, Advanced, KSA, Sept. 1, 2015.
2. Preventive Maintenance and Troubleshooting, SABIC, Sept 1-5, 2012.
3. Effective Maintenance Planning and Scheduling, ICMD, Al-Khubar, KSA, Oct. 29 – Nov. 2, 2011.
4. Maintenance Management, Bahrain Association of Engineers, Bahrain, Nov. 23-26, 2008.
5. Maintenance Management, Jordanian Engineering Association, Jordan, Nov. 16-20, 2008.
6. Effective Maintenance Policy and Procedure Writing, Bahrain Society of Engineers, Training Center, Bahrain, July 27 - 30, 2008
7. Effective Maintenance Policy and Procedure Writing, Bahrain Society of Engineers, Training Center, Bahrain, June 29 – July 2nd , 2008.
8. Effective Maintenance, Planning and Scheduling, SABIC, July 21-25, 2007.
9. Effective Maintenance Scheduling and Planning, SABIC, KSA, February 17-21, 2007.

Oil & Gas

1. Sulfur Recovery in Gas Processing, GASCO, Abu Dhabi, Nov. 19, 2017.
2. Hydrocarbons Production Operations, GASCO, Abu Dhabi, May, 2016

3. Gas Conditioning & Processing – GASCO, 28-2-2016
4. Sulfur Recovery in Gas Processing, GASCO, Abu Dhabi, Sept. 13, 2015.
5. Essential of Petrochemicals, SABIC, Yanbu', KSA, April 20-24, 2014.
6. Natural Gas Production Processes, Morocco, Sept. 15, 2013
7. Gas Turbine in the Gas Production, GASCO, Abu Dhabi, July 8, 2012.

Advanced Process Control:

1. Advanced Process Control Techniques, SWCC, KSA, JEDDAH, Oct. 25, 2015.
2. Advanced Process Control Techniques, SWCC, KSA, JEDDAH, May 17, 2015.
3. Process Control Techniques, Saudi Electrical Company, Dammam, KSA, Sept., 2014.
4. Advanced Industrial Control Systems, Control Loop Tuning and Troubleshooting, Fleming Gulf, Kuala Lumpur, MALAYSIA, June 17-19, 2014.
2. Advanced Process Control Techniques, Advanced for Petrochemicals, KSA, March 25-27, 2014.
3. Advanced Control Techniques for Oil and Gas Industry, Morocco, Sept. 8, 2013.
4. Process Control Techniques, Oman Gas, Oman, Dec. 22-26, 2012
5. Process Control Techniques, Al-Khobar, Saudi Arabia, June, 2009.
6. Advanced Process Control, SABIC, Saudi Arabia, June 6-10, 2009.
7. Advanced Process Control, SABIC, Saudi Arabia, March 7-11, 2009.
8. Advanced Process Control, SABIC, KSA, June 7-11, 2008.
9. Advanced Process Control, SABIC, KSA, March 1-5, 2008.
10. Process Control Techniques, Al-Khubar, KSA, Nov 3-7, 2007.
11. Advanced Process Control (Operations), SABIC, June 9-13, 2007.
12. Advanced Process Control, SABIC, March 10-14, 2007.
13. Process Control Techniques, SABIC, KSA, July 22-26, 2006.
14. Advanced Process Control, SABIC, June 24-28, 2006.
15. Distillation Control, SABIC, KSA, February, 2006
16. Advanced Control Techniques, SABIC, KSA, July 2004.
17. Advanced Process Control, SABIC, July 3-7, 2004

Basic Control and Instrumentation

1. Instrumentation, Measurements and Control, Advanced, KSA, Feb, 22, 2018
2. Basic Instrumentation and Control, SABIC, Sept 1-5, 2007
3. Instrumentation, Measurements and Control, SABIC, August 4-8, 2007.
4. Basic Instrumentation and Control, SABIC, KSA, September 16-20, 2006
5. Basic Instrumentation and Control, SABIC, KSA, September 9-13, 2006.
6. Basic Instrumentation and Control, SABIC, KSA, July 15-19, 2006.
7. Basic Instrumentation and Control, SABIC, KSA, June 3-7, 2006.

