

Mahmoud Heshmat

Curriculum Vitae

PERSONAL DETAILS

Birth July 8, 1986
Address Department of Mechanical Design and Production Engineering,
Assiut University, Assiut
Phone (002) 01118406714
Mail mheshmat@aun.edu.eg

EDUCATION

PhD. in Industrial Engineering and Systems Management 2014-2018

Egypt-Japan University of Science and Technology (E-JUST)

My dissertation title is "Solving Planning and Scheduling Problems in Outpatient Chemotherapy Clinics Using Exact Mathematical Programming Models". Twelve research papers were extracted from the dissertation and published in international conferences and journals.

MSc. in Mechanical Engineering (Production Engineering) 2010-2013

Assiut University

My thesis title is "Modeling and Simulation of Automatic Production Lines with Intermediate Buffer Capacities". Three research papers were extracted from the thesis, and published in international journals.

BSc. in Mechanical Engineering (Production Engineering) 2003-2008

Assiut University

My graduation project title is :Design and Manufacturing of Balancing Machine.

WORK EXPERIENCE

General Supervisor of the Engineering Workshop 2023-Present

Assiut University, Full-time

My job description is managing the workshop technically and financially

Head of Department of Environmental Sciences and Pollution Control 2023- present

Faculty of Sugar and Integrated Industries Technology, Assiut University, Part-time

Associate Professor 2023-present

Assiut University, Full-time

My Job description is teaching for undergraduates and postgraduates, supervising research students, and conducting research.

Assistant Professor 2018-2023

Assiut University, Full-time

My Job description was teaching for undergraduates and postgraduates, supervising research students, and conducting research.

Adjunct Professor

2024-present

Assiut International Technological University, Assiut Technical College, Part-time

My Job description is teaching for undergraduates at the Department of Industrial Mechanics. I am teaching Machining, CNC machine programming, quality control, and project management

Adjunct Professor

2022-2024

Missr International Technological University, Assiut Technical College, Part-time

My job description was teaching for undergraduates in the Department of Industrial Mechanics. I am teaching Machining, Programming on CNC Machines, Quality Control, and Project Management

Adjunct Professor

2021

Egypt-Japan University of Science and Technology, Part-time

My Job description was teaching for undergraduates at the Department of Industrial and Manufacturing Engineering.

Adjunct Professor

2021-2022

Integrated Technology Cluster, Technical College, Misr International Technological University, Part-time

My Job description was teaching for undergraduates at the Department of Industrial Mechanical Engineering.

Director of R&D office

2021-2022

ITTU (Integrated Technology Transfer Unit, Assiut University, Part-time

My Job description was guiding the R&D team to provide consultancy for industrial community.

Academic Supervisor of the Mechanical Engineering Workshop

2018-2020

Assiut University, Full-time

My job description was planning and follow up of the teaching and training courses in the workshop

Director of BDS (Business Developing Services) office

2018-2019

ITTU (Integrated Technology Transfer Unit, Assiut University, Part-time

My Job description was guiding the BDS group to prepare industrial feasibility studies.

Exchange Research Student

2016-2017

Department of Industrial Engineering, Tokyo Institute of Technology, Tokyo, Japan, Full-time

My Job description was doing research in Industrial Engineering.

PhD Candidate

2014-2018

Department of Industrial Engineering and Systems Management, Egypt-Japan University of Science and Technology (E-JUST) Full-time

Project title: Solving Planning and Scheduling Problems in Outpatient Chemotherapy Clinics Using Exact Mathematical Programming Models.

