

## CENTER OF EXCELLENCE FOR ENERGY (COE)



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### FIELDS OF SPECIALIZATION:

- Renewable Energy (Solar PV, Solar CSP, and Wind Energy)
- Power Engineering
- Mechanical Power Engineering • Thermodynamic & Heat transfer.
- Refrigeration & Air Conditioning
- Fluid and gas dynamics
- Turbomachines
- Power stations
- Project Management
- Engineering Economics
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### DEGREES:

- Professor Degree: The Supreme Egyptian council of universities; 1993.
- Ph. D.: Thermal Sciences, Brno University, 1975.
- M. Sc.: Mechanical Engineering, MTC, Egypt, 1972.
- B. Sc. Mechanical Engineering: MTC., 1966.

#### ACADEMIC AND INDUSTRIAL POSITIONS:

##### 1. From 4/10/1968 to 1/1.1972, Assistant Lecturer in MTC. Responsibilities:

- a. Teaching undergraduate and postgraduate courses inside and outside my college.
- b. Supporting civil industries in Helwan (Industrial zone near to Cairo), as designers of mechanical equipment.
- c. Participation in several research projects such as improving the efficiency of the steam power plants and finding suitable fuel blends for modified designs of furnaces.
- d. Energy Conservation and management in buildings of the faculty and selected buildings and Utilization of renewable resources.

##### 2. From 1/1/1972 to 15/4/1975, Applicant for Ph. degree in the Brno University.

###### Responsibilities:

- a. Following the instructions of the supervisor and joining the research team in fulfilling the experimental task and following the results.
- b. Publishing scientific papers that show my contributions in the pints of my research.

##### 3. From 1L/6/1975 to 1/10/1991, Head of Department of power stations, MTC, Cairo, Egypt.

###### Responsibilities:

###### a. Faculty Quality:

- i. Participating in the recruitment, employment, and orientation of new faculty; including demonstrating a commitment to the affirmative action goals of the university.
- ii. Encouraging and facilitating professional development through activities such as suggesting funding sources, discussing research ideas, and urging attendance at professional meetings and workshops.
- iii. Providing appropriate opportunities for faculty to participate in department affairs.
- iv. valuating faculty on a regular and continuing basis in the areas of teaching, research and service with appropriate recommendations for improvement, particularly for untenured faculty.

- v. Creating a forum through which faculty can express ideas freely, thus promoting productive discussions among the departmental faculty members.
- vi. f. Making informed documented recommendations concerning faculty retention, promotion, tenure and annual salary increments, the outcomes of which will be intended to serve the best interest of the department as a whole.
- vii. g. Encouraging university and community service activities appropriate for faculty participation.

#### **B. Communication and Representing the Department within the Faculty**

- i. Providing a communication link between and among the faculty and the other levels of administration.
- ii. Communicating accurately university and college policy and reasons for policy to the department faculty.
- iii. Acting as an intermediary between faculty and administration.
- iv. Being the spokesperson for and yet the strongest critic of the faculty and the department.
- v. Representing the department both within the university's administrative and governance structures and externally with professional and community groups.
- vi. Maintaining personal professional competence to set a good example for faculty in teaching and research.
- vii. Initiating operational policies within the department for discussion, approval, and implementation.
- viii. Enforcing faculty responsibilities while at the same time protecting faculty rights and privileges.
- ix. Establishing effective working relationships with the nonacademic portions of the university in order to facilitate departmental operations and to promote university-wide policies and practices within the department.

#### **C. Instructional Programs**

- i. Articulating program-related goals.
- ii. Providing leadership for the faculty in developing strong and attractive curricula.
- iii. Providing leadership for the faculty in developing methods for assessing the effectiveness of instructional programs.

- iv. d. Providing leadership for the faculty in providing programs that are pedagogically sound and that use available resources maximally.
- v. e. Encouraging cooperation with other departments, colleges, or institutions whenever this is appropriate.
- vi. f. Encouraging consideration of new program ideas when appropriate. vii. g. Managing teaching loads in a fair, flexible, and productive manner.

**D. Student Affairs**

- i. Insuring that student activities and student organizations receive adequate supervision.
- ii. Dealing with student problems that are not the appropriate concerns of the faculty.
- iii. Arranging with faculty for academic counseling. iv. Disseminating information of interest to students. v. Responding to student grievances and requests.
- vi. Recruiting good undergraduate and graduate students. vii.

