

## Mohamed K. Hassan, Ph.D.

### Education

1. **Ph.D. in Polymers Engineering**, University of Akron, USA May 2004
  - Manufacturing and Morphology of Polymers.
2. **M.Sc. in Total Quality Management**, Alexandria University, Aug 1998
  - Computerized Total Quality Management Systems in Tire Manufacturing
3. **B.Sc. Production/Industrial Eng.**, Alexandria University, July 1992
  - Production/Industrial Engineering dept., graduated with degree of honor

### Work Experience

1. **Arab Academy for Science and Technology** 2018-Current  
**Professor of Industrial and Management Engineering**
  - Teaching industrial engineering courses for undergraduate and graduate students.
  - Supervising Masters and PhD students in industrial engineering and Healthcare quality systems.
  - Academic advisor for industrial engineering students.
  - Training of faculty on face-to-face, blended course design and online course design and teaching.
  - Training faculty members on best presentation skills.
  - Head of examination scheduling, examination control, and industrial engineering laboratories.
  - Head of students practical training connecting academia with industry.
  - Member of education quality accreditation committees including ISO 9000 education quality management system, local accreditation and ABET accreditation.
2. **TMSI, LLC, OH, USA** 5/2017-6/2018  
**Company President**
  - Led the company turnaround, general management, production, setting strategies and goals.
  - Company restructuring, managing sales, marketing and service, budgeting, quality system, cost reduction, company reputation, P&L, public relations and Tire conferences.
3. **Mesnac Americas Co., Ltd., OH, USA** 9/2014-12/2017  
**Research & Technology Executive Director**
  - Developing and designing the Smart Tire Factory of the future. Applying mechanical and control design, machine vision and machine learning in the tire industry.
  - Building engineering teams and managing teams on an international scale in the US, India and China for machine design.
4. **The University of Akron, OH, USA** 8/2011-9/2014  
**Assistant Instructional Director**
  - Managed the students' side of a training program related to the establishment of a vocational education elastomer technology institute in Saudi Arabia.
  - Collaborated with the office of Admissions, the Graduate School, academic units, and other members of the International Center team in facilitating the required immigration documents for the international students.
  - Helped the university immigration services office with the process of getting the students travel documents such as I-20, and visas.
  - Helped in the students' recruitment process and evaluated their applications and acceptance exams.
  - Helped in the international travel plan for the recruitment team, and participated as needed.
  - Reviewed and filed for the students' international credentials as well as English proficiency tests.
  - Managed to help the students and their families through the recruitment, visa, travel, academic study and day to day life during their study period.
  - Ensured answering inquiries from prospective and current international students in an effective, courteous, and timely manner.

- Compiled reports on the recruitment process, accepted students and the process of bringing them to the US.
- Tracked the progress of the students during their study in the program and put plans to improve their performance and help retaining them in the program and finishing their study.
- Helped organizing their training with the Akron public schools.
- Participated in the design and review of the courses to be taught to the students.
- Conducted institute audits and trained instructors on putting exams and students' evaluation.

#### **5. Arab Academy for Science and Technology, Egypt**

4/2007-8/2011

##### **Assistant Professor of Industrial and Management Engineering**

- Taught material Science, Polymer Processing, Materials Failure Analysis, Selection of Materials Project Management, Design of Experiments (DOE), Operations Research, Lean Six Sigma, Engineering Economy, Quality Engineering, Human Resources Management, Computer Numerical Controlled Machining, Failure Analysis, Health and Safety and Engineering Business Studies.
- Led the education quality management system activities.

#### **6. Cooper Tire and Rubber Company, USA**

6/2004-3/2007

##### **Materials Development Chemist (Lab Supervisor) and Improvement Management**

- Testing and approval of raw materials, suppliers (ASL) and rubber compounds and raw materials.
- Developed formulations and processing of rubber compounds
- Managed rubber compounding and materials development during mixing, extrusion, calendaring, curing and testing.
- Cooperated with company functions related to raw materials and products purchasing, sales forecast, production planning, material handling and inventory management.
- Group leader for company development (Kaizen teams) and Lean teams
- Developed and implemented policies, standards and procedures.
- Safety officer for materials development Lab

#### **7. The University of Akron, OH, USA**

8/2000-5/2004

##### **Research Assistant**

- Processing of Polymers.
- Online measurement systems for detecting polymer film morphology.

