AHMED RAMADAN SHAABAN ESSA

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EDUCATION

2015 Ph.D Degree of Mechanical Production,

Suez University, Egypt
Thesis Title: Tool Pin Eccentricity Effects in Friction Stir Welding

2012 M.Sc Degree of Mechanical Production,

Suez Canal University, Egypt
Thesis Title: Study of Some Technological Parameters of Friction Stir Welding for Some Aluminum Alloys

2004 B.Sc Degree of Mechanical Production,

Suez Canal University, Egypt
Grade: Very good with honor degree.
Graduation project: Design and Manufacturing
Hydraulic press, "Excellent".

EXPERIENCE

2022 – Present, Associate Professor, King Salman International University (KSIU).

- Deliver undergraduate courses (taught a total of 8 undergraduate courses, mainly focused on mechanical production courses).
- Supervise and mentor undergraduate students in course projects, providing academic guidance and career advice.
- Conduct original research in mechanical engineering, leading to 4 of peer-reviewed publications in high-impact journals.
- Serve on departmental committees (curriculum development, faculty search, student affairs) to contribute to academic program development and institutional governance.
- Collaborate with colleagues in interdisciplinary research initiatives.
- Develop and implement new course curricula based on emerging trends in the field, ensuring courses reflect current research and industry standards.
- Provide academic advising and career counseling to undergraduate and graduate students, fostering their professional growth and development.
- Employer Relations and Recruitment Officer, University Center for Career Development (UCCD), KSIU.

2021 – 2022, Associate Professor, Egyptian Academy for Engineering & Advanced Technology,

- Taught undergraduate courses in mechanical engineering, achieving high ratings for teaching effectiveness as measured by student evaluations.
- Conducted independent research in mechanical engineering, resulting in 2 publications.
- Mentored undergraduate students in research projects, fostering a collaborative and supportive learning environment.
- Contributed to departmental initiatives, including curriculum revisions.

2019 – 2021, Assistant Professor, Egyptian Academy for Engineering & Advanced Technology,

- Taught undergraduate courses in mechanical engineering, achieving high ratings for teaching effectiveness as measured by student evaluations.
- Conducted independent research in mechanical engineering, resulting in 3 publications.
- Mentored undergraduate students in research projects, fostering a collaborative and supportive learning environment.
- Contributed to departmental initiatives, including curriculum revisions.

2015 – 2019, Assistant Professor, Suez University.

- Taught a total of 10 undergraduate and 4 postgraduate courses, mainly focused on mechanical production courses.
- Developed and implemented new course curricula based on emerging trends in the field, ensuring courses reflect current research and industry standards.
- Supervised 10 MSc and 2 PhD theses.

2012 – 2015, Assistant Lecturer, Suez University.

- Assisted the course instructor in delivering lectures, managing course materials, and conducting classroom activities.
- Graded assignments, quizzes, and exams, providing constructive feedback to help students improve their understanding of course material.
- Provided individual academic support to students during office hours.
- Conducted small group discussions and workshops to reinforce key concepts and facilitate student understanding.

2005 – 2012, Teaching Assistant, Suez Canal University.

- Provided individual academic support to students during office hours.
- Conducted small group discussions and workshops to reinforce key concepts and facilitate student understanding.
- Guided students through practice problems step-by-step.

TEACHING EXPERIENCE

- Associate Professor from Sep 2022 to Present, Faculty of Engineering, King Salman International University (KSIU). Deliver undergraduate courses (taught a total of 8 undergraduate courses, mainly focused on mechanical production courses, supervise and mentor undergraduate students in course projects, providing academic guidance and career advice, serve on departmental committees (curriculum development, faculty search, student affairs) to contribute to academic program development and institutional governance, Develop and implement new course curricula based on emerging trends in the field, ensuring courses reflect current research and industry standards, Provide academic advising and career counseling to undergraduate and graduate students, fostering their professional growth and development.