**Administrative Leadership**

- viii. A successful head must be able to handle the administrative details which make the office function efficiently, professionally, and effectively.

**E. Budgetary**

- i. Coordinating the preparation of the department budget.
- ii. b. Administering the department budget.
- iii. c. Adhering to the budget management procedures established by the Business Office. iv. d. Allocating funds in a manner consistent with the goals of the department.

**F. Programmatic**

- i. Coordinating the development of long-term planning for the department.
- ii. Preparing teaching schedules and assignments. iii. Maintaining faculty files. iv. Approving students' degree programs.
- v. Coordinating the use of instructional facilities. vi. Generating proposals for funds to support the academic programs.

## G. Office Organization

- i. Coordinating support staff activities.
- ii. Arranging for and assigning departmental space, facilities, and equipment.
- iii. Coordinating the reports that go to other offices and service areas.
- iv. Implementing administrative policies.
- v. Managing clerical support.
- vi. Maintaining an efficient system of records.

## 4. From 1982 to 1984: Visiting Professor in Lehigh University, PA 18015-3085 USA

### a. Responsibilities:

- i. Cooperation with Prof. John C. Chen, Head of Department of Chemical Engineering in Designing and Installation of a model of nuclear reactor with a bundle of electric eaters.
- ii. Cooperation with turbulent flow design group in programming a software package in computational fluid flow by adding subroutines for combustion of reacting agents.

## 5. From 1/10/1991 to 1/10/1993 Consultant Engineer as a Private Job of responsibilities: A.

Rehabilitation works of Ahmed-Hamdy Tunnel in Suez Canal:

- i. Discussing with the Suez Canal authority their technical and engineering needs
- ii. Provisioning the adapted solutions by the assigned Japanese contractors and the old contractors.
- iii. Conducting site visits and researching the fulfilled tasks.
- iv. Project managing and implementation of the technical solutions.
- v. Evaluation the Functionality of the redesigned solutions.
- vi. Conducting follow-up services.

## B. Design and Installation of Domestic Water Heating System by Solar Energy for a Compound of 24 multistorey buildings in Cairo

- i. Discussing with the authority of the Ministry of buildings their technical and engineering needs and the available budget of the required solar water heating system and the methods of funding the project.
- ii. Providing designs of the suitable capacity and quality of the required equipment of a suitable quality and sustainability of the solar system.
- iii. Selection of the contractors and suppliers of the tasks and negotiations of the values of the required tasks and equipment,
- iv. Project managing and implementation of the technical solutions.
- v. Evaluation the Functionality of the redesigned solutions.

vi. Conducting follow-up services.

C. Airconditioning of Sport's Closed-Halls and Hotels in Egypt:

- i. Discussing with the authority of the Youth Ministry their technical and engineering needs and the available budget of the required A/C systems.
- ii. Providing designs of the suitable capacity and quality of the required equipment of a suitable quality and sustainability of the A/C system.
- iii. Selection of the contractors and suppliers of the tasks and negotiations of the values of the required tasks and equipment,
- iv. Project managing and implementation of the technical solutions.
- v. Evaluation the Functionality of the redesigned solutions.
- vi. Conducting follow-up services.

6. From 1/10/1993 to 1/7/2005: Vice Dean and Dean of the Faculty of Energy Engineering in Aswan, of Responsibilities:

A. General leadership

- i. Advance the faculty's vision and goals in coordination with the university scope through the creation of a strategic academic business plan and future initiatives.
- ii. Facilitate growth and development, and set and uphold high standards for faculty staff and students.
- iii. Create a positive work and learning environment within the faculty.
- iv. Advocate to the president of the university the interests of the faculty members.

B. Academic leadership

- i. Lead the educational, research, scholarly and public engagement activities of the faculty through planning, implementation and evaluation initiatives that ensure success, relevancy, and sustainability.
- ii. Advocate on behalf of students and create initiatives to increase the diversity of the student body.
- iii. Participation in a 15 years program reviews conducted by the Graduate and the Undergraduate Academic Affairs.
- iv. Leading the accredited programs in compliance with accreditation standards.
- v. Representing the faculty to external constituencies and audiences.