Assistant Lecturer

2013-2014

Department of Mechanical Engineering, Assiut University) Full-time

Teaching and Research Assistant**2010-2013***Department of Mechanical Engineering, Assiut University) Full-time*

Project title: Modeling and Simulation of Automatic Production Lines with Intermediate Buffers

Mechanical Engineer**2009-2010***Engineering Office, Assiut Oil Refining Company (ASORC)) Full-time*

My Job description was design, putting specifications of mechanical component

TRAINING EXPERIENCE (AS TRAINER)

Introduction to Six Sigma**2017 (18 Hrs)***LG Electronics Egypt, Cairo, Egypt***Introduction to Lean Six Sigma****2018 (18 Hrs)***Samsung Electronics Egypt, Beni Suef, Egypt***Project Management****2019 (18 Hrs)***LG Electronics Egypt, Cairo, Egypt**LEONI Egypt, Assiut, Egypt**Coca Cola, Assiut, Egypt***Simulation Modeling and Analysis of Production Lines****2019 (18 Hrs)***LG Electronics Egypt, Cairo, Egypt***Lean Six Sigma****2019 (18 Hrs)***Samsung Electronics Egypt, Beni Suef, Egypt**LEONI Egypt, Assiut, Egypt Coca Cola, SICO, Assiut, Egypt***Introduction to Occupational Safety****2019 (30 Hrs)***Vocational Schools in Assiut, Assiut University, Egypt**Supported from GIZ***Statistical Quality Control****2020 (18 Hrs)***SICO, Assiut, Egypt***Lean Six Sigma****2021 (25 Hrs)***Ezz Steel, Alexandria, Egypt***Simulation Modeling and Analysis of Production Lines****2021 (18 Hrs)***Medical ICO (International company for medical necessities), Assiut, Egypt*

TRAINING EXPERIENCE (AS TRAINEE)

CEMEX Factory, 2 Months <i>Assiut</i> The training was in the maintenance department	2006-2007
Solid Works, 30 Hours <i>Assiut University</i>	2007
Heat Exchangers Design and Selection, 36 Hours <i>Enppi Company, Cairo, Egypt</i>	2009
Welding Inspection and Quality Control, 36 Hours <i>Enppi Company, Cairo, Egypt</i>	2010
Lean Six Sigma: Green Belt, 18 Hours <i>Washington, USA</i>	2018
CAD/CAM, 18 Hours <i>KOREATECH University, South Korea</i>	2019
Arduino, 18 Hours <i>KOREATECH University, South Korea</i>	2019
Micro controller, 18 Hours <i>KOREATECH University, South Korea</i>	2019

SUPERVISORY EXPERIENCE

Mohamed Gamal (PhD Candidate) <i>Advanced Heat Treatment and Plasma Coating</i>	2024-Present
Manar Mabrouk (Master Candidate) <i>Closed-Loop Supply Chain for Sugarcane</i>	2024-Present
Mustafa El-Shahed (Master Candidate) <i>Closed- loop Supply Chain Management</i>	2024-Present
Rashid Mubarak (Master Candidate) <i>Solving Operations Problems in student enrollment</i>	2022-Present
Ahmed Nasser (Master Candidate)	2020-2024

Ergonomics

Mark Adel (PhD Candidate)

2020-Present

A Case of Industry 4.0 Factory

Nesreen Abdelghaffar (PhD Candidate)

2019-Present

Industry 4.0 in Automotive Industry

Peter Emad (Master Candidate)

2019-2022

Finite Element Analysis in Mines

Graduation Projects

2018-present

- 1- Design and manufacturing of a heat treatment furnace
- 2- Design of a shell and tube heat exchanger for cooling water of a diesel engine
- 3- Assembly line balancing using simulation and design of experiments to improve productivity
- 4- Design and manufacturing of injection molding machine
- 5- Using simulation to solve bottlenecks in production lines: case study
- 6- Optimization of printing parameters for improving surface and mechanical properties of a dual extruder 3D printer products
- 7-Designing a Sustainable Closed Loop Supply Chain: A Case Study Assiut University.
- 8- Recycling plastic waste and converting it into manufactured products through 3D printing and plastic injection molding.
- 9- Recycling waste paper in academic institutions: A Case of Assiut University
- 10 - Recycling of Sugarcane Straw

TEACHING EXPERIENCE

Assiut International Technological University, Assiut Technical College

2024-present

Planning and Documentation (100 students)

Applied Programming on CNC Machines (400 Students)

Quality Control of Product and Process (250 Students)

Misr International Technological University, Assiut Technical College

2022-2024

Project Management (100 students)

