MEDHAT EL NAHAS, PhD

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EDUCATION:

University of Houston, Houston, TX
PhD, Mechanical Engineering, 2011
Rice University, Houston, TX
MME, Mechanical Engineering, 2007
Cairo University, Cairo, Egypt
MS, Mechanical Engineering, 1999
Mansoura University, Mansoura, Egypt
BS, Mechanical Engineering, 1990

WORK EXPERIENCE:

- **Professor, Instructional** (September 1, 2022 - Present), *Department of Engineering Technology, University of Houston, Houston, TX*.

Duties: Teaching different courses such as MECT 3331 (Applied Thermodynamics), MECT 3342 (Elements of Plant Design), MECT 3365 (Computer Aided Design I), MECT 6396 (Master Project), and MECT 6323 (Advanced Fluid Mechanics).

- **Industry Liaison, Mechanical Engineering Technology Program** (January 2015 – Present), Department of Engineering Technology, University of Houston, Houston, TX.

Duties: Working with Industry Advisory Board (IAB) members to receive their feedback on MET curriculum, identifying internship and career opportunities for students, and coordinating and managing IAB meetings.

- **Associate Professor, Instructional** (September 1, 2018 – August 31, 2022), Department of Engineering Technology, University of Houston, Houston, TX.

Duties: Teaching different courses such as MECT 3331 (Applied Thermodynamics), MECT 3342 (Elements of Plant Design), MECT 3355 (Strength of Materials), MECT 3365 (Computer Aided Design I), MECT 4275 (Senior Design Project I), MECT 4276 (Senior Design Project II), MECT 4323 (Applications in Stress Analysis), MECT 6396 (Master Project), and MECT 6397 (Advanced Fluid Mechanics).

- **Coordinator, Mechanical Engineering Technology Program** (March 2015 – May 2019), *Department of Engineering Technology, University of Houston, Houston, TX.*

Duties: Leading faculty for curriculum development and ABET accreditation, managing all the program related issues such as course scheduling, handling students' petitions, advising students, managing course assessment and ABET filing, serving in search committee to hire other faculty, recruiting the Industry Advisory Board members, hiring Lecturers and Adjacent faculty….etc.

- **Assistant Professor, Instructional** (September 1, 2013 – August 31, 2018), *Department of Engineering Technology, University of Houston, Houston, TX*.

Duties: Teaching different courses such as MECT 3331 (Applied Thermodynamics), MECT 3342 (Elements of Plant Design), MECT 3355 (Strength of Materials), MECT 3365 (Computer Aided Design I), MECT 4275 (Senior Design Project I), MECT 4276 (Senior

Design Project II), MECT 6322 (Computer Aided Engineering I), MECT 6396 (Master Project), MECT 6397 (Advanced Fluid Mechanics), and MECT 6398 (Independent Study). Developing new courses such as MECT 6397 (Advanced Fluid Mechanics) and MECT 3345 (Fundamentals of Power Generation Technology).

- **Visiting Assistant Professor** (September 1, 2012 – August 31, 2013), *Department of Engineering Technology, University of Houston, Houston, TX.*

Duties: Teaching different courses such as MECT 3331 (Applied Thermodynamics), MECT 3355 (Strength of Materials), MECT 3342 (Elements of Plant Design), and MECT 3365 (Computer Aided Design).

- **Lecturer** (January 2012 – July 2012), *Department of Engineering Technology, University of Houston, Houston, TX.*

Duties: Teaching different courses such as MECT 3355 (Strength of Materials), MECT 3342 (Elements of Plant Design), and MECT 3365 (Computer Aided Design).

- **Teaching Fellow** (January 2007 – January 2012), *Department of Engineering Technology, University of Houston, Houston, TX.*

Duties: Teaching different courses such as MECT 3355 (Strength of Materials), MECT 3342 (Elements of Plant Design), and MECT 3365 (Computer Aided Design).

- **Production Engineer** (September 2006 - November 2006), *Navray Engineering, Houston, TX.*

Duties: Conducting stress, strain, and deformation analyses on some subsea mechanical components such as production units and metal rings using SolidWorks, Abaqus, and Ansys.

- **Associate Researcher** (July 1999 - November 2002), *Informatics Research Institute, City of Scientific Research and Technology Applications, Alexandria, Egypt.*

Duties: Conducting research on flow simulation past complex geometries using finite difference method.

- **Research Assistant** (August 1994 - July 1999), *Solar Energy Department, National Research Center, Cairo, Egypt.*

Duties: Designing and numerically studying the optical and thermal analysis of focusing solar collectors such as the parabolic trough solar concentrators.

