

## GHANIM.M.ALWAN

Assistant Professor



### CONTACT INFORMATION

Department of Chemical Engineering

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### EDUCATION

- Ph.D. Chemical Engineering, University of Technology, Baghdad, Iraq, January 1994. Dissertation: "On-Line Control of a Semi batch Chemical Reactor". Advisors: Prof. Mohmad Salah Al-Anbaqee, and Prof. Safa Abdullah Al-Niami.
- M.Sc. Chemical Engineering, University of Baghdad, Baghdad, Iraq, March, 1983. Advisor: Prof. Walled Mohamed Salleh Al-Annie. Dissertation: "Study the Dynamics and Control of a Plate Heat Exchanger"
- B.Sc. Chemical Engineering, University of Baghdad, Baghdad, Iraq, 1979.

### PROFESSIONAL EXPERIENCE

- May 2013- Editorial Board member of International Journal of Research in Innovative Technology (IJRIT).
- April 2013- Editorial Board member of American Journal of Modeling and Optimization.
- March 2013- Permanent reviewer for Chemical Engineering Communications Journal.
- December 2012- Editorial Board member of Chemical and Process Engineering Research Journal (IISTE).
- May 2012 -Permanent reviewer for Journal of Engineering Science and Technology (JESTEC) School of Engineering, Taylor's University, Malaysia.
- February 2012-member of AIChE.
- July 2010- faculty member of Multiphase and Multiscale Processes Laboratory (MMPL)-Chemical and Biological Engineering Department-Missouri University of Science and Technology, MO, USA.
- February 2009-present: Assistant Chemical Engineering Professor, Department of Chemical Engineering, University of Technology, Baghdad-Iraq.
- September 2006- march 2008: Head of Petroleum and Gas Refinery Branch, Chemical Engineering Department, University of Technology, Baghdad-Iraq.
- April 1997-October 2005: Dean of Industrial Chemical Institute, Baghdad-Iraq.
- May 1994- April 1997: Head of Department of Unit operations, Industrial Chemical Institute, Baghdad-Iraq
- October 1989-May 1994: Lecturer in University of Technology, Baghdad-Iraq.
- March 1983-October 1989: Advisor of Research Group, Wastewater Treatment, Special Ventilation, Research center, Ministry of Industry, Baghdad, Iraq.

## **TEACHING ACTIVITIES**

### **Graduate-Level Course**

- Fluid Mechanics, October 2006, October 2007.
- Modeling and Simulation of Chemical Processes, March 2007, March 2008, March 2009, March 2010.
- Numerical Methods Applications for Chemical Engineering, October 2009, October 2010.
- Advanced Process Control, September 2004.
- Instrumentation Technology, February 2005.
- Advanced Optimization Technique, April 2011.

### **Undergraduate-Level Courses**

- Process Control, October 1995 to October 2006.
- Applied Engineering Mathematics for Chemical Engineering, October 2007 to October 2012.
- Basic Principles and Calculations in Chemical Engineering, November 2005 to November 2008.
- Optimum Control Theory, September 2000 to September 2003.

### **Lab Supervision**

- Industrial Units Operation.
- Process Control.
- Computer aided Design.
- Numerical Methods.

### **Undergraduate Projects Advised**

- 1) "Production of Industrial Gases (Oxygen and Nitrogen)", September 1989.
- 2) "Production of Silicon", September 1991.
- 3) "Modern Methods of Manufacturing the Triple Phosphate", October 1992.
- 4) "Manufacturing of Freon". September 1994.
- 5) "On line operation of the Wastewater Treatment Station", September 1997.
- 6) "Diagnosis System of the Industrial Process", October 2002.