Applied Programming on CNC Machines (25 Students)

Quality Control of Product and Process (19 Students)

Egypt-Japan University of Science and Technology (E-JUST)

2021

Project Management (120 students)

Work Design and Analysis (9 Students)

Statistical Quality Control (6 Students)

Assiut University

2018-2020

Operations Management (2 PhD students and 1 Master student)

Assiut University <i>Design of Experiments (1 PhD student)</i>	2018
Assiut University <i>Project Management (Class Size=15 students/year)</i>	2018-Present
Assiut University <i>Manufacturing Technology (Class Size=40 students/year)</i>	2022-Present
Assiut University <i>Casting and Welding (Class Size=40 students/year)</i>	2022-Present
Assiut University, Faculty of Sugar Industries Technology <i>Design of Industrial Equipment (Class Size=3 students/year)</i> <i>Basics of Industrial Maintenance (Class Size=25 students/year)</i>	2018-2024
Assiut University, Program of Construction Engineering and Project Management <i>Principles of Mechanical Engineering (Class Size=40 students/year)</i>	2019-Present
Fayoum University <i>Contracts and Tenders (Class Size=20 students)</i> <i>Engineering Management (Class Size=40 students)</i> <i>Business Administration (Class Size=110 students)</i>	2018
Assiut Health Technical Institute <i>Technology of Medical Devices and Equipment (200 students /year)</i>	2019-Present
Assiut Health Technical Institute <i>Maintenance of Medical Devices and Equipment (200 students /year)</i>	2019-Present
Assiut Health Technical Institute <i>Technology of Medical Imaging Devices (200 students /year)</i>	2019-Present
Assiut Health Technical Institute <i>Maintenance of Medical Devices and Equipment (200 students /year)</i>	2019-Present
Assiut Health Technical Institute <i>Measurement and Calibration Devices and Equipment (200 students /year)</i>	2019-Present

Assiut Health Technical Institute <i>Workshop Technology (200 students /year)</i>	2019-Present
Assiut Health Technical Institute <i>Computer Basics (250 students /year)</i>	2019-Present
Assiut University <i>Production Technology (Class Size=380 students)</i>	2018-Present
Assiut University <i>Quality Control Systems (Class Size=15 students)</i>	2022-Present
Assiut University <i>CNC Technology and Programming (Class Size=15 students)</i>	2018-Present
Assiut University <i>Engineering Drawing (Class Size=380 students)</i>	2018-2020
Assiut University <i>Production Engineering (Class Size=80 students)</i>	2018-Present
Assiut University <i>Robots and Automation (Class Size=13 students)</i>	2018-Present
Assiut University <i>Economics Management of Power Plants (Class Size=5 students)</i>	2019-2020
Assiut University <i>Modeling and Simulation of Mechanical Systems (Class Size=100 students)</i>	2019-Present
Assiut University <i>Engineering Mechanics (Class Size=16 students)</i>	2019-Present
Assiut University <i>Fault Diagnosis in Mechanical Systems (Class Size=80 students)</i>	2019-Present
Assiut University <i>Principles of Industrial Maintenance (Class Size=7 students)</i>	2018-Present
Assiut University	2019-2020

Risk Analysis and Environmental Control (Class Size=3 students)

Assisted in teaching the following courses:

Assiut University

2010-2014

Operations Research (Class Size=60 students)

Assiut University

2010-2014

Engineering Materials (Class Size=80 students)

Assiut University

2010-2014

Theory of Metal Cutting (Class Size=60 students)

Assiut University

2010-2014

Engineering Drawings (Class Size=100 students)

Assiut University

2010-2014

Production Engineering (Class Size=100 students)

Assiut University

2010-2014

Statistical Quality Control (Class Size=20 students)

SKILLS AND EXPERIENCE

Languages

Arabic (mother tongue)

English (fluent) IELTS 7

Japanese (beginner)

Software

ARENA, MINITAB, MATLAB, CPLEX, LINGO, L^AT_EX

Conferences

I was one of the organizing committee of the 11th International Conference on Sugar and Integrated Industries held between February 15-18, 2025 at Jolie Ville Resort & SPA kings Island Luxor, Luxor, Egypt.