- As a permanent faculty member at Suez University (Mechanical Production Department), I had a lot of teaching experience from 2005 to 2012 (as a teaching assistant), from 2012 to 2015 (as an assistant lecturer) and from 2015 (as an assistant professor). The department teaches a variety of courses and topics that enrich my teaching experience and knowledge. In addition, as an assistant professor on leave for the Egyptian Academy of Engineering and Advanced Technology from 2019 to Aug 2022. It has helped me a lot in developing my teaching skills, using modern teaching methods, and teaching across different educational platforms. Also, my teaching experience covers a wide range of student cultures and levels as I have taught part time in some other universities (King Salman International University,

Egyptian-Chinese University, Misr University for Science & Technology, Workers University and Cairo University). In all of these courses, I try to encourage students to participate and relate to the class with real life through examples. I have good relations with the students. I believe that, by the end of each class, if the student is not happy, he/she should be at least satisfied. Based on the Egyptian Academy for Engineering & Advanced Technology, anonymous module assessment, over 70% of my class of 130 students were more than satisfied (as per the Academy official survey). Very recently, the students' evaluation to my teaching at PSU was 4.6 out of 5.0 for the previous semester. The full list of the courses taught is summarized herein:

Faculty of Engineering, King Salman International University **(KSIU)**

Course Name	Rule	No. of times
▪ Mechanical Engineering Drawing	Asso. Prof.	3^+
▪ Stress Analysis	Asso. Prof.	2^+
▪ Machine Construction	Asso. Prof.	3^+
▪ Production Engineering	Asso. Prof.	4^+
▪ Manufacturing Technology	Asso. Prof.	2^+
▪ Mechanics of Machines & Vibrations	Asso. Prof.	2^+

Egyptian Academy for Engineering & Advanced Technology **(EAEAT)**

Course Name	Rule	No. of times
▪ Computer Aided Design (CAD)	Ass. Prof.	2^+
▪ Production Engineering	Ass. Prof.	2^+
▪ Stress Analysis	Ass. Prof.	2^+
▪ Kinematics and dynamics of machines	Ass. Prof.	3^+
▪ Materials properties & testing	Ass. Prof.	1
▪ Advanced Material Engineering	Ass. Prof.	1

Suez University **(SU)**, Faculty of Technology and Edu.

Undergraduate Courses

Course Name	Rule	No. of times
▪ Engineering Drawing	Ass. Prof.	4^+
▪ Mechanical Drawing	Ass. Prof.	4^+
▪ Materials Technology	Ass. Prof.	4^+
▪ Materials properties & testing	Ass. Prof.	4^+
▪ Strength of Materials & Design	Ass. Prof.	4^+
▪ Manufacturing Processes	TA	7^+
▪ Engineering Drawing	TA	7^+
▪ Mechanical Drawing	TA	7^+
▪ Machine Drawing	TA	3^+
▪ Materials properties & testing	TA	3^+
▪ CNC Machines	TA	2^+
▪ Theory of Machines	TA	2^+

Postgraduate Courses

Course Name	Rule	No. of times
▪ Computer Aided Design (CAD)	Ass. Prof.	2^+
▪ Production Planning	Ass. Prof.	2^+
▪ Advanced Welding Processes	Ass. Prof.	2^+
▪ Work Study	Ass. Prof.	1

Suez University **(SU)**, Faculty of Petroleum and Mining Engineering **(FPME)**

Course Name	Rule	No. of times
▪ Engineering Drawing	Ass. Prof.	1
▪ Mechanical Drawing	Ass. Prof.	1
▪ Materials properties & testing	TA	4^{+}
▪ Mechanical Drawing	TA	4^{+}

King Salman International University **(KSIU)**, Faculty of Engineering, (Spring, 2020/2021, Spring 2021/2022)

▪ Production Engineering	Ass. Prof.	2

Egyptian Chinese University **(ECU)**, Faculty of Engineering, (Fall, 2019/2020)

▪ Introduction to Nano-Mechatronics	Ass. Prof.	1

Misr University for Science & Technology **(MUST)**, Faculty of Engineering, (Spring, 2018/2019)

▪ Theory of Machines	Ass. Prof.	1
▪ Tribology	Ass. Prof.	1

Workers University **(WU)**, (From 2016 to 2018)

▪ Industry Technology	Ass. Prof.	2^{+}
▪ Machining Technology	Ass. Prof.	2^{+}

Canal High Institute of Engineering &Technology **(CHIET)**, (Spring, 2015/2016)

