

## **HOSSAM M. ELDESSOUKY, PH.D.**

Assistant Professor

Department of Industrial and Management Engineering,  
College of Engineering and Technology,  
Arab Academy for Science, Technology and Maritime Transport,  
P.O. Box 1029, AbuQir Campus,  
Alexandria, Egypt.

### **PERSONAL DETAILS**

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### **PROFESSIONAL SUMMARY**

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Hossam Eldessouky is an assistant professor of manufacturing engineering at the department of Industrial and Management Engineering (IME) at the Arab Academy for Science, Technology, and Maritime Transport (AASTMT), which is accredited by the Engineering Accreditation Commission of ABET since 2010. The department offers B.Sc., M.Sc., and Ph.D. degrees in Industrial and Management Engineering providing a wide range of courses relevant to materials, manufacturing, design, and automation as well as quality and production systems engineering. Since graduation in 2006, Dr Eldessouky has been responsible for developing, designing, and delivering demonstrations and lectures for students in the relevant various subject areas. He has ever since developed extensive experiences in teaching and research within the academic and professional field of manufacturing and industrial engineering.

Dr Eldessouky has received his Ph.D. in mechanical engineering from university of Bath, Bath, UK in 2018. His research work included a method for compensating the machining errors in order to machine parts right-first-time providing advantages over traditional methods. The major contribution of this method is the implementation of an online error compensation in the machining of multi-feature products. The research work included a computational model which can be considered to be an important approach for industry to improve the machining and measuring accuracy for high-cost parts. Dr Eldessouky has gained extensive experience throughout the research in various advanced machining and manufacturing technologies e.g., CNC, CMM and 3D printers.

His research interests lie in manufacturing Engineering and Industrial Design towards the integration of industry 4.0. In addition, he has growing interests in additive manufacturing, hybrid manufacturing and their modern applications in aerospace and medical engineering. He has supervised undergraduate projects in advanced manufacturing engineering and relevant project areas to completion, as well as delivering postgraduate M.Sc. research courses. He has been directly involved in all processes required for accreditation by ISO, ABET, IET, National Authority for Quality Assurance and Accreditation in Egypt.

## EDUCATION

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**Ph.D.** Mechanical Engineering, June 2018. Department of Mechanical Engineering, University of Bath, Bath, UK.

**M.Sc.** Industrial and Management Engineering, September 2010. Department of Industrial and Management Engineering, Faculty of Engineering, Arab Academy for Science and Technology and Maritime Transport, Alexandria, Egypt.

**B.Sc.** Industrial and Management Engineering, June 2006. Department of Industrial and Management Engineering, Faculty of Engineering, Arab Academy for Science and Technology and Maritime Transport, Alexandria, Egypt.

## ACADEMIC EXPERIENCE

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2021 – NOW	Arab Academy for Science, Technology and Maritime Transport, Sharjah Branch, UAE.  <b>Assistant Professor.</b>
2018 – 2021	Department of Industrial and Mgmt. Eng., College of Eng. and Tech. Arab Academy for Science, Technology and Maritime Transport, Egypt. <b>Assistant Professor.</b>
2011 – 2018	Department of Industrial and Mgmt. Eng., College of Eng. and Tech. Arab Academy for Science, Technology and Maritime Transport. <b>Demonstrator/Assistant Lecturer</b> Department of Mechanical Engineering, University of Bath, Bath, UK. <b>Ph.D. research student.</b>
2006 – 2010	Department of Industrial and Mgmt. Eng., College of Eng. and Tech. Arab Academy for Science, Technology and Maritime Transport. <b>Teaching Assistant</b> <b>M.Sc. research student</b>

## RESEARCH/TEACHING AREAS OF SPECIALTY

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### Research Interests

- Role of additive manufacturing technologies in modern medical and aerospace applications.
- Integration of precise and smart machining in the future of Industry 4.0.
- Reverse engineering and its impact on the economy of developing countries.

### Teaching Interests:

- Advanced Manufacturing Systems.
- Mechanical computer aided engineering.
- Engineering metrology and measurements.
- Design analysis towards the technology of industry 4.0.