#### **8. Pirelli Tire Company International, Egypt & Italy**

4/1994-8/2000

##### **Tire Testing Engineer and TPM Manager (KAIZEN engineer)**

- Tire design, in-door and Market tire testing and tire forensic analysis.
- Creating and implementing quality control plans.
- Analysis and reporting of in-door, out-door and market tire testing.
- Manage the Total Productive Maintenance (TPM) System and KAIZEN engineering, process control, problem solving, product/process improvement, leadership and team building.
- Training on Mixing, extrusion, calendaring, and testing of rubber compounds.

#### **Accreditations & Training**

- Certificate in Applied Project Management
- ISO 9000 Lead auditor, 14000 and TS 16949 Auditor.
- Design by AutoCAD, Data Base Programming, MS programs, LabVIEW programming, FEA
- Languages: Arabic, English and Italian
- Winner of the Egyptian Ministry of Industry's Business Plan Contest

#### **Professional Associations**

- Secretary of the Polymer Engineering Student Organization at the University of Akron, USA.
- Member of the Society of Polymer Engineers, USA.
- Member of the American Society for Engineering Education.
- Member of the International Association for Management of Technology (IAMOT).
- Member of the IISE Institute of Industrial and Systems Engineering.

## Publications

- Total Quality for Tires Manufacture, Tire Technology International, UK, 1998
- Characterization of Tire Defects by TQM strategy, CAPE'98, Tokyo, Japan, 1998
- An Integrated Intelligent Total Quality Management System for the Diagnosis of Tires' and Elastomers' Defects during Manufacturing and Use, ANTEC, Nashville, USA, 2003.
- Development of Real-Time Spectral Birefringence Measurement Systems to Monitor the True Stress-True Strain-Birefringence Behavior during Multiaxial Deformation and Annealing of PET Films, ANTEC, Nashville, USA, 2003.
- TIREDDX: An Integrated Intelligent Defects Diagnostic System for Tire Production and Service, the Expert Systems with Applications Journal, 24, 3, 2003.
- On Board Plastic Waste Management, 4th International Conference on Marine Engineering and Shipbuilding Technology, MEST, Egypt, 2009.
- The Effect of External Domestic Customer Voice on the Design of Academic Curricula. The Seventh International Scientific Conference, Al-Azhar University (ISCAZ 2010), Environment, Development, and Nanotechnology, 22 – 24 March 2010, Cairo, Egypt.
- Applying Quality Function Deployment (QFD) in Designing Higher Education Courses. The Seventh International Scientific Conference, Al-Azhar University (ISCAZ 2010), Environment, Development, and Nanotechnology, 22 – 24 March 2010, Cairo, Egypt.
- Remote Access and On-Line Monitoring of Production Parameters and Quality Variables Using Real-Time SPC Software, the 3rd International Metrology Conference CAFMET 2010, Egypt.
- Hand-Over Process Improvement in Large Construction Projects, FIG Congress, Sydney, Australia, 2010.
- Effective Crude Blending for Improving Productivity Using Linear Programming Modeling-I, Asian Journal of Scientific Research, 4(2), pp 95-113, 2011.
- Effective Crude Blending for Improving Naphtha Productivity Using Linear Programming Modeling-II, Journal of Management Science, 3(1), pp 100-118, 2012.
- Modeling an Oil Drilling Rig Total Productive Maintenance System Using Causal Loop Diagram Simulation, International Journal of Technology, 2 (2), pp. 17-26, 2012.
- Applying Lean Six Sigma for Waste Reduction in a Manufacturing Environment, American Journal of Industrial Engineering, 1, 2, 28-35 (2013).
- A Fast Real Time Measurement System to Track in and out of Plane Optical Retardation / Birefringence, True Stress and True Strain During Biaxial Stretching of Polymer Films, Review of Scientific Instruments, AIP, 83, 123901 (2012).
- Mechano optical behavior of polyethylene terephthalate films during simultaneous biaxial stretching: Real time measurements with an instrumented system, Polymer, 54, pp. 6463-6470 (2013).
- Mechanisms of structural organizational processes as revealed by real time mechano optical behavior of PET film during sequential biaxial stretching, Polymer, 55, pp. 5245-5254, 2014.
- Strain-Induced Crystallization during Relaxation Following Biaxial Stretching of PET Films: A Real-Time Mechano-Optical Study, Macromolecules, 48, 4657, 2015.
- Rapid Structural Changes that Take Place during Constrained Annealing of Biaxially Stretched PET Films, Polymer Engineering and Science, 2016.
- Experimental Study of Two, Two-Reversed, Three and Four Blade IceWind Turbine. International Journal of Applied Engineering Research ISSN 0973-4562 Volume 15, Number 12 (2020) pp. 1122-1134.
- Characterizing The Effectiveness of The Job Performance Appraisal System In The Governmental Sector. International Journal of Mechanical and Production Engineering Research and Development (IJMPERD). Vol. 10, Issue 3, Jun 2020, 15455-15466.
- Real Time Internet of Things (IoT) Based Water Quality Management System. 30<sup>th</sup> CIRP Design 2020, Procedia CIRP 91 (2020) 478-485.
- Online teaching challenges during COVID-19 pandemic, Asia Education Technology Symposium, Japan, September, 2020. International Journal of Information and Education Technology, Vol. 11, No. 1, January 2021.