Consulting

I am a member of the Center of Consultation in Assiut University

AWARDS

Award of Excellency

June 2022

Assiut University, Assiut, Egypt

I have been awarded a certificate of Excellence as the best publication in the faculty of Engineering, Assiut University during the year 2022. The award and certificate was awarded by his excellency the vice dean of the faculty of engineering Professor Moumen Taha El-Melegy.

Best PhD Thesis in Egypt

Nov. 2020

Ain Shams University, Cairo, Egypt

I have been awarded a certificate of Excellence as one of the best five PhD theses (the third place) in Egypt during the period 2016 – 2018. The award and certificate was awarded by his excellency the minister of higher education of Egypt Professor Khaled Abdelgahfar.

Best Presentation

April 2017

ICIEA 2017, Nagoya, Japan

The paper title is "Modified Formulation for the Appointment Scheduling Problem of Outpatient Chemotherapy Departments".

FUNDED PROJECTS

Recycling plastic waste and converting it into manufactured products through 3D printing and plastic injection molding

2024-2025

Ministry of Higher Education Scientific Research & ETIDA

Water Smart Grid System

2020-2022

Ministry of Higher Education Scientific Research.

Optimization of 3D Printing Parameters for Improving Surface and Mechanical Properties of Dual-Extruder 3D Printer Products

2022

Academy of Scientific Research and Technology

Design and Manufacturing of Balancing Machine

2008

Nahdet El Mahrousa

Publications [40+](#) publications in peer-reviewed conferences and journals.

Journal Papers:

Published:

- 1- Al-Therwah, Rashed MF, **Heshmat, M.**, M., El-Sharief, M., Hassab-Allah, I. M."Simulation modeling of student enrolment to solve operations problems: A case of the Saad Al-Abdullah Academy in Kuwait." Alexandria Engineering Journal 119 (2025): 413-424.
- 2-Abdelmoez Mahmoud, Ibrahim Khalil, Ali Ahmed, **Heshmat, M.**, A Standalone Sensing and Actuation IoTs Solution for Water Management, Leakage Detection, and Localization Problems, Water Conservation Science and Engineering, 2024.
- 3- Mahmoud A. El-Sharief, Omar Salah, **Heshmat, M.**, ANFIS and regression-based ANOVA for attribute and variable prediction: a case of quality characteristics in the cement bags industry, International Journal of Industrial and Systems Engineering, 2023.
- 4- **Heshmat, M.**, Ibrahim Maher, Yasser Abdelrhman, Surface roughness prediction of polylactic acid (PLA) products manufactured by 3D printing and post processed using a slurry impact technique: ANFIS-based modeling, Progress in Additive Manufacturing, 2023.
- 5- **Heshmat, M.**, Amr B Eltawil, Mohammed Abdelghany, Operations planning in outpatient chemotherapy with hybrid simulation modelling, International Journal of Simulation and Process Modelling 2022.
- 6- M.A. Al-Bukhaiti, A. Abouel-Kasem, Y. Abdelrhman, **Heshmat, M.**, Image processing approach for estimating the degree of surface eroded by slurry at different impact velocities, Journal of Tribology, ASME, 2022.
- 7-**Heshmat, M.**, Maher, I, Abdelrhman, Y, Surface roughness prediction of polylactic acid (PLA) products manufactured by 3D printing and post processed using a slurry impact technique: ANFIS based modeling, Progress in Additive Manufacturing.
- 8-Shehata, A. S., **Heshmat, M.**, El-Sharief, M. A. (2022). Reduction of variation and control parameters optimising in a cement-bags company. International Journal of Process Management and Benchmarking, 12(3), 321-347.
- 9-Ali, A. S., Abdelmoez, M. N., **Heshmat, M.**, Ibrahim, K. (2022). A solution for water management and leakage detection problems using IoTs based approach. Internet of Things, 18, 100504.
- 10-Negmeldin, M. A. A., **Heshmat, M.**, Eltawil, A. (2021). A system dynamics approach

for strategic planning of consumer electronics industry in developing countries: the case of the television manufacturing industry in egypt. *South African Journal of Industrial Engineering*, 32(2), 133-149.