C. Personnel leadership

- i. Perform as mentor leaders of the commissioned academic units and programs.

- ii. Recruiting appointment and retention of academic administrators, and staff for the faculty.
- iii. Creating hiring plans and participating in the recruiting and hiring process for faculty and staff.
- iv. Participating in the review of each faculty application for promotion/tenure and providing recommendations to the provost.
- v. Performing regular evaluations of faculty and staff.
- vi. Review and retain documentation of merit salary adjustment recommendations of the faculty and provide recommendations to the provost.

#### D. Financial Management

- i. Effective management of the financial resources of the faculty.
- ii. Developing and implementing strategies for providing competitive rewards to faculty and staff which includes planning with the elected faculty council and executive leadership for the use of the tools available in the Faculty Reward Policy.
- iii. Developing capital and minor repair budget proposals for the faculty to ensure the effective management of available resources.

#### E. General Resources Management

- i. Enhance a culture of collaboration within the faculty departments to include meaningful engagement with faculty, staff and student governance councils and committees.
- ii. Adherence of the departments to the University policies and procedures.
- iii. Allocation of space within the facilities assigned by the provost for the use of the assigned tasks. Enhancing a culture of diversity, equity, and inclusion within the faculty.

#### F. Information Management

- i. Conducting regular and meaningful consultation, dialogue and engagement with faculty, students, and staff.
- ii. Engaging with alumni, donors, employers of graduates, and interested community organizations to solicit external input regarding the impact of the faculty.

- iii. Interacting with the faculty dealers to foster pride, advocacy and private support.
- iv. Enhancing the stature and professional standing of the faculty among peers and relevant constituencies.
- v. Participating in the Board of the university and the board of Deans of engineering faculties or colleges and Chancellors meetings and other activities to provide advice to the provost.
- vi. Participating in numerous University events as the representative of the faculty.

**7. From 1/10/2005 to 1/7/2011 Dean of the Faculty of Engineering, CIC:**

Responsibilities: Like my responsibilities as the dean of faculty of Energy Engineering, Aswan University

**8. From 1/10/2011 up to now: Head of departments of Mechanical Engineering and department of Renewable Energy, Similar responsibilities as outlined in the MTC (during 1/10/1075 to 1/7/1991)**

**Research Projects: In the field of Renewable Energy:**

1. As the PI Egyptian Coordinator of the DESIRE – ERASMUS Project for Development of higher Education teaching modules on the Socio-economic Impacts of the Renewable Energy implementation The Desire Project Better understanding of the socio-economic impacts of implementing renewable energy and energy efficiency (REEE) technologies to enable faster and more sustainable economy, ( 2014 – 2018) , of fund (77.500 \$). I have led implementation of modules of Sustainability and Integration of networks. <https://www.slideshare.net/maizubi/sustainability-and-implementation-by-drsalama-abdelhady>.
2. The PI of a scientific team to produce by reverse engineering a DC wind turbinegenerator of Power 1 KW, CIC, L.E. 45.000, 1<sup>st</sup> of July 2006 to 30<sup>th</sup> of June 2007, Graduation Project.
3. The CoPI of an Egyptian-Italian Project funded as a grant from the Italian government, donating 12 million through the ENI organization to Egypt. It was assigned for design and installation of a solar village in the Western Egyptian Desert that depends on renewable energy for a completely managed



sustainable life in deserts. All techniques were devoted to complete sustainability, 1982 – 1987.

4. As the Head of Department of Power station , I handled the Design and Installation of Solar field of vacuum tubes with steam expander in MTC, in Cooperation with Professor Callaghan, Department of Applied Energy, Cranfield Institute of Technology, Bedford UK, of Power 10 KW, 1978 – 1981.

#### **Consultant Engineer:**

- A. Works of Ahmed-Hamdy Tunnel in Suez Canal:
- B. Design and Installation of Domestic Water Heating System by Solar Energy for a Compound of 24 multistorey buildings in Cairo.
- C. Airconditioning of Sport's Closed-Halls and Hotels in Egypt:

#### **AWARDS & Professional Recognition:**

- A. Man of the year: Syndicate of Engineering, 2016.
- B. Medal of the Suez Canal Authority for the First Class Natives, 1997.
- C. Medal of performance of the duty of the first class, 1992.