## PUBLICATIONS

- 1) "Study of the Dynamic Characteristics of the Cold Trap", *Engineering and Technology Journal*, University of Technology, Iraq, vol.16, No.4, 1997.
- 2) "Separation of Vapors from Gases by Desublimation Technique", *Engineering and Technology Journal*, University of Technology, Iraq, Vol.1, No.1, Suppl., 2000.
- 3) "Dynamics Behavior of Multicomponents adsorption in a Fixed Bed", *Al-Handasa Journal*, University of Baghdad, Iraq, Vol.16, No1, 2000.
- 4) "Dynamic and Control of Batch Cooling Crystallizer", *Engineering and Technology Journal*, University of Technology, Iraq, Vol.7, No.5, 2000.
- 5) "Multivariable Control of Steam Boiler", 4th International Conference JICHE, Amman-Jordan, September 2002.
- 6) "On-Line Control of a Semi batch Chemical Reactor-Control Problems and Stability Analysis", *Engineering and Technology Journal*, University of Technology, Iraq, Vol.19, No.4, Suppl.2000.
- 7) "Tendency Modeling of Desublimator for Optimization and Control", *Engineering and Technology Journal*, University of Technology, Iraq, Vol.26, No.6, 2008.
- 8) "Stability Conditions of a Plate Heat Exchanger", *Al-TAQANI Journal*, Iraq, Vol.6, No.11, 2008.
- 9) "PH Control Problems of a Wastewater Treatment Plant", *Al-Khwarizmi Engineering Journal*, University of Baghdad, Iraq, Vol.4, No.2, 2008.
- 10) "Effect of Noise Disturbances on Response of Measuring Devices", *Tikrit Journal of Engineering and Science*, University of Tikrit, Iraq, Vol.15, No.2, 2008.
- 11) "Optimization and Control of a Cation Exchanger-I Steady State Optimization", *Engineering and Technology Journal*, University of Technology, Iraq, Vol.28, No.3, 2010.
- 12) "Study the Stability of a Wastewater Treatment Unit Using LABVIEW", *Tikrit Journal of Engineering and Science*, University of Tikrit, Iraq, Vol.17, No.4, 2010.
- 13) "Operation and PH Control of a Wastewater Treatment Unit Using LABVIEW", *Engineering and Technology Journal*, Iraq, Vol.28, No.17, 2010.
- 14) "Polyvinyl alcohol/Polyvinyl Chloride(PVA/PVC) Hollow Fiber Composite Nano filtration Membranes for Water Treatment", *Iraqi Journal of Chemical and Petroleum Engineering*, Vol.11, No.4, 23-32, December, 2011.
- 15) "Simulation and Multi-objective Optimization of a Continuous Biochemical Reactor Using Multilayer Modeling Technique", 2011 AIChE Annual Meeting, paper No.412c, Minneapolis, MN, October 16-21.
- 16) "Multi-objective Optimization of a Spouted Bed Reactor", 2011 AIChE Annual Meeting, paper No.140c, Minneapolis, MN, USA, October 16-21, 2011.
- 17) "Optimal Control of a Wastewater Treatment Unit Using LABVIEW Technique", 2011 AIChE Annual Meeting, Minneapolis, MN, USA, October 16-21, 2011.
- 18) "Multi-objective Optimization of Auto thermal Catalytic Membrane Reactor Using Genetic Algorithm", 2011 AIChE Annual Meeting, paper No.307f, Minneapolis, MN, USA, October 16-21, 2011.

- 19) "Hollow Fiber Ultra filtration Membranes from Poly (vinyl chloride): Preparation, Morphologies and Properties". *Separation Science and Technology Journal*, Taylor&Francis, 46, 2199-2210, 2011.
- 20) "Multi-objective Optimization of a Spouted Bed Reactor: Improving the Stability and Operability", first edition, Lambert Academic Publishing, Germany, 2012.
- 21) "Improving the pH Control of a wastewater Treatment Unit Using Genetic Algorithm", 6th International Conference JICHE, Amman-Jordan, March, 2012.
- 22) "Improving the Performance of a spouted Bed via Uniformity Index Using Genetic Algorithm", 2012 ICEIT, Paper No.CH010, Toronto-Canada, September 17-19, 2012.
- 23) "Study of Distribution and Stability of Solid Particles in a Spouted Bed", 2012 AIChE Annual meeting, paper No.212c, Pittsburgh,PA,USA,October 28-November 2,2012.
- 24) "Simulation and Optimization of a Continuous Biochemical Reactor", *Journal of Chemical Engineering and Process Technology*, Vol.3, issue 6, 1000142, 2012.
- 25) " Multi-objective Optimization of a Spouted Bed via Genetic algorithm", *Journal of Civil Engineering and Construction Technology*, 3(9), 242-249, October 2012.
- 26) "Improving the Performance of Auto thermal Catalytic Membrane Reactor via Stochastic Optimization", WCECS 2012, Paper No.ICCE\_38, San Francisco, USA, October 24-26, 2012.
- 27) "Optimization of Pressure Drop in a Spouted Bed via Genetic Algorithm", *Journal of Innovative Systems and Engineering (IISTE)*, Vol.3, No.12, 2012.
- 28) "Adaptive Genetic PH Control of a Wastewater Treatment Unit via LAB view", *Journal of Chemical and Process Engineering Research (IISTE)*, Vol.5, December 2012.
- 29) "Multi-objective Optimization of a Spouted Bed", *Journal of Computer Engineering and Intelligent Systems (IISTE)*, Vol.3.No.12, 2012.
- 30) "Simulation and Optimization of a Continuous Biochemical Reactor", *Journal of Chemical and Process Engineering Research (IISTE)*, Vol.5, December 2012.
- 31) "Improving the Performance of a Spouted Bed via Uniformity Index Using Stochastic Optimization", *Journal of Industrial Engineering Letters (IISTE)*, Vol.3, No.1 , 2013.
- 32) "Improving the Performance of Auto thermal Catalytic Membrane Reactor via Stochastic Optimization" *International Review of Chemical Engineering Journal*, Vol.5, No.2, March 2013.