8. Instrumentation and Control – Level I, SABIC, KSA, May, 2006.
9. Instrumentation and Control, SABIC, KSA, September, 2005
10. Basic Instrumentation and Control, SABIC, KSA, Sept., 2004
11. Instrumentation and Process Control Techniques, Dhahran, KSA, Aug, 2004.
12. Instrumentation and Process Control Techniques, 5-days Course, Dahran, Nov., 2000, offered by International Center for Management Development (ICMD), Al-Khobar, Saudi Arabia.
13. Basic Instrumentation and Control, SABIC, KSA, February, 1999.
14. Process Measurements and Control, Qatar General Petroleum Corporation (**QGPC**), Qatar, November 14-18, 1999.
15. Basic Instrumentation and Control, SABIC, KSA, April, 1997.
16. Instrumentation and Control and Instruments Maintenance, Admantic Limited, for Al-Bayraqa Petroleum Marketing Company, Libya, July 3-22,1993.
17. Instrumentation and Control, SABIC, KSA, November, 1993.

Pumps and Compressors

1. Compressor Troubleshooting and Fault Diagnoses, Kuwait Petroleum Corporation, Kuwait, Feb. 19-23, 2018.
2. Compressor Troubleshooting and Fault Diagnoses, ADGAS, Abu Dhabi, Dec. 24-28, 2017.
3. Compressors: Operation & Troubleshooting, GASCO, Abu Dhabi, July 9, 2017
4. Compressors: Operation, Troubleshooting and Maintenance, Advanced Petrochemicals, KSA, Dec. 24-26, 2013.
5. Pumps: Operation, Troubleshooting and Maintenance, Advanced Petrochemicals, KSA, Nov. 18-20, 2013.
6. Centrifugal Pumps and Compressors, Al-Khubar, KSA, Oct 15-19, 2011.
7. Centrifugal Pumps and Compressors, Al-Khubar, KSA, June 18-22, 2011
8. Centrifugal Pumps and Compressors, Al-Khubar, KSA, May 14-19, 2011
9. Centrifugal Pumps and Compressors, Al-Khubar, KSA, Oct 27- 31, 2007.
10. Rotating Equipment Reliability, Troubleshooting, and Root Cause Analysis, for SABIC, Khobar, KSA, February, 24-28, 2007.

Polymer Engineering

1. Polymer Engineering and Processing, KSA, May, 2017
2. Polymer Extrusion Process and Troubleshooting, KSA, August, 2014.
3. Polymers and Polymerization Techniques, SABIC, Riyadh, July 24-28, 2011.
4. Principles of Polymer Science, SABIC, December, 2005
5. Principles of Polymer Science, SABIC, Riyadh, April, 2000.
6. Principles of Polymer Science, SABIC, March, 1998.
7. Polymer Reaction Engineering, SABIC, August, 1993.

Valve Engineering

1. Safety Relief Valves, ICMD, Al-Khubar, KSA, Dec. 10-14, 2011.
2. Valves Technology and Safety Relief Valves, ICMD, Al-Khubar, KSA, July 2-6, 2011
3. Valve Design, Operation, Maintenance and Troubleshooting, Global Center, Jordan, March 22 – April 23, 2009.
4. Valve Operation & Maintenance, SABIC, Saudi Arabia, April 11-14, 2009.

Process Scale-Up

1. Practical Approach to Process Scale-Up, April 22-24, 2014, Berlin, Germany.
2. Practical Approach to Process Scale-Up, October 1-3, 2013, Kuala Lumpur, Malaysia.

