

# CURRICULIM VITAE

## Personal Information:

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## Academic Background

- Ph.D. Chemical Engineering Queen's University Belfast 2000
- M.Sc. Chemical Engineering The University of Jordan 1993
- B.Sc. Chemical Engineering Jordan University of Science & Tech. 1989

## Academic Positions

- Currently I am a visiting Professor, American University of Beirut since August 2018.
- Full Professor, The University of Jordan, 2018
- Associate Professor, The University of Jordan, 2012
- Assistant Professor, The University of Jordan, 2002
- Postdoctoral Research Fellow, Brunel University, Uxbridge, UK, 2000.

### Practical Experiences:

- As a Visiting Associate Professor in Baha and Walid Bassatne Department of Chemical Engineering and Advanced Energy at the American University of Beirut I taught the following courses:
  1. Heat and Mass Transfer CHEN 411
  2. Principles of Corrosion CHEN 531
  3. Thermodynamics 1 CHEN 214
  4. Polymers Science CHEN 672
  5. Safety and Loss Prevention CHEN 480
  6. Mechanical Unit Operations CHEN 415
  7. Process Control CHEN 415
  8. Materials Engineering and Corrosion CHEN 431
  9. Separation Process Engineering CHEN 312
  10. Final Year Projects 1 and 2 CHEN 501 and 502
- As a full-time faculty member in the Chemical Engineering Department at the University of Jordan I teach the following courses:
  1. Numerical Methods in Chemical Engineering under Excel
  2. Advanced Numerical Analysis
  3. Mathematical Methods for Chemical Engineering
  4. Advanced Mathematical Methods for Chemical Engineering
  5. Process Modelling by Statistical Methods
  6. Computer Applications in Chemical Engineering
  7. Basic Principles of Chemical Engineering
  8. Strength of Materials and Equipment Design
  9. Engineering Materials Science
  10. Metals Extraction
  11. Thermodynamics 1
  12. Combined Heat and Mass Transfer
  13. Unit Operations
  14. Polymers and Plastics Engineering
  15. Fertilizers Technology
  16. Quality Control and Management
  17. Process Heat and Mass Transfer
  18. General Safety Principles
- As a part-time faculty member in the Fire Safety Engineering at Prince Hussein bin Abdullah II Academy of Civil Protection, I teach the following courses:
  1. Mathematical Methods for Safety Engineering
  2. Fluid Mechanics for Safety Engineering
  3. Human Behaviour During Fires
  4. Materials Behaviour During Fires
  5. Active Passive Fire Protection
- I delivered training courses in

1. Advanced Distillation Operation and Troubleshooting for SABIC Engineers (Jubail) 29-9 to 3-10-2013.
  2. Sulphuric Acid Production and its Safety (Halle-Germany) 3-8 to 7-8-2009.
  3. Advanced Polymers Crystallization Techniques (Erlangen-Germany) 11-7 to 15-7-2011.
  4. Geopolymers Technologies (Amman-Jordan) 8-6 to 12-6-2014.
  5. Advanced Fertilizers Technologies (Amman-Jordan) 15-2 to 17-2-2015.
- A team leader “Technical Expert” for the Technical Audit Process at
    1. The Jordanian Petroleum Refinery for the years 2013, 2014, 2015, 2016 and 2017.
    2. KEMAPCO, the Arab Fertilizers & Chemicals Industries LTD for the years 2014, 2015, 2016 and 2017.
  - Project Engineer in The Wolfson Centre For Materials Processing, Mechanical Engineering Department, Brunel University, UK (1/08/2000 – 15/02/2002)
  - Full-time lecturer in the Chemical Engineering Department at The University of Jordan (1/10/1994 - 1/4/1997).
  - Product Manager in Al-Ahliyya for Chemical Fertilizers (1/1/1993 - 1/10/1994).

### Research Activities

- An investigation into the consequences of methods used to reduce the cost of production of moulded parts by the injection moulding process.
- Improve the efficiency of current processing as a result of effective management of heat transfer and the possibility of reducing part weight by improving material performance.
- Morphology, nucleation, and growth rate analysis of polymers.
- Isothermal and non-isothermal crystallization of semi-crystalline polymers.
- Modelling and simulation of non-isothermal crystallization kinetics.
- Mechanical characterization of extruded and injection moulded semi-crystalline polymers.
- Effects of pigments, nucleating agents and recycled polymer on morphology and crystallisation of semi-crystalline polymers.
- Enhancement of the mechanical properties of biodegradable polymers using nano fillers.
- Solid, liquid, and suspension fertilizers production in addition to treatment of Jordanian wet process phosphoric acid. Urea phosphate, potassium sulfate, monopotassium phosphate, and potassium nitrate production.
- PET bottles wall thickness distribution enhancement.
- Aluminium Profiles Electro colouring.
- Phase Change Materials.