### Relevant Skills

- Proficient in CNC machining and additive manufacturing.
- Precise machining.
- Working with various CAD/CAM Software (NX, Fusion 360, AutoCAD, Solidworks).
- Working with Co-ordinate Measuring Machines (CMM).

- Working with Laser Engraving Machines.
- Working with 3D printers.
- Working with Flexible Manufacturing Systems (FMS).
- Simulation and optimisation of complex manufacturing systems using Arena , ExtendSim and Design expert software.
- Primavera Software for project management
- Background in Finite Element Analysis (FEA) software ( e.g. Matlab , Autodesk simulation)

## **TEACHING EXPERIENCE**

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Dr Eldessouky has over 15 years of extensive experience in teaching different industrial and manufacturing engineering courses. The courses vary from introductory level courses to more advanced ones. In addition, he was also responsible for the development and preparation of a variety of courses including laboratory experiments and exercises as well as checking and assessing students work.

### **Undergraduate Taught Courses**

- Reverse Engineering
- Manufacturing Technology
- Material Removal Processes
- Engineering Economy
- Engineering Metrology
- Advanced Manufacturing Systems
- Quality Engineering
- Quality Assurance Systems
- Automated Industrial Systems
- Maintenance Management
- Operation Research
- Polymers, Ceramics & Composite Materials
- Product Design
- Work Design and Measurements
- Material Science
- Machine Design
- Mechanics of Materials

### **Postgraduate Taught Courses**

- Advanced Operations Research

### **Taught Courses in funded projects**

Dr Eldessouky has been responsible for the preparation and delivery of manufacturing related course material to students from backgrounds other than engineering enrolled in the BEMT- Co-funded by the Erasmus+ Program of the European Union.

- Basics of manufacturing.
- Advanced manufacturing systems.

## **SUPERVISION OF UNDERGRADUATE AND POSTGRADUATE STUDENTS**

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### **Undergraduate Projects Supervision**

- Formula Society of Automotive Engineers, Italy, 2019.
- Tooth Paste Automated Production line.

- Improving steel bar production line in Ezz-Dekhela company.
- Designing and development of a Self-Intramuscular Prototype Injection Device intended for medical purposes.
- Optimisation of the applied stress in various metal/polymer structures using DoE and FEA.
- Productivity and quality improvement using six sigma approach in a fish industry application.
- Design and development of a 3D printer with tilting table.

#### **Postgraduate Projects Supervision**

- Friction Stir Welding.
- Assistance in the design and development of a polymeric wafer chip using CNC machining.
- Assisting M.Sc research students in several projects working on the design of various mechanical products.

### **WORKSHOPS AND TRAININGS**

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#### **Attended Workshops and Seminars**

2021	3D printing online course by Gen3D company by university of Bath.
2021	Course design and improvement workshop, that helps in building the skills needed to plan and successfully implement educational outcomes assessment processes.
2021	Course on the ethics of scientific research.
2019	3D printing seminar by Creat3D company at Northumbria university, Newcastle, UK.
2019	Advanced communication skills workshop.
2016	Siemens NX manufacturing software workshop for advanced users.
2007	Educational preparation course for teaching assistants and lecturers.

#### **Trainings and Non-Academic Experience**

2010- Now	Vice Manager at El-Nada Plast for Plastics Recycling, Pipes, and Film (Main responsibility: Production and manufacturing consultant engineer).
2006 - 2010	Maintenance Management and Production Planning at El-Nada Plast for Plastics Recycling, Pipes, and Film.
2005	Training at Shouman Company for Plastics Processing.
2005	Training at Egyptian Swedish Welding Electrodes Company – ESWECO.
2002	Training at Alexandria Petroleum Company (A.P.C).

### **INDUSTRIAL VISITS**

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| ▪ Mercedes Benz Egypt.                     | ▪ Sakr Group for food industry Egypt. |
| ▪ BMW Egypt.                               | ▪ Jaguar UK.                          |
| ▪ Land Mark Co. for car spare parts Egypt. | ▪ Various plastic industries.         |
| ▪ Unilever Egypt.                          | ▪ Summer-moon Fish industry, Egypt.   |

## **PROFESSIONAL ORGANISATIONS MEMBERSHIP**

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- Reviewer for the International Journal of Computer Integrated Manufacturing (IJCIM).
- Senior Member of the Institute of Industrial and System Engineers (IISE).
- Ex-member of the Institute of Mechanical Engineers (IMechE).
- Member of Egyptian Syndicate of Engineers.
- Alexandria Rotaract Club Secretary (Ex-member).