▪ Materials Science and Engineering	Ass. Prof.	1
▪ Mechanical Behavior of Materials	Ass. Prof.	1

Faculty of Engineering, Cairo University **(CU)**, (From 2006 to 2010)

▪ Engineering Drawing	TA	3^{+}

- **Graduation Projects**

During my work in Suez University (SU) and Egyptian Academy for Engineering & Advanced Technology (EAEAT), I had the opportunity to supervision of senior projects students throughout their research/ senior projects. The list of projects is as follow:

- KSIU, Electric Vehicle (EV), Industrial Project, 2025.
- KSIU, Leaser cut machine, Project, 2024.
- KSIU, 3D printing machine, Project, 2023.
- EAEAT, Design and manufacture of vertical axis wind turbine, Graduation Project, 2022.
- EAEAT, Solar powered agriculture robot, Graduation Project, 2021.
- EAEAT, Friction stir welding machine, Graduation Project, 2020.
- EAEAT, CNC machine, Graduation Project, 2019.
- SU, Fully automated polishing machine, Graduation Project, 2018.
- WU, 3D printing machine, Graduation Project, 2017.

- SU, Heat treatment furnace, Graduation Project, 2017.
- SU, Tensile testing machine, Graduation Project, 2016.
- SU, Abrasive wear tester machine, Graduation Project, 2015.

PUBLICATIONS

- Ammar S. Easa; Mohamed T. Tolan; Ahmed Ramadan; Aly Soliman, Experimental Investigation of Solar Desalination Unit Performance Using Air-Pressurized Humidifier with Economic Analysis, Applied Water Science, 15, 138, **2025**. https://doi.org/10.1007/s13201-025-02480-8

- ARS Essa, ARK Aboud, Mohamed MZ Ahmed, AE El-Nikhaily, Ammar S Easa, Mohamed IA Habba, Friction stir welding of aluminum alloy 6082-T6 using eccentric shoulder tools to eliminate the need for tool tilting, Scientific Reports, 15, 8801, **2025.** *https://doi.org/10.1038/s41598-025-91065-1*

- ARS Essa, Ramy IA Eldersy, Mohamed MZ Ahmed, Ali Abd El-Aty, Ali Alamry, Bandar Alzahrani, Ahmed E El-Nikhaily, Mohamed IA Habba, Modeling and experimental investigation of the impact of the hemispherical tool on heat generation and tensile properties of dissimilar friction stir welded AA5083 and AA7075, Materials, 17(2), 433, **2024.** *https://doi.org/10.3390/ma17020433*

- ARS Essa, MMZ Ahmed, ARK Aboud, R Alyamani, TA Sebaey, Prediction of Tool Eccentricity Effects on the Mechanical Properties of Friction Stir Welded AA5754-H24 Aluminum Alloy Using ANN Model, Materials, 16(10), 3777, **2023.** *https://doi.org/10.3390/ma16103777*

- Mohamed MZ Ahmed, Ahmed RS Essa, Sabbah Ataya, Mohamed M El-Sayed Seleman, Ali Abd El-Aty, Bandar Alzahrani, Kamel Touileb, Ashraf Bakkar, Joffin J Ponnore, Abdelkarim YA Mohamed, Friction Stir Welding of AA5754-H24: Impact of Tool Pin Eccentricity and Welding Speed on Grain Structure, Crystallographic Texture, and Mechanical Properties, Materials, 16(5), 2031, **2023.** *https://doi.org/10.3390/ma16052031*

- Fadel S. Hamid, Omayma A. Elkady, A.R.S Essa, A. El-Nikhaily, Ayman Elsayed and Walaa Abd-Elaziem, Synthesis and Characterization of Titanium Carbide and/or Alumina Nanoparticle Reinforced Copper Matrix Composites by Spark Plasma Sintering, Journal of Materials Engineering and Performance, **2022.** *https://doi.org/10.1007/s11665-022-06639-1*

- Fadel S. Hamid, Omayma A. Elkady, A.R.S Essa, A. El-Nikhaily, Ayman Elsayed and Ashraf K. Eessaa, Analysis of Microstructure and Mechanical Properties of Bi-Modal Nanoparticle-Reinforced Cu-Matrix, crystals, 11(1081), **2021.** *Doi.org/10.3390/cryst11091081*