### Current Research Projects

- 1) Enhancement of PP impact properties using Polyether block amide.
- 2) Recycling of waste rubber through geopolymers.
- 3) Enhancement of the mechanical properties of biodegradable polymers using nano fillers.
- 4) Phase change materials for thermal storage energy.
- 5) Effects of Geometry, Magnetic and Electric Fields on the Urea Phosphate Crystallization Process.

- 6) Development and chemical modification of asphalt containing recycled polymer.
- 7) Isothermal and Non-isothermal Crystallization of semicrystalline polymers, Polypropylene/Polyether Block Amide Composites.
- 8) Modelling of the Mechanical Properties of Styrene Butadiene Styrene Thermoplastic Elastomer.
- 9) Thermal and Mechanical Properties of PET/PP Nanocomposites.

### **Publications in Refereed International Journals and Conferences**

- 1) Mubarak, Y., Harkin-Jones, E., Martin, P.J., Ahmad, M., "Crystallization of Isotactic Polypropylene: Pigment, Nucleating Agent and Recycling Effects". 57<sup>th</sup> SPE ANTEC, New York, 3796-3800, 1999.
- 2) Mubarak, Y., Harkin-Jones, E., Martin, P.J., Ahmad, M., "Crystallization Kinetics of Isotactic Polypropylene: Pigment, Nucleating Agent and Recycling Effects". III Jordanian Chemical Engineering Conference, Vol. I, 49-70, 1999.
- 3) Martin, P.M., Lappin, J., Mubarak, Y., Harron, G., Dixon, D., Collins, P., Martin, N., Harkin-Jones, E., "Developments in Thermoforming Research", Polymer Process Engineering 99, 204-214, June 1999.
- 4) Mubarak, Y., Harkin-Jones, E., Martin, P.J., Ahmad, M., "Crystallization of Isotactic Polypropylene: Comparison Between  $\alpha$  and  $\beta$  Growth Rates", 58<sup>th</sup> SPE ANTEC, Orlando, 1626-1630, 2000.
- 5) Mubarak, Y., Martin, P.J., Harkin-Jones, E., "Effect of Nucleating Agents and Pigments on Crystallisation, Morphology, and Mechanical Properties of Polypropylene", Plastics, Rubber and Composites, Vol. 29, No. 7, 307-315, 2000.
- 6) Mubarak Y., Harkin-Jones E., Martin P.J., "Crystallization and Ageing Behaviour of Extruded Isotactic Polypropylene", European Conference on Macromolecular Physics 241, Portugal, 39-40, 2000.
- 7) Rawajfeh, K.M., Mubarak, Y., "Study of the Effect of Some Parameters Influencing the Removal of Iron from Feldspar Found in the South of Jordan Using Hydrochloric Acid", Dirasat, Engineering Sciences, Vol. 28, No. 1, 24-35, 2001.
- 8) Mubarak, Y., Harkin-Jones, E., Martin, P.J., Ahmad, M., "Modelling of Non-Isothermal Crystallization Kinetics of Isotactic Polypropylene", Polymer, Vol. 42 ((7)), 3171-3182, 2001.
- 9) Allan, P.S., Bevis, M.J., McCalla, A., Mubarak, Y., Yasuda, K., "Multicomponent Laminate Molding (MLM)", 60<sup>th</sup> SPE ANTEC, San Francisco, 670-674, 2002.
- 10) Hornsby, P., Allan, P.S., Bevis, M.J., McCalla, A., Mubarak, Y., "An Evaluation of Heat Management in Injection Mould Tools", 60<sup>th</sup> SPE ANTEC, San Francisco, 1-5, 2002.
- 11) Houry, H.N., Hodali, H., Hourani, M.K., Mubarak, Y., Faqir, N., Hanayneh, B., and Esaifan, M., "Mineral Polymerization of Some Industrial Rocks and Minerals in Jordan", Publications of Deanship of Academic Research University of Jordan, 2008.
- 12) Mubarak, Y., Abbadi, F.O., and Tobgy, A.H. "Effect of Iron Oxide Nanoparticles on the Morphological Properties of Isotactic Polypropylene", Journal of Applied Polymer Science, Vol. 115 (6), 3423–3433, 2010.