## **AWARDS AND SCHOLARSHIPS**

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- A fully funded Ph.D scholarship at the university of Bath, received by the AASTMT.
- A fully funded Master of Science scholarship by the AASTMT.
- Academic Excellence Award, 2009.
- A fully funded bachelor's degree scholarship by the AASTMT to study at the IME department throughout the 5 semesters.
- Shield of Honor 2006, 2010, 2018 and 2019.

## **WORK EXPERIENCE AND SERVICE ACTIVITIES**

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- Delivering academic courses since 2006 to students with different nationalities.
- Developing, designing, and coordinating various course materials for undergraduate students.
- Developing course material for the Offshore Petroleum Industry Training Organisation (OPITO) training courses.
- Supervising AAST Formula Student team and responsible for the coordination and management of their international trips.
- Supervising several final year students' graduation projects.
- Assisting postgraduate research students in manufacturing related projects.
- Cooperation with industry and seeking opportunities of projects, research, and training for the department students.
- Responsible for labs development and plans upgrading.
- Responsible for managing risk assessment and safe practice within the experimentation laboratories.
- Team member of various committees within the department:
  - Academic Advising.
  - Timetabling and Scheduling of Classes and Final Exams.
  - Quality Assurance and Accreditation.
  - Examinations and progress assessment.
  - Final Year Projects and Practical Training.
  - PGR programs committee.
  - Students Activities.
- Planning and preparing academic events such as the AASTMT engineering day celebration.
- Organizing students' field trips and visits to prominent industries and manufacturing facilities.
- Open lines of communication with all students through email and social networks.
- Involved in the development and planning of research degree programs viz: Master of Engineering program and the Ph.D of industrial engineering.

## **FUNDED PROJECTS AND COLLABORATIONS**

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- Successful application for funding under the Erasmus International Credit Mobility programme for staff mobility.
- Application for an internal fund intended for research purposes in the field of medical engineering collaborating with Alexandria faculty of medicine. (Currently under reviewing)
- Application of patency for a newly invented Intra-Muscular Self-Injection device. (Currently under review by the Egyptian patent office)
- A team member in a collaborative project with international universities (University of Birmingham, UK - Canterbury Christ Church University , UK - Al Imam Mohammad Ibn Saud Islamic University, Riyadh, Saudi Arabia – Arab Academy for Science and Technology, Egypt)

## **PUBLICATIONS AND PRESENTATIONS**

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- Yan, Z., Hassanin, H., El-Sayed, M.A., Eldessouky, H.M., Djuansjah, J.R.P., A Alsaleh, N., Essa, K. and Ahmadein, M.A., 2021. Multistage tool path optimisation of single-point incremental forming process. *Materials*, 14(22), p.6794.
- Shyha Islam, Dehong Huo, Peyman Hesamikoji, Hossam Eldessouky, and Mahmoud Ahmed El-Sayed. "Performance of a new hybrid cutting-abrasive tool for the machining of fibre reinforced polymer composites." *The International Journal of Advanced Manufacturing Technology* (2020): 1-13.
- El-Dessouky, H. M., Flynn, J. M., Newman, S. T., " On-line Machining Error Compensation For Right-First-Time Manufacture", 29th International Conference of Flexible Automation Integrated FAIM - Limerick, Ireland, 2019.
- El-Dessouky, H. M., Nassehi, A., Newman, S. T., "Closed Loop CNC Machining and Inspection of Interlinked Manufacturing Features for "Right-First-Time" Production", 25th International Conference of Flexible Automation Integrated FAIM - Wolverhampton, UK United Kingdom, 2015.
- El-Dessouky, H. M., El-Kilany, K. S., Rashed, O. A. "Structured Analysis Methodology for Reverse Engineering of Spare Parts" 9th International Conference on Production Engineering Design And Control (PEDAC), Egypt, 2009.

## **REFERENCES**

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All references are available upon request.