## Master's Thesis Advised

- 1) Warmouth Shawkee, "Separation of Vapors from Gases by Desublimation Technique", University of Technology, Iraq, June 1995.
- 2) Ammer Aziz, "Study of the Dynamic Characteristics and Control of Cold Trap", University of Technology, Iraq, April 1996.
- 3) Zaidoon Shakour, "Dynamics and Control of Batch Cooling Crystallizer", University of Technology, Iraq, March 1999.
- 4) Dowraid Fathiel, "Dynamics Behavior of Multicomponent a Desorption in a Fixed Bed", University of Baghdad, Iraq, October 1999.
- 5) Nesreen Ali, "Study the Multivariable's Control of Steam Generator", University of Technology, Iraq, May 2001.
- 6) Sofyan Fadiel, "Separation of Solvents by Hollow Fiber PVC Nan membrane", University of Technology, Iraq, June 2010.
- 7) Murtathia Sabah, "on-Line Control of PH Neutralization for wastewater Using LABVIEW", University of Technology, Iraq, March 2011.
- 8) Razika Nimkar, "Study the Dynamic Growth of Microalgae", Missouri University of Science and Technology, Chemical and Biological Dept.MO, USA, 2011/2012.

## **CONFERENCES:**

- 1) 3<sup>rd</sup> graduate conference, University of Technology, Baghdad, march 1999.
- 2) 4<sup>th</sup> International Conference (JICHE), Amman, -Jordan, September 2002.
- 3) 2011 AIChE Annual spring Meeting, Chicago, USA, March, 14, 2011.
- 4) 7<sup>th</sup> Annual Undergraduate and graduate Research Conference, Missouri S&T Heavener Center, USA, 6&7, April 2011.
- 5) 2011 AIChE Annual meeting, Minneapolis, USA, 16-21, October 2011.
- 6) 6th International Conference ( JICHE), Amman-Jordan, 13-16, March 2012.
- 7) 2012 ICEIT, Toronto-Canada, September 17-19, 2012.
- 8) 2012 AIChE Annual meeting, Pittsburgh, PA, USA, October 28-November 2, 2012.
- 9) 2012 ICEIT, Venice-Italy, November 14-16, 2012.
- 10) World Congress on Engineering and Computer Science 2012(WCECS 2012), San Francisco USA, October 24-26, 2012.

## **International Scientific Visiting**

- Research and Development, Lawi Company, Switzerland, January 1985.
- Visiting Scholar, for one year, Missouri University of S&T, USA, 2010/2011.
- Missouri University, Chemical Engineering Department, Columbia, March 2011.
- Washington University in ST.Louis, the Department of Energy, Environmental and Chemical Engineering Department, Saint Louis, May, 2011.
- Visiting Scholar for one month, University of Putra Malaysia (UPM), Selangor, April 2013.

## **Training Programs**

- 1) 'Vacuum Technology', Leybold-Heraeus GmbH Company, Baghdad, April, 1984.
- 2) 'Design of Special Ventilation System', Padi Zurich Company, Switzerland, January 1985.
- 3) 'Instrumentation Technology', Foxboro Company, Baghdad, October 1985.
- 4) 'Methods o Advanced Teaching', University of Technology, Baghdad, September, 2005.
- 5) 'Leadership Development Program', Columbia, MO, USA, March 2011.
- 6) 'The American Pronunciation Program', University of Science and Technology, MO, USA, January 25-April 28, 2011.

## **Awards**

- For Contributions as Visiting Scholar in the Field of Reactors Multi-objective Optimization, Missouri University of Science and Technology, USA, June 2011.