- 13) Fawaz, K.S., Matar, A., Mubarak, Y., Al Hamamreh, Z. "Regulating the Safety at the University of Jordan", The 2nd International Chemical Engineering Conference, University of Jordan, 2010.
- 14) Mubarak, Y. "Thermal and Mechanical Properties of Polyethylene Terephthalate/Polycarbonate Nanocomposites Modified by Lanthanum Acetyl Acetate Hydrate", *Polymer-Plastics Technology and Engineering*, Vol 50 (6) 635-645, 2011.
- 15) Mubarak, Y. "Nodular Structure of Isotactic Polypropylene Crystallizes from the Melt", *Journal of Applied Polymer Science*, Vol 122, 2228-2243, 2011.
- 16) Mubarak, Y. "Production of Crystalline Urea Phosphate using the Untreated Jordanian Wet Process Phosphoric Acid", *Dirasat, Engineering Sciences*, 38 (1) 61-72, 2011.
- 17) Mubarak, Y., Al-Sawalkah, A.I., Sweis, F.K., "The Effect of Alkaline Additives on the Operating Conditions of Kaolinitic Polymerization", *Jordan Journal of Mechanical and Industrial Engineering*, Vol. 5 (5), 389-401, 2011.
- 18) Mubarak, Y., "Isothermal Growth Rates of Nodular and Spherulitic Structures of Isotactic Polypropylene", ANTEC 2012, Conference proceedings 3, pp. 2014-2018, Orlando, USA
- 19) Mubarak, Y., "Optimum Operating Conditions for Production of Crystalline Monoammonium Phosphate from Granulated Diammonium Phosphate", *Arabian Journal for Science and Engineering*, Vol. 38 (4), 777-786, 2013.
- 20) Mubarak, Y., "Comparison between Non-Isothermal Growth Rates of Nodular and Spherulitic Structures of Isotactic Polypropylene", ANTEC 2013, Conference proceedings 1, pp. 146-151, Cincinnati, USA.
- 21) Mubarak, Y.A., AbuHalimeh, R., Schubert, D. "Impact Properties of Polypropylene/Styrene-Butadiene-Styrene Nanocomposites", ANTEC 2014, Conference proceedings 1, pp. 629-633, Las Vegas, USA.
- 22) Abo-Hammour, Z. S., Samhour, A. D., Mubarak, Y. "Continuous Genetic Algorithm as a Novel Solver for Stokes and Nonlinear Navier Stokes Problems", *Mathematical Problems in Engineering*, Volume 2014, 649630.
- 23) Mubarak, Y., AbuHalimeh, R., Schubert, D., "Thermal and Morphological Properties of Polypropylene/Styrene-Butadiene-Styrene Nanocomposites", *Polymer-Plastics Technology and Engineering*, Vol. 57(15), 1542-1553, 2018.
- 24) Mubarak, Y.A. "Integrated process for potassium sulfate and a mixture of ammonium chloride/potassium sulfate salt production", *International Journal of Engineering & Technology*, 7(1), pp 185-197, 2018. Doi: 10.14419/ijet.v7i1.9188
- 25) Mubarak, Y., "Tensile and Impact Properties of Microcrystalline Cellulose Nanoclay Polypropylene Composites", *International Journal of Polymer Science*, Article ID 1708695, 2018.
- 26) Mubarak, Y., "Effects of Biodegradable Polypropylene Additive on the Impact Strength and Spherulites Growth Rate of Isotactic Polypropylene", *International Journal of Mechanical Engineering and Technology (IJMET)*, Volume 9 (5), 109-121, 2018.
- 27) Mubarak, Y., AbuHalimeh, R., Schubert, D., "Polypropylene/Styrene-Butadiene-Styrene Fumed Silica Nanocomposites: Mechanical Properties", *International Journal of Mechanical Engineering and Technology (IJMET)*, Volume 9 (5), 200-216, 2018.
- 28) Mubarak, Y., "Effects of biodegradable additives on the nucleation intensity and growth rate of isotactic polypropylene spherulites", ANTEC 2018, pp. 1279-1284, Orlando, USA.