- **Visiting Researcher** (February 1993 - August 1994), *National Research Council (ITAE-CNR), Messina, Italy.*

Duties: Designing and carrying out the performance of a small scale chemical plant used to convert different types of biomass into synthetic gas rich in hydrogen content via a biomass gasification process.

- **Research Assistant** (April 1992 - February 1993), *Solar Energy Department, National Research Center, Cairo, Egypt.*

Duties: Designing and carrying out the thermal analysis of non-focusing solar applications such as the solar cookers and the solar water heaters.

- **Maintenance Engineer** (January 1991 - April 1992), *the Egyptian Army.*

Duties: Maintenance and inspection of diesel engines.

SERVICE:

- **University of Houston Senator**, elected for 2 terms, 2017 - Present.
- **University of Houston Undergradaute Committee**, elected for 2 term, 2017 - Present.
- **University of Houston Scholarship and Financial Aid Advisory Committee**, Appointed for two-year term 2017-2019.
- **College of Technology**, Member - Undergraduate Committee.
- **College of Technology,** Member in four (4) New Faculty Search Committees, ET & ILT Departments.
- **Mechanical Engineering Technology,** Undergraduate Program Coordinator.
- **Mechanical Engineering Technology Program,** Lead Faculty, ABET Self-study report, and ABET course assessment and filing since spring 2015.
- **Mechanical Engineering Technology,** Co-Chair, the Industry Advisory Board (IAB).
- **College of Engineering - Civil Engineering Department,** Examiner/Member in three (3) PhD dissertation defense committees.

Invited Speaker / Panelist:

- **Speaker:** Ross Shaw Sterling Aviation Early College High School, Introduce Me To STEM Programs at UH, January 27th, 2022 – Houston, TX.
- **Speaker:** Foster High School, Workforce Industry Training (WIT) Induction Night – High School students and STEM Programs, October 14th, 2021 – Richmond, TX.
- **Speaker:** Wharton County Junior College (WCJC) STEM Club, Introduce Me to Engineering Education, November 16th, 2018 – Sugar land, TX.
- **Speaker:** Houston Professional Petroleum Data Expo. Topic: Mechanical Engineering Technology – Vision & Student Success, Houston TX, April 17 -18, 2018.
- **Panelist:** The 2017 Houston Data Management Symposium and Tradeshow, February 28th – March 1st, 2017.
- **Speaker:** The 2017 Process Safety in Oil and Gas Conference, Houston TX, March 7th – 8th, 2017.
- **Speaker:** Bray International, Inc. Topic: MET & Collaboration with Industry: A Win-Win Partnership – May 2017.
- **Speaker:** Fluor Corp., Topic: MET Graduate Program & Support to Greater Houston Industry – June 2017.
- **Speaker:** Representing UH & UHSL, meeting with a major manufacturing company "Airport Equipment Manufacturer" Shenzhen, China about the capacity of the COT & MET to establish collaboration with industry.

SKILLS:

- **Programming Languages**: FORTRAN and MATLAB.
- **Microsoft Office**: MS Word, Excel, and PowerPoint.

- **Operating Systems**: Windows and Unix / Linux.
- **Design**: SolidWorks, Creo, and ABAQUS.
- **Simulation**: CFD, STAR-CCM+, and ANSYS.
- **Visualization**: Ensight, Avizo, and Tecplot.
- **Multilingual**: Arabic, English, Italian, and Spanish.

PROJECTS:

- Principal Investigator (PI) of an undergraduate project sponsored by NASA space center to design and manufacure a vaccume chmaber that could reach the needed conditions – heating and cooling elements to achieve a 500-degree temperature span and simulating pressures ranging from those of low-earth orbit to conditions in deep space (E-5 Torr).
- Principal Investigator (PI) of undergraduate project sponsored by Remington Arms company, LLC to design a portable, lightweight, rapidly deployable, precision shooting platforms.
- Principal Investigator (PI) of an undergraduate project sponsored by Inperto Energy to design and develop a measurement-while-drilling tool testing apparatus.
- Principal Investigator (PI) of an undergraduate project sponsored by 3D Print Texas to design and fabricate a 3D-printed, adjustable, costly effective prosthetic leg for young children (8-12 years old).
- Principal Investigator (PI) of ungraduate project sponsored by BOP Technologies to design and analyze the locking and unlocking systems of a BOP prototype.
- Principal Investigator (PI) of an undergraduate project sponsored by the University of Houston – Central Plant to design and fabricate an Archimedes spiral wind turbine system to utilize the plant cooling towers wind and convert it into electricity.
- Principal Investigator (PI) of ungraduate project sponsored by National Oil Varco (NOV) to design a BOP prototype as a subsea structure.
- Principal Investigator (PI) of undergraduate project sponsored by Oil States Industries to design a removable pressure test cap that allows the pipe to be pressure tested to 7500 psi at a 4 hr hold time.
- Principal Investigator (PI) of undergraduate project sponsored by Samoco Oil Tools to design and validate a flow loop system to perform tests on float collars.
- Principal Investigator (PI) of a dergradaute project sponsored by Fluid Imaging Technologies Incorporation to staudy the analysis and the characterizations of drilling fluids.
- CO-PI and Faculty Mentor, The SETS scholarships sponsored /funded by NSF, ET Department, College of Technology, University of Houston.