11-**Heshmat, M.** and Abdelrhman, Y., 2021, Improving surface roughness of polylactic acid (PLA) products manufactured by 3D printing using a novel slurry impact technique, *Rapid Prototyping Journal*.

12-**Heshmat, M.** and Adel, M., 2021, Investigating the effect of hot air polishing parameters on surface roughness of fused deposition modeling PLA products: ANOVA and regression analysis, *Progress in Additive Manufacturing*.

13-Saleh, B., Maher, I., Abdelrhman, Y., **Heshmat, M.**, Abdelaal, O. Adaptive Neuro-Fuzzy Inference System for Modelling the Effect of Slurry Impacts on PLA Material Processed by FDM. *Polymers* 2021, 13, 118.

14-Abdelaal, O., **Heshmat, M.**, Abdelrhman, Y. (2020). Experimental investigation on the effect of water-silica slurry impacts on 3D-Printed polylactic acid. *Tribology International*, 106410.

15-**Heshmat, M.**, Abdelrhman, Y. (2020). ANOVA and regression model of slurry erosion parameters of a polymeric spray paint film. *International Journal of Materials Engineering Innovation*, 11(3), 198-211.

16-Kaoud, E., **Heshmat, M.**, El-Sharief, M. A., El-Sebaie, M. G. (2020). Scheduling of automated guided vehicles and machines in flexible manufacturing systems: a simulation study. *International Journal of Industrial and Systems Engineering*, 35(3), 372-387.

17-**Heshmat, M.**, Eltawil, A. (2019). Solving operational problems in outpatient chemotherapy clinics using mathematical programming and simulation. *Annals of Operations Research*, 1-18.

18- **Heshmat, M.**, Nakata, K. and Eltawil, A., 2018. Solving the problems of patient appointment scheduling using clustering and mathematical programming. *Computers Industrial Engineering*, 124, 347-358.

19- **Heshmat, M.**, Yahia, Z., Fatyani, T. and Eltawil, A., 2018, Investigation of design and coordination issues in outpatient chemotherapy clinics using an ontology-based conceptual model. *Int. J. System of Systems Engineering*, 8 (3), 189-210.

20- **Heshmat, M.** and Eltawil, A., 2018. A system dynamics-based decision support model for chemotherapy planning. *Journal of Simulation*, pp.1-12.

21- **Heshmat, M.** and Eltawil, A., 2017. A new sequential approach for chemotherapy treatment and facility operations planning. *Operations Research for Health Care*, 18, 33-40.

22- **Heshmat, M.** El-Sharief, M, El-Sebaie, M. G., 2017, Simulation modelling and analysis of a production line, *Int. J. of Simulation and Process Modeling*, 12 (3-4), 369-376.

23- **Heshmat, M.** and Eltawil, A., 2016. Comparison between Outpatient Appointment Scheduling and Chemotherapy Outpatient Appointment Scheduling. *The Egyptian International Journal of Engineering Sciences & Technology*, 19(2), pp.326-332.

Under Review:

1- **Heshmat, M.**, Abdelrhman, Y, Ahmed, S, Cavitation erosion resistance of polylactic acid parts fabricated by the fused deposition modeling technique, *Progress in Additive Manufacturing*, submitted on July 2025.

2-**Heshmat, M.**, Abdelrhman, Y, Ahmed, S, The effect of layer thickness of additive manufacturing products on cavitation erosion resistance, *Rapid Prototyping Journal*, submitted on October 2024.

3-Ahmed Nasser, Mahmoud El-Sharief, **Heshmat, M.**, Ergonomic Assessment of Plastic Syringe Manufacturing Processes, *Journal of Engineering Sciences*, submitted on October 2025.