Basic Chemical Engineering

1. Distillation Operation and Control, Advanced, KSA, July., 2016
2. Advanced Operational Skills, OMIFCO, Sur, Oman, May 17, 2016.
3. Distillation Operation and Design, GASCO, Abu Dhabi, April., 2016
4. Distillation Operation and Design, GASCO, Abu Dhabi, Dec., 2015.
5. Distillation: Operation, Control and Troubleshooting, SABIC, KSA, Aug. 23, 2015.
6. Heat Exchanger: Design, Operation and Troubleshooting, SABIC, KSA, Aug., 16, 2015.
7. Advanced Operational Skills, OMIFCO, Sur, Sultanate of Oman, June 2, 2015.
8. Metallurgy for Nonmetallurgists, ICMD, Al-Khubar, KSA, Oct. 16-20, 2011.
9. Heat Exchangers: Operation, Maintenance, and Troubleshooting, ICMD, Al-Khubar, KSA, June 25-29, 2011.
10. Cooling Towers: Operation and Troubleshooting, ICMD, Al-khubar, KSA, May 21-25, 2011.
11. Basic Heat Transfer & Heat Exchangers, SABIC, Saudi Arabia, December 5-9, 2009.
12. Basic Heat Transfer & Heat Exchangers, SABIC, Saudi Arabia, May 16-20, 2009.
13. Basic Heat Transfer and Heat Exchanger, SABIC, KSA, May 17-21,2008.
14. Cooling Towers: Operation and Troubleshooting, Al-khubar, KSA, Feb 23-27, 2008.
15. Basic Distillation Operation and Troubleshooting, Al-Khubar, KSA, Sept 8-12, 2007.
16. Elements of Chemical Engineering Systems, SABIC, for August 5-9, 2006.

Hydraulic Systems

1. Hydraulic Systems Design and Troubleshooting, SABIC, KSA, August 12-16, 2006.
2. Hydraulic Systems: Fundamentals, Operation, and Troubleshooting, SABIC, KSA, September, 2005
3. Principles of Hydraulic Systems, Bahrain, March, 2005.
4. Pneumatic Control Systems, Bahrain, Dec., 2004.

Corrosion Engineering

1. Corrosion Monitoring and Control, JEA, Jordan, October, 2008.
2. Corrosion Engineering, SABIC, KSA, September, 2004

Human Resources & Management

1. Modern Management, Al-Khobar, KSA, August, 2009
2. Leading Knowledge Management Learning Strategies, Al-Khobar, KSA, August, 2009.
3. Effective Communications, ICMD, Al-Khobar, KSA, April 25-29, 2009.
4. Train the Trainers, ICMD, Al-Khobar, KSA, November 15-19, 2008.
5. Building High Performance Team and Leadership, Al-Khobar, KSA, July 19-23, 2008.
6. Effective Time Management, ICMD, Al-Khobar, KSA, July 12-16, 2008.
7. Health and Safety, Al-Khobar, KSA, Dec 8-12,2007.

Consultancy Experience

1. Consultant Engineer (JEA)
2. Scientific Consultant at The Jordanian Pharmaceutical Manufacturing Co., Naor. Jordan. Involved in many projects.
3. Design of the Control System for Ethoxylation Processes, Nur Chemicals and Eng. Industries Co., Amman 11190, Jordan. (2002).
4. Pre-Feasibility study for manufacturing acrylic sheets in Jordan, in cooperation with Abu-Ghazaleh Consulting (AGCON) and submitted to the Industrial Development Bank (IDB) in Jordan (1998).
5. Study of the Sulpho-chemicals and Polymerization Industries in Jordan. Submitted to the Industrial Development Bank of Jordan (1996).
6. Equipment and material selection for Arab Company for Cable Polymers, Saudi Arabia. Visit to Buss. Basel. Switzerland (1995).

7. Feasibility study and design of the process for production of agricultural plastic containers for the Agricultural Containers Company, Jordan.
8. Feasibility study for the manufacture of soap from olive oil in southern Jordan.