- A.R.S Essa, M.M.Z Ahmed, A.Y.A Mohamed, Weld pitch effects on friction stir welding of aluminum alloys, Journal of Petroleum and Mining Engineering, 23(2), **2021.** *Doi: 10.21608/jpme.2021.75378.1081*

- Eman H El-Shenawy, Abdelrahman Younis, A.E EL-Nikhaily, A.R.S Essa, Studying the Effects of Accumulative Roll Bonding Cycles on the Mechanical Properties of AA1050 Aluminum Alloy, Journal of Petroleum and Mining Engineering, 23(1), **2021.** *Doi: 10.21608/JPME.2021.69751.1080*

- Fadel S. Hamid, Omayma A. El-kady, A. EL-Nikhaily, Ayman Elsayed, A.R.S Essa, Synthesis and evaluation of strengthened copper with 3 wt.% TiC and/ or AL2O3 prepared by SPS technique, Composites: Mechanics, Computations, Applications, 12(2), **2021**

- Abdelrahman Younis, Ahmed I Z Farahat, Ahmed Abu-Oqail, A.R.S Essa, A.E EL-Nikhaily and Eman H El-Shenawy, A mathematical modelling of preheated accumulative roll bonded Al-Al_2O_3 composite sheet, Materials Research Express, 7(1), **2020.** *Doi.org/10.1088/2053-1591/ab6a4a*

- Ramy Ahmed, A.R.S Essa, A.E EL-Nikhaily, and Essam Ahmed, Effect of Heat Input and Shielding Gas on the Performance of 316 Stainless Steel Gas Tungsten Arc Welding, Journal of Petroleum and Mining Engineering, 22(1), **2020.** *Doi.10.21608/JPME.2020.23038.1024*

- Essam Ahmed, Ramy Ahmed, A.E EL-Nikhaily and A.R.S Essa, Effect of heat input and filler metals on weld strength of gas tungsten arc welding of AISI 316 weldments, China Welding, 29(1), **2020**

- Medhat Elwan, A Fathy , A Wagih, A.R.S. Essa, A Abu-Oqail and Ahmed E EL-Nikhaily, Fabrication and investigation on the properties of ilmenite (FeTiO3)-based Al composite by accumulative roll bonding, Journal of Composite Materials, 54(10), **2019.** *Doi.org/10.1177/0021998319876684*

- A.M. Sadoun, A. Wagih, A. Fathy, A.R.S. Essa, Effect of tool pin side area ratio on temperature distribution in friction stir welding, Results in Physics, (15), **2019** *Doi.org/10.1016/j.rinp.2019.102814*

- A Abu-Oqail, A Samir, A.R.S Essa, A Wagih, A Fathy, Effect of GNPs coated Ag on microstructure and mechanical properties of Cu-Fe dual-matrix nanocomposite, Journal of Alloys and Compounds,781, **2019** *Doi.org/10.1016/j.jallcom.2018.12.042*

- A.A Farghaly, A.E EL-Nikhaily, A.R.S Essa, Prediction of Tensile Strength of Friction Stir Welded 6061 Al Plates, China Welding, 28(3), **2019**

- A.R.S Essa, M.M.Z Ahmed, A.Y.A Mohamed, A.E. El-Nikhaily, An analytical model of heat generation for eccentric cylindrical pin in friction stir welding, Journal of Materials Research and Technology,5(3), **2016** *doi.org/10.1016/j.jmrt.2015.11.009*

- A.R.S. Essa, M.M.Z. Ahmed, A.Y.A. Mohamed, and A.E. El-Nikhaily, Effect of tool pin eccentricity on mechanical properties and microstructure of friction stir welded 5754 aluminum alloy, Port-Said Engineering Research Journal, 19(1), **2015.** *Doi: 10.21608/PSERJ.2015.36789*

- A.R.S. Essa, M.M.Z. Ahmed, A.Y.A. Mohamed, and A.E. El-Nikhaily, Prediction of tool pin eccentricity effects on the mechanical properties of friction stir welded AA5754-H24 aluminum alloy using artificial neural network, Engineering Research Journal, Faculty of Engineering- Mataria, 146, **2015**

- A.E El-Nikhaily, R.I Elseoudy, A.Y.A Mohamed, A.R.S Essa, Defect-free Friction Stir Welding Joints Using a Simple Tool Design, Port-Said Engineering Research Journal, Port-Said, 16(2), pp.132-136, **2012**

SUPERVISION

Th.1 (MS.c) M.M.A Elkhawildi (Oct, 2016 - May, 2018), Faculty of Engineering, Suez Canal University, Ismailia, Egypt. Thesis title: Study the effect of ball pin in FSW dissimilar material.