4-Mustafa Elshahid, Abdelrhman, Y, Ahmed, S, **Heshmat, M.**, Ergonomic Assessment of Plastic Syringe Manufacturing Processes, *Journal of Engineering Sciences*, submitted on October 2025.

5-Mark Adel, Elzohry, R, **Heshmat, M.**, Simulation Modeling as a Tool for Automotive Wiring Assembly Optimization: Application on Real Case Studies, *The South African Journal of Industrial Engineering*, submitted on October 2024.

Conference Papers:

1. **Heshmat, M.**, Abdelrhman, Y., & Ahmed, S. M. (2023, October). Investigation of long exposure to accelerated cavitation erosion of polylactic acid parts fabricated by fused deposition modeling. In *2023 5th Novel Intelligent and Leading Emerging Sciences Conference (NILES)* (pp.

146-148). IEEE.

2. Abdelrahman S. Shehata, **Heshmat, M.**, Mahmoud A. El-Sharief, M. G. El-Sebaie, 2019, Identifying Sources of Variations in Cement Bags Company: A Case Study, 2019 IEEE 6th International Conference on Industrial Engineering and Applications, Tokyo, Japan, IEEE.
3. Abdelrahman S. Shehata, **Heshmat, M.**, Mahmoud A. El-Sharief, M. G. El-Sebaie, 2019, Using Fuzzy Logic and Discrete Event Simulation to Enhance Production Lines Performance: Case Study, 2019 IEEE 6th International Conference on Industrial Engineering and Applications, Tokyo, Japan, IEEE.
4. Abdelrahman S. Shehata, **Heshmat, M.**, Mahmoud A. El-Sharief, M. G. El-Sebaie, 2018, Implementation of Statistical Process Control Techniques to Reduce the Defective Ratio: A Case Study, 3rd North American Conference on Industrial Engineering and Operations Management, Washington DC, USA.
5. **Heshmat, M.**, 2018, A Framework about Using Internet of Things for Smart Cancer Treatment Process, 3rd North American Conference on Industrial Engineering and Operations Management, Washington DC, USA, 2018.
6. **Heshmat, M.**, Nakata, K. and Eltawil, A., 2017, April. Modified formulation for the appointment scheduling problem of outpatient chemotherapy departments, 2017 4th International Conference in Industrial Engineering and Applications (ICIEA), Nagoya, Japan (pp. 192-196), IEEE.
7. **Heshmat, M.** and Eltawil, A., 2017, April. A New Approach to Solve Operations Planning Problems of the Outpatient Chemotherapy Process, 4th International Conference on Control, Decision, and Information Technologies, Barcelona, Spain.
8. **Heshmat, M.**, Mostafa, N. and Park, J., 2017, January. Towards Patient-oriented Design: A Case of the Egyptian Private Outpatient Clinics, In Proceedings of the 50th Hawaii International Conference on System Sciences, Hawaii, USA.
9. **Heshmat, M.** and Eltawil, A., 2016, May. A System Dynamics Model for Chemotherapy. In Proceedings of the 10th International Conference on Informatics and Systems (pp. 7-13). ACM.
10. **Heshmat, M.** Yahia, Z. and Eltawil, A. 2016, May "An Ontological-based Conceptual Model for Chemotherapy", 1st International Symposium of Industrial Systems and Operations Management, Cairo, Egypt.
11. **Heshmat, M.** and Eltawil, A., 2016, March. An Integrated Model for Chemotherapy Planning. In International Conference on Industrial Engineering and Operations Management Kuala Lumpur, Malaysia.
12. **Heshmat, M.** and Eltawil, A., 2016, January. Comparative Study between Outpatient Appointment Scheduling and Chemotherapy Outpatient Appointment Scheduling. In International Conference of Engineering Sciences and Applications, Jan. 2016.
13. **Heshmat, M.** and Eltawil, A., 2015, December. Solution methods for the planning and scheduling problems of outpatient chemotherapy units. In Industrial Engineering and Engineering Management (IEEM), 2015 IEEE International Conference on (pp. 1318-1322). IEEE.

REFERENCES

Available upon request

[My YouTube Channel](#)