#### **Last PATENTS:**

1. A Centrifugal wind turbine: Patent No. 29640, Academy of Scientific research, and technology (2020).
2. Solar Saver: Patent No. 30180, Academy of Scientific research, and technology (2021).

#### **PUBLICATIONS (Last 10 years):**

##### **Books:**

1. S. AbdelHady, C. Chi-Ho. Advanced Thermodynamics Engineering. 1 st ed. Scitus Academics 2019, New York. ISBN: 9781681179803.
2. S. AbdelHady, Thermodynamics: Fundamentals and its Application in Science, Auris Reference. 1st ed. London (UK): An International Text Book In Science; 2017. ISBN-10: 1788020626
3. S. Abdelhady, Electric Field in Advancing Science and Technology, Proper Understanding of the Natures of Electric Charges and Magnetic Flux, DOI: 10.5772/intechopen.106962,

## Journals:

1. M.S. Abdelhady, S. Abdelhady, C.C.M. Rindt, A.A. van Steenhoven, Removal of gas-side particulate fouling layers by foreign particles as a function of flow direction, *Int. Journal of Appl. Thermal Engineering.*, 29, 2335-2343, (2009)
2. S. AbdelHady, M. Kamal, A. Abdel-Fatah, W. A. Aissa, Performance Analysis of Low Head Hydraulic Air Compressor, *Journal of Smart Grid and Renewable Energy*, 1, 15-24, (2010), DOI: 10.4236/sgre.2010.11003
3. S. Abdelhady, "A Fundamental Equation of Thermodynamics that Embraces Electrical and Magnetic Potentials' "J. Electromagnetic Analysis & Applications", 2010; 2:162- 166. DOI:10.4236/jemaa.2010.23023
4. S. Abdelhady, "An Approach to a Universal System of Units" "J. Electromagnetic Analysis & Applications", 2015;7: 265 – 275. DOI: 10.4236/jemaa.2015.711028.
5. S. Abdelhady, " Comments concerning Measurements and Equations in Electromagnetism." "J. Electromagnetic Analysis & Applications",. 2010; 2:677- 678. DOI: SciRP.org/journal/Jemma
6. S. Abdelhady, "Entropy Analysis of the Duality Property," "J. Electromagnetic Analysis & Applications", 2011; 3: 220-227. DOI:10.4236/jemaa.2011.36036 P.
7. S. Abdelhady, "An Approach to a Universal System of Units" "*J. Electromagnetic Analysis & Applications*", 2010; 2: 549-556. DOI: 10.4236/jemaa.2010.2907
8. S. Abdelhady, " A Thermodynamic Analysis of Energy Flow in Optical Fiber Communication Systems ", "*Applied Physics Research*," 2012; 4: 22-29. DOI:10.5539/apr.v4n3p22
9. S. Abdelhady, A. Abou El-Azm, H. Saeh, " Assessment of different methods used to estimate Weibull distribution parameters for wind speed in Zafarana wind farm, Gulf, Egypt," *Energy*, August 2012, Vol. 44, pp. 710 – 719, DOI: 10.1016/j.energy.2012.05.021
10. S. Abdelhady, "Comments on Einstein's Explanation of Electrons, Photons, and the Photo-Electric Effect, "*Applied Physics Research*, 3 (2), pp. 230-240. <http://dx.doi.org/5539/apr.v3n2p230/>
11. S. Abdelhady, "An Entropy Approach to Wireless Power Transmission by Magnetic Resonance," *Journal of Applied Physics*, 06/2013; 5(5):pp. 29 - 35. DOI:10.559/apr.v5n5p29
12. S. Abdelhady, M. Mustafa, A. Elwatidy "An Analytical Study of Innovated Solar Power Tower (PS 10) in Aswan." *International Journal of Energy Engineering*, 06/2012; 2(6); pp. 273 – 278
13. S. AbdelHady." Advanced physics of thermoelectric generators and photovoltaic cells. *American Journal of Physics*. 2018; 33:391-398. DOI: org/ 10.11648/j.ajpa.20180605.