TRAINING:

- Workshop, “MET Curricular Analytics”, Gardner Institute, November 17, 2021 to February 11, 2022.
- Boot Camp, “Advisor Boot Camp Hosted by the Center for Student Involvement RSO – UH”, January 12, 2022.

- Workshop, "How to navigate life in academia?", American Society of Mechanical Engineers (ASME), ME Department Heads/Chairs' Executive Committee (MEDHEC), April 7, 2021.
- Webinar, "You Belong, and You Are Not Special; Underrepresented in the STEM Pipeline", Engineering Technology Leaders Institute (ETLI), February 15, 2021.
- Webinar, "Inclusive Pedagogy", Tools that educators in Mechanical Engineering can use, in their courses, that will embrace and support diversity in the classroom, ASME, January 11, 2022.
- Seminar, "Contradictory Contexts: The Paradoxes of Belonging, Otherness, and Identity in Academia", College of Technology, January 15, 2021.
- UH Student Success Collaborative Training – Taught by Teri Longacre on March 1, 2016.
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- UH Student Success Collaborative Training – Taught by Teri Longacre on March 1, 2016.
- COT Team Building Workshop – Taught by Idahlynn Karre on August 8, 2016.
- COT PIVOT faculty training – Taught by Dr. Courtney Hunt from UH DOR on October 25, 2016.
- ABET International Symposium held in Atlanta, GA from April 23 -24, 2015.
- Earned 7 Professional Development Hours for participation in the ABET Self-Study Report Workshop held April 22, 2015.
- Certificate from CD-ADAPCO on 3-Day STAR-CCM+ Training in February 2015.

PUBLICATIONS:

- Kamran Alba, Burak Basaran, **Medhat El Nahas**, Zheng Fan, Francisco Robles, Huda Sarraj, and Augustina Reyes, and Weihang Zhu, 2022, First Year Experience from RET Site: High School Teacher Experience in Engineering Design and Manufacturing (Accepted), the ASEE Annual Conference and Exposition, Minneapolis, Minnesota.
- Samia Afrin, Nazmul Hossain, **Medhat El Nahas**, and Vinod Kumar, 2022. Design Improvement and Performance Analysis of Parabolic Trough Solar Receivers (Submitted). ASME International Mechanical Engineering Congress and Expo, Columbus, Ohio.
- **Medhat El Nahas**, Michael Retherford, and Ayman Ahmed, "*3D Finite Element Model of a Premolar Restored with a Fiber Post", under preparation.*
- **Medhat El Nahas** and Charles Dalton, "Three-dimensional numerical simulation of an inline wave with current past a vertical circular cylinder". Under preparation.
- **Medhat El Nahas**, "*Three-dimensional Numerical Simulation for Combined Wavy and Steady Flows past a Vertical Circular Cylinder*", Ph.D. Dissertation, the Department of Mechanical Engineering, University of Houston, 2011.

- **Medhat El Nahas**, "*Optical and Thermal Analysis for Parabolic Trough Solar Concentrators with a Finned Tube Absorber*", M.S. Thesis, the Department of Mechanical Engineering, Cairo University, 1999.
- **Medhat El Nahas** and Vincenzo Recupero, "*Energy from Biomass*" Journal of the Egyptian Society of Mechanical Engineers (ESME), Cairo, Egypt, Sept. 1996.
- **Medhat El Nahas** and Vincenzo Recupero, "*Development of Biomass Gasification Processes for Different Applications*", Report no. 11/94, CNR-TAE, Messina, Italy, 1994.

AWARDS:

- Outstanding Faculty Advisor Award – COT Student Organizations, College of Technology - University of Houston, April 2022.
- **Teaching Excellence Award**, College of Technology - University of Houston, April 2014.
- **The Egyptian Minsitry of Higher Education Award,** Egypt, Nov. 2002.
- **Young Research Award**, National Research Council (CNR - ITAE), Italy, Feb. 1993