Statement of Teaching Philosophy

Throughout my career at the Chemical Engineering Department, University of Jordan, I taught many courses (core and elective) at both the undergraduate and graduate level. I taught several courses for the departments of Mechanical, Industrial, and Mechatronics Engineering. In addition to that, I taught several courses as School of Engineering and University requirements.
I have been teaching for almost 30 years and along with teaching at the university, I have carried out extensive training course for the chemical industry in Jordan and in many countries abroad. This training experience helped in gaining a unique teaching experience which combines the theoretical knowledge with the practical aspects. As a faculty member, my main goal is to motivate students to do their best and expand their own personal limits. I devise programs, according to syllabus requirements, that develop previous knowledge and encourage students to explore new and interesting possibilities. I encourage students to construct their own learning in an environment that stimulates and helps students to realize their full potential. I have had some excellent results with students who have a history of poor performance. I strive to instill a love of learning and to make learning exciting and interesting.

I tried to be well organized and prepared and have skills to deliver lectures information in short time and an easy way. I also have high potential to use the latest technologies that aid and make the teaching task an easy and enjoyable job. As a result of the long period of experience with the students, I believe my primary responsibility is to provide students with the skills, knowledge, and experience necessary so that they can expand their personal horizons and have the ability to be successful in their chosen careers and lives. At the heart of my teaching philosophy is my belief that students need to be not just educated but mentored so that they will appreciate the opportunities that exist during their college years and the profound effect their response to these opportunities can have on their future satisfaction and happiness. The years spent as an undergraduate engineering student is among the most formative and important in a developing professional's life. Attitudes, skills, and insights developed and acquired at this time are the template for the rest of their years in a demanding and rewarding profession.
I believe that teaching is much more than just delivering knowledge in a convenient format to our students. One of my most important functions is to help students learn how to learn, how to effectively solve problems, and how to judge the long-range impact of their solutions and recommendations on society. I also believe in the value of students working in small groups or teams on projects in most of my courses. In this way, students take more responsibility for their own education. This is especially important in engineering education since people normally work cooperatively. Students are exposed to problems where they must find information and data broadly

rather than narrowly from their required textbooks. By carefully designing such special projects, students can explore their own intellectual capabilities in a cooperative environment. Most of these projects culminate in a written or oral presentation so that students can share their ideas and encourage each other with their excitement as well as practicing the important skills of effectively communicating technical information.

I believe that students should be active participants in the learning process. With this expectation, I function as a facilitator in the learning process, rather than the mere deliverer of information. I recognize that students learn in a variety of ways, and I attempt to accommodate these methods. I encourage students to find personalized methods to understand and retain concepts, and I assist them by providing my own customized examples for explanation of concepts that elude them. In addition to different learning processes, I often find that students must simply be given the confidence to experiment in the application of newly gained knowledge and to ask questions to promote individual thinking. In an effort to encourage discussion, I am always available to students. Although I arrange formal office hours, students are welcome to make appointments at other times. As a result of this, I always achieve high scores in the students' evaluation.

I strongly believe that it is the responsibility of a professor to prepare students for a life-long learning ability. This goes far beyond simply staying current with one's profession. Being an advocate of creative and critical thinking as a necessary skill to be a successful engineer, I know that many problems require the unique thought processes that only arise in a person with an exceptionally broad background and constantly in contact with developing knowledge. This broad view of life and education as a continuous process is at the heart of being truly creative and also knowledgeable about society. Through classroom "side discussions" (often before class starts) I encourage students to be broadly aware of their world and the events that continue to shape our world and society. I believe a professor should be sensitive to the background and preparation of the students. The way students are treated has a great influence on the students' performance. Each term I announce several times that my office and my time is available for their needs. These needs go far beyond clarifying lecture, homework, or exam materials. I openly invite students to discuss with me any problems they are having that impact on their success. This includes the development of learning and study skills, test-taking skills, and dealing with problems such as test anxiety.

I believe that relation with students should base on mutual. I strive to earn students' respect in a variety of ways, given that respect cannot simply be awarded. I take a sincere interest in the well-being of students and interact with them on professional and social levels. I am convinced that social interaction with students develops a rapport with them and they are more comfortable when asking for assistance while in the classroom. At this point, I am confident that the highest level of respect a teacher can get by being rational, fair and just to students.