- 29) Mubarak, Y., Abdulsamad, R., “Effects of Microcrystalline Cellulose on the Mechanical Properties of Low Density Polyethylene Composites”, *Journal of Thermoplastic Composite Materials*, Vol. 32(3) 297–311, 2019.
- 30) Mubarak, Y., Abdulsamad, R., ”Thermal Properties and Degradability of Linear Density Polyethylene Microcrystalline Cellulose Composites”, *Journal of Thermoplastic Composite Materials*, Vol. 32(4) 487–500, 2019.
- 31) Mubarak, Y., AlBtoosh, Sh., Al-Hamamreh Z., Salman A., “Effects of the exposure to fire and fire extinguishing agents on the behaviour of building materials”, *International Journal of Emerging Trends in Engineering Research (IJETER)*, Vol. 8(7), pp. 3433-3441, 2020.
- 32) Mubarak, Y. “Leaching of Copper Ores: Effects of Operating Variables”, *International Journal of Emerging Trends in Engineering Research (IJETER)*, Vol. 8(8), pp. 4226-4235, 2020.
- 33) Mubarak, Y. “Thermal and Mechanical Properties of Biodegradable Isotactic Polypropylene”, *Journal of Thermoplastic Composite Materials*, Accepted 15th September 2020. <https://doi.org/10.1177/0892705720963525>
- 34) Mubarak, Y. “Kinetics of Hydrochloric Acid Leaching of Copper from its Ore”, *International Journal of Emerging Trends in Engineering Research (IJETER)*, Vol. 8(9); pp. 5006-5015, 2020.

### **B.Sc. and M.Sc. Thesis**

- A study of the Crystallization and Ageing of Isotactic Polypropylene, Ph.D. Thesis, School of Chemical Engineering, Queen’s University Belfast, June 2000.
- Hydrochloric Acid Leaching of Jordanian Copper Ores, M.Sc. Thesis, Chemical Engineering Department, The University of Jordan, October 1992.

### **Master Thesis Supervision**

1. Effect of Iron Oxide Nanoparticles on the Morphological and Mechanical Properties of Isotactic Polypropylene, *Fatima Abbadi*, 2008.
2. The Effect of Additives on the Operating Conditions of Kaolinitic Polymerization, *Asma Al-Sawalkah*, 2010.
3. Thermal and Mechanical Properties of Polypropylene/Styrene-Butadiene-Styrene Nanocomposites, *Rachael AbuHalimeh*, 2013.
4. Applicability of Continuous Genetic Algorithms in Solving Navier Stocks Problems, *Areej Samhuri*, 2014.
5. Degradability, thermal and mechanical properties of Polyethylene /cellulose composites, *Raghda Talal Abdulsamad*, 2017.
6. Effect of Fire and Fire Extinguishing Agents on the Jordanian Building and Materials of Construction, *Shaden Al-Btoosh*, 2017.

### **Activities**

- I have high potentials to use computers and software such as Matlab, Polymath, Chemcad, Aspen, Hysys, Excel and Microsoft Office, and Ubuntu.
- Football, Running, Reading, Swimming, Travelling, and Socialization.

## Statement of Teaching Philosophy

I have been in Academia since 1994 when I started as a full-time lecturer at The University of Jordan, during that period of time I taught Mathematical Methods, Modelling by Statistical Methods, and Strength of Materials and Equipment design courses. I supervised and followed up the students in the Fluid Mechanics, Solid Particulates, Heat Transfer, Thermodynamics, Mass Transfer, and Unit Operations laboratories. Also, I helped and assisted many undergraduate students in many computer works related to their graduation projects such as Hysys, Aspen, and any other related software. At the beginning of 1997, I had the chance to continue my Ph.D. degree in Chemical Engineering at Queen's University Belfast (1997-2000). On completion of my Ph.D. degree, I worked as a project engineer in the Wolfson Centre for Materials Processing at Brunel University in 2000. I was then appointed as an Assistant Professor in Chemical Engineering in the University of Jordan in 2002. I was able to be promoted to an Associate Professor rank in 2012 and to a Full Professor rank in 2018. Currently, I am a visiting Professor in the Chemical Engineering Department at the American University of Beirut since August 2018. During my career at UJ, I taught many courses (core and elective) at both the undergraduate and graduate level. In addition to that, I taught several courses at the undergraduate level in the Fire Safety Engineering Department in Prince Hussein bin Abdullah II Academy of Civil Protection. I also served as a director of the Outreach Consultation Unit at the University of Jordan from 7/9/2008 to 10/12/2009. I am also a member of the ABET accreditation committee and I was responsible for coordinating and supervising the final year graduation projects for many academic years. I acted as the coordinator of the Chemical Engineering students training program for 6 years. I also acted as a referee for many chemical engineering and materials science journals.