Th.2 (MS.c) A.S Abd Elkhalek (Apr, 2017 - Jan, 2020), Faculty of Technology and Education, Suez University, Suez, Egypt. Thesis title: Effects of Nano Graphene Content on the Microstructure and Properties of Copper-Iron-Graphene Composites for Tribological

Th.3 (MS.c) A Younis (Jun, 2017 - Jun, 2019), Faculty of Technology and Education, Suez University, Suez, Egypt. Thesis title: Effect of Al_2O_3 content on the Mechanical Properties of Al-Al_2O_3 Composites by Accumulative Roll Bonding.

Th.4 (MS.c) M Elwan (Dec, 2017 - Feb, 2020), Faculty of Technology and Education, Suez University, Suez, Egypt. Thesis title: Fabrication and Characterization of Aluminum-Black Sand Composite by Accumulative Roll Bonding (ARB).

Th.5 (MS.c) A Alghariеb (Jul, 2018 - Mar, 2020), Faculty of Technology and Education, Suez University, Suez, Egypt. Th. title: Modeling of friction stir welding to predict the mechanical properties.

Th.6 (Ph.D) R Fouad (Aug, 2018 - Aug, 2020), Faculty of Technology and Education, Suez University, Suez, Egypt. Thesis title: Effect of Welding Variables on the Mechanical Properties of Austenitic Stainless Steel Weldments.

Th.7 (Ph.D) F Shaaban (Dec, 2018 – Oct, 2021), Faculty of Technology and Education, Suez University, Suez, Egypt. Thesis title: Fabrication and Characterization of Copper Matrix Composite Reinforced with Titanium Carbide and Alumina.

Th.8 (MS.c) A Roshdey (started on Dec, 2018), Faculty of Technology and Education, Suez University, Suez, Egypt. Thesis title: Effect of eccentric tool shoulder in friction stir welding.

Th.9 (MS.c) A Halhol (started on Mar, 2018), Faculty of Technology and Education, Suez University, Suez, Egypt. Thesis title: Study of Critical Success Factors in ERP Implementation in the Steel Industry.

Th.10 (MS.c) R Ibrahim (started on Nov, 2018), Faculty of Technology and Education, Suez University, Suez, Egypt. Th. title: Temperature Distribution and its Effect in Friction Stir Welding Joint Quality.

Th.11 (MS.c) H Sabar (started on May, 2019), Faculty of Technology and Education, Suez University, Suez, Egypt. Th. title: Effect of Parallel Tubular Channel Angular Pressing on Mechanical Properties of an AL-Alloy.

Th.12 (Ph.D) Fahima Ragab (started on Aug, 2019), Faculty of Technology and Education, Suez University, Suez, Egypt. Thesis title: The Effect of Using CAD Programs on the Performance in Engineering Drawing.

AWARDS

- The International Publication Award, 2018, Suez University, Egypt.

TRAINING AND CONSULTING EXPERIENCE

- Trainer of AutoCAD, Solid works, and 3d max 2006-now
- Trainer of Mechanical testing, 2012-now
- CNC Machine 2010-now
- Maintenance Engineer at Al Gamil Pack Company 2004 -2005
- Implementation of engineering drawing for central and split air conditioning systems at the following companies' sites:
  - The engineering consulting company, petrojet
  - Zohr field
  - Petroleum and Blaim Petrobel Company
  - Water treatment station