- Experimental Study of Two, Two-Reversed, Three and Four Blade IceWind Turbine. International Journal of Applied Engineering Research ISSN 0973-4562 Vol. 15, No 12 (2020) pp. 1122-1134.
- An Android Based IoT Smart Parking System, 32nd International Conference on Computer Theory and Applications (ICCTA), December 2022, Alexandria, Egypt.
- A New Techno-Economic Real-Time Total Process Performance Indicator, Journal of Optimization in Industrial Engineering, Vol.15, Issue 2, Summer & Autumn 2022, 265- 281  
Doi:10.22094/JOIE.2022.1956163.1951.
- A Smart Android Parking System, 32<sup>nd</sup> International Conference on Computer Theory and Applications, AAST, Alexandria, Egypt, December 2022.
- Improving the River Nile Sustainability through Recycling Retrieved Plastic Waste, Marlog 13 conference, AAST, Alexandria, Egypt, 2024.
- Efficient Industrial Wastewater Recycling with IoT, Marlog 13 conference, AAST, Alexandria, Egypt, 2024.
- Connecting Aquaculture to the Internet of Things, A Model for Aquaculture Quality and Water Preservation. Journal of Industrial Engineering & Management Research, vol. (5), no. (4), 2024.
- Management of Industrial Wastewater Quality Using IoT , Journal of Industrial Engineering & Management Research, vol. (5), no. (4), 2024.
- Production of Wood Plastic Composites as a Sustainable Solution for the Post-Harvest Agriculture Waste and Plastic Waste, The American Journal of Engineering and Technology, vol. (6), no. (8), 2024.
- Simulation and Application of a TPM System for Oil Drilling Equipment, International Journal of Science, Engineering and Technology, vol. (12), no. (4), 2024.
- Artificial Intelligence in Laboratories: A Systematic Review of Existing Applications, Advantages, and Implementation Difficulties. Advances in Artificial Intelligence and Machine Learning Research, 5 (2) 3703-3716, 2025.
- High-Performance Flame Retardants: MXenes and Other 2D Inorganic Additives for Polymers. Journal of Vinyl & Additive Technology, Wiley, Vol. (31), Issue (6), pp. 1303-1327, 2025.

#### **Some Attended Conferences**

- Smart Rubber Mixing Solutions, Tire Technology Expo, Cologne, Germany, 2015.
- Recent Advances in Mixing Technology, 8<sup>th</sup> India Rubber Expo and Tyre Show, New Delhi, India, 2015.
- Automated Tire X-ray Inspection System, ITEC Conference, Akron, OH, USA, 2016.
- Smart Manufacturing, Tire Technology Expo, Hannover, Germany, 2017.
- Smart Manufacturing of Tires, Asian Tyre and Rubber Conference, India, 2017