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 teach the following courses for both levels; undergraduate and postgraduate: Process Modelling by Statistical Methods, Thermodynamics, Numerical Methods in Chemical Engineering under Excel, Advanced Numerical Analysis, Polymers and Plastics Engineering, Engineering Materials Science, Fertilizers Technology, Strength of Materials and Equipment Design, Mathematical Methods for Chemical Engineering, Advanced Mathematical Methods, Process Heat Transfer, Combined Heat and, Mass Transfer, Unit Operations, Computer Applications for Chemical Engineering, Solids, Basic Principles of Chemical Engineering, Human Behavior During Fires, Materials Behavior During Fires, Metal Extraction, Quality Control and Managements, and Fluid Mechanics for Safety Engineering. I teach the following courses at the American University of Beirut: Heat and Mass Transfer CHEN 411, Principles of Corrosion CHEN 531, Thermodynamics I CHEN 214, Polymers Science CHEN 672, Safety and Loss Prevention CHEN 480, Mechanical Unit Operations CHEN 415, Process Control

CHEN 415, Materials Engineering and Corrosion CHEN 431, Separation Process Engineering CHEN 312, and Final Year Projects 1 and 2 CHEN 501 and 502

I supervised about 50 final year graduation projects. Four of these final year graduation projects won the first prize in a competition for all graduation projects conducted for the final year students in all Jordanian universities in Chemical Engineering. I also supervised a group of students in their final year project who won the Deans Award for Creative achievement at the American University of Beirut in 2002. In addition to that I also supervised many masters students (6 M.Sc. students) who worked in different areas such as: Effect of Iron Oxide Nanoparticles on the Morphological and Mechanical Properties of Isotactic Polypropylene, The Effect of Additives on the Operating Conditions of Kaolinitic Polymerization, Applicability of Continuous Genetic Algorithms in Solving Navier Stocks Problems, Thermal and Mechanical Properties of Polypropylene/Styrene-Butadiene-Styrene Nanocomposites, Degradability, Thermal and Mechanical properties of Polyethylene /cellulose composites, and Recycling of Oil Shale Spent Ash Through Geopolymers.

I have high potential to use computers and other software such as:

- Windows operating system (Vista, 7, 8 and 10) use and installation.
- Ubuntu operating system (Linux).
- Microsoft office 2003, 2007, 2010, 2013, and 2016. I am expert in Excel, Word, Power-Point, and Prezi presentation software.
- Matlab, Polymath, Table curve, and Finite (numerical solution software).
- Chemcad, Hysys, and Aspen (mass and energy balance, flow sheeting).
- Internet Explorer, Netscape, Chrome, Firefox, and opera (Internet browsers).
- E-learning site and online exams in addition to many other software and computer skills.
- WebEx meeting, Zoom, and Microsoft teams.

I have been teaching for almost 24 years as a teaching assistant (2.5 years), a full-time lecturer (2.5 years) and a faculty member in the Chemical Engineering Department at the University of Jordan (19 years), I am 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. I have high potential to listen to instructions and act on those instructions with minimal guidance. I speak, write, and listen effectively, organize my thoughts logically, and explain everything clearly. I have a good ability in problem-solving with making transactions, processing data, formulating a vision, and reaching a resolution. I can relate well to others, both colleges and student in addition to relationship-building and relationship-management, generally I work well with others. I have a strong confidence and a comprehensive knowledge of the required goals. I am highly motivated to achieve set goals.

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 expect students to 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.

One of my most dearly held beliefs is that it is the professor's responsibility to prepare a student 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 who is constantly in contact with new information. 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 students deserve respect just as any other person, and there must be mutual respect between the students and me. 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. In everything that I do, I want to be considered a fair and reasonable person.