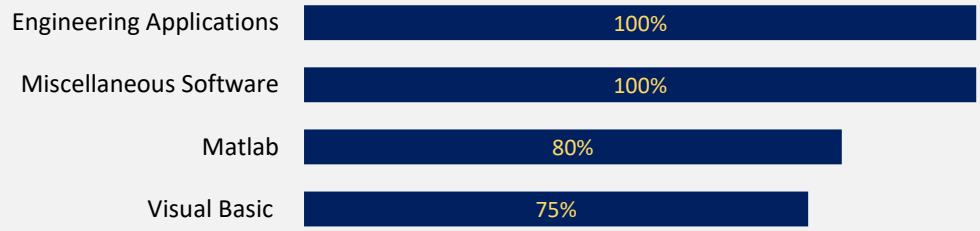
TRAINING COURSES

Course Title	Place	Start	Finish	Hours
▪ ArcGIS Pro: Essential Workflows	KSIU	1/7/2024	3/7/2024	18
▪ Managing Geospatial Data in ArcGIS	KSIU	4/7/2024	4/7/2024	6
▪ Creating and Editing Data in ArcGIS Pro	KSIU	6/7/2024	6/7/2024	6
▪ Creating Maps and Visualizations with ArcGIS Overview	KSIU	7/7/2024	7/7/2024	6
▪ Spatial Analysis with ArcGIS pro	KSIU	8/7/2024	9/7/2024	12
▪ Working with ArcGIS Network Analysis	KSIU	10/7/2024	10/7/2024	6
▪ Imagery Analysis in ArcGIS Pro	KSIU	11/7/2024	11/7/2024	6
▪ Research team management	Suez University	15/7/2021	16/7/2021	12
▪ Make decisions and problem solving	Suez University	13/7/2021	14/7/2021	12
▪ Effective Presentation Skills	Suez University	8/7/2020	12/7/2020	12
▪ Statistical methods in scientific research	Suez University	6/7/2020	7/7/2020	6
▪ Thinking Skills	Suez University	2/7/2020	3/7/2020	12
▪ Creating a good research data management plan	Elsevier Publishing Campus	23/6/2016	23/6/2016	6
▪ Competing for Research Funds	Cairo University	25/11/2015	26/11/2015	12
▪ Exams and Students Evaluation Systems	Cairo University	18/11/2015	19/11/2015	12

▪ The Credit Hours System	Suez Canal University	3/6/2013	5/6/2013	12
▪ Research team management	Suez Canal University	28/5/2013	29/5/2013	12
▪ Information and communication	Suez Canal University	25/6/2013	26/6/2013	12
▪ Advanced operating system	Suez Canal University	12/6/2013	13/6/2013	12
▪ Micro Teaching	Suez Canal University	24/9/2011	26/9/2011	12
▪ Use of Technology in Teaching	Suez Canal University	17/9/2011	20/9/2011	12
▪ Effective Teaching	Suez Canal University	14/9/2011	17/9/2011	12
▪ International Publishing of Scientific Research	Suez Canal University	13/9/2011	14/9/2011	12
▪ Research Ethics	Suez Canal University	19/9/2011	20/9/2011	12
▪ Quality standards in teaching	Suez Canal University	10/9/2011	11/9/2011	12

COMPUTER SKILLS

- Engineering Applications: AutoCAD - Solid Works - Revit: BIM -3Dmax-.
- Miscellaneous Software: Windows -Microsoft office – Internet Utilities.
- Programming skills: Visual Basic - Matlab.



LABORATORY SKILLS

- Mechanical Characterization:
  Universal testing machine (for tensile, compression, shear, bolted joint, crushing and compression after impact tests) and Impact tester (both drop-weight and Charpy).
- Non-Destructive Testing:
  Optical Microscopy, SEM Microscopy, C-Scan and some information about Tomography scan.
- Friction Stir Welding Process:
  Weld joints preparation, Determine the optimum parameters for FSW (Rotation speed, traverse speed, plunge depth and tilt angle). In addition, Evaluation FSW joints quality.

REFERENCES

Prof. M.M.Z. Ahmed, Department of Mechanical Engineering, College of Engineering at Al Kharj, Prince Sattam Bin Abdulaziz University, Al Kharj, 11942, Saudi Arabia.

Prof. A.E El-Nikhaily, Mechanical Department, Faculty of Technology and Edu., Suez University, Egypt.

Prof. A. Fathy, Mechanical Design and Production Engineering Department, Faculty of Engineering, Zagazig University, Egypt.

Hobbies: Reading, Chess & Sport.

I declare the stated to be atrue record of my experience and qualifications up to date Thank you…