## Research Statement

Immediately after I obtained my M.Sc. degree in Chemical Engineering I had a great chance to work as a product manager in Al-Ahliyya for Chemical Fertilizers. I started the work at this company while they were planning and designing the equipment and the products. I had full duties to:

- Review and check the equipment design and the feasibility of the production process.
- Conduct experimental work to obtain certain fertilizers formulas that the company produced commercially
- Follow up the installation and commissioning of the equipment on site.
- Start up the factory and manage the production process for solid, liquid and suspension fertilizers production.
- Manage the production process to fulfil the orders and deliver them on time.
- Develop new products.

After I graduated from Queen's University Belfast, I have worked as a project engineer in The Wolfson Centre for Materials Processing at Brunel University in Uxbridge-UK. Different tasks and jobs were carried out in collaboration with different industrial sectors and these tasks were:

- An investigation into the consequences of methods used to reduce the cost of production of moulded parts by the injection moulding process.
- Improve the efficiency of current processing as a result of effective management of heat transfer and the possibility of reducing part weight by improving material performance.
- Study and carry on a comparison between Conventional and Pulse cooling technologies.
- Multi laminates molding

Since 2002 I have been working as a faculty member in the Chemical Engineering Department at the University of Jordan on a full-time basis. In addition to the teaching duties I worked as a director for the Outreach Consultations Unit at the University of Jordan from 7/9/2008 to 10/12/2009 and I was a member of the committee who created the Faculty for Factory program in Jordan. I conducted several training courses in Jordan and in the region and the last training course was Advanced Distillation Operation and Troubleshooting for SABIC employees. I am also a team leader “Technical Expert” for the Technical Audit Process at the Jordanian Petroleum Refinery and a team leader “Technical Expert” for the Technical Audit Process at KEMAPCO the Arab Fertilizers & Chemicals Industries LTD since 4 years. I carried out many consultation works to solve and overcome some industrial problems through the Faculty for Factory program in 4 cycles 2003, 2005, 2006, and 2007. During these cycles the following problems were investigated and solved:

- Improving the wall thickness distribution of PET bottles in Collaboration with Technical Packaging Company through the Faculty for Factory program in its first cycle, 2003.
- Crystalline Urea Phosphate Production in collaboration with Arab National Co. for Fertilizers Ind. and Seed Production through the Faculty for Factory program in its third cycle, 2005.
- Aluminium Profiles Electro colouring in collaboration with Arab Aluminium Industry Co. Ltd. (ARAL) through the Faculty for Factory program in its fourth cycle, 2006.
- Building a software to Estimate the Best Ingredients for NPK Soluble Fertilizers in collaboration with Al-Anfal for fertilizer through the Faculty for Factory program in its fifth cycle, 2007.

I was granted the DFG fund in the years 2008, 2009 and 2011 to carry out research works in Germany for a period of 3 months every year. These research works were:

- Thermal and Mechanical Properties of Polyethylene Terephthalate/Polycarbonate Nanocomposites Modified by Lanthanum Acetyl Acetonate Hydrate that carried out at Martin Luther University Halle-Wittenberg in summer 2008 and summer 2009.
- Thermal and Mechanical Properties of Polypropylene/Styrene-Butadiene-Styrene Nanocomposites that carried out in Friedrich-Alexander University Erlangen-Nürnberg in summer 2011.

Currently, my research activities are concentrated in the following areas:

- Recycling of waste rubber through geopolymers.
- Enhancement of the mechanical properties of biodegradable polymers using nano fillers.
- Phase Change Materials for Thermal Storage Energy.
- Effects of Geometry, Magnetic and Electric Fields on the Urea Phosphate Crystallization Process.
- Development and chemical modification of asphalt containing recycled polymer.
- Isothermal and Non-isothermal Crystallization of semicrystalline polymers, Polypropylene/Polyether Block Amide Composites.
- Rheological Properties of Polystyrene Filled with a Modified SiO<sub>2</sub> Nanoparticles.
- Modelling of the Mechanical Properties of Styrene Butadiene Styrene Thermoplastic Elastomer.

- Thermal and Mechanical Properties of PET/PP Nanocomposites.
- Enhancement of PP impact properties using Polyether block amide.

I have a very high capacity to use the following equipment: DSC, X-ray, FTIR, scanning electron microscope, polarized light microscope, tensile and impact testing machines, extruders, blow film machines, and injection machines.