14. S. Abdelhady, "An Entropy Approach to a Practical Limit of the Efficiencies of Developed Multijunction Solar Cells," "J. Electromagnetic Analysis & Applications", June, 2014, Vol. 6: pp. 383-390. DOI:10.4236/jemaa.2014.613039.
15. S. AbdelHady S. A Substitute to the Quantum Theory by an Entropy Approach. 7th International Conference on Mathematics and Engineering Physics (ICMEP-7), Cairo, May 2014. DOI: 10.21608/icmep.2014.29734
16. S. Abdelhady, M. Qenawy, W. Abdelfadeel, M. Shaban "Analytical Study of a Modified PS10 in Aswan, International Journal of Scientific & Engineering Research, Volume 5, Issue 9, September-2014 976, ISSN 2229-5518
17. S. Abdelhady, "An Advanced Review of thermodynamics of Electromagnetism," International Journal of Research studies in Science, Engineering and Technology, Vol. 3, No. 6, 10, 2015. 2015; 4(6): 1-12. DOI:10.17265/2159-5348/2018.01.001.
18. S.. Abdelhady, "Innovative Understanding of the Duality confusion, the Photovoltaic and Magnetocaloric Effects." Ain Shams Engineering Journal, Engineering Physics and Mathematics, Vol. 8, March 2017. 2018; 9: 2283-2289. <http://creativecommons.org/licenses/by-nc-nd/4.0>.
19. .67] AbdelHady S. An Entropy Approach to Tesla's Discovery of Wireless Power Transmission. Journal of Electromagnetic Analysis and Applications, 2013;5: 157-161. DOI: 10.4236/jemaa.2013.5402.
20. AbdelHady S. Innovative Solutions of Unsolved Problems and Misconceptions in Physics, International. Journal of Innovative Research in Science, Engineering and Technology. 2017; 6: 9. ISSN (Print): 2347-6710[17]. Corpus ID: 55663212
21. S. Abdelhady, "Review of thermodynamics of systems that embraces the transfer of electric and magnetic energies," Fourth International Conference On Energy Engineering, Aswan University, December, 2017. . 2018; 8: 1-12. DOI: 10.17265/2159-5348/2018.01.001, 8.
22. S. AbdelHady innovative definition of nature of the nerve impulses. Ain Shams Engineering Journal, Engineering Physics and Mathematics, Production and hosting by Elsevier. 2019;11:2. DOI: 10.1016/j.ase
23. S. Abdelhady, Innovative understanding of the duality confusion, the photovoltaic and the Magnetocaloric effects. Ain Shams Engineering Journal, Engineering Physics and Mathematics. 2018;9:2283-2289. <http://creativecommons.org/licenses/by-nc-nd/4.0>
24. S. Abdelhay, A. Hamed, W. Abdelfadeel, , M. Qenawy, Assessment of the Planned Expansion of Renewable Energy in Egypt, International Journal of Applied Energy Systems, Vol. 4, No. 2, July 2022
25. S. Abdelhady, Electric and Magnetic Energies in the Human Body, International Journal of Applied Energy Systems, Vol. 2, No. 1, Jan 2020, ISSN: 2636 - 3712 (Printed Version) ISSN: 2636 - 3720 (Online Version)

26. S, Abdelhady, M. Khalaf, W. Abdel-FadEel, M. Esmail, Performance and Emissions of a Diesel Engine Fueled with a Biofuel Extracted from Jatropha Seeds, International Journal of Applied Energy Systems, Vol. 4, No. 2, July 2022, 10.21608/IJAES.2022.130246.1008

#### Conferences:

1. Salama Abdelhady, "A Three Dimensional System of Units," Proceedings of the 14th International Conference on Applied Mechanics and Mechanical Engineering," MTC, Cairo, May 2010, MTC, Cairo, paper MD-4.
2. Salama Abdelhady, Thermodynamic Analysis of Electric Charges and Magnetic Flux, Cairo 11th International Conference on Energy and Environment, Ghurgada, Egypt, March, 2009, 175-185
3. Salama Abdelhady, "Energy Analysis of the Electron Duality Property," Proceedings of the 14th International Conference on Aerospace Sciences & Aviation Technology, ASAT-14, Cairo, May 2011, paper MD-5.
4. Salama Abdelhady, "An Entropy Approach to Optical Pumping," Proceedings of the 15th International Conference on Aerospace Sciences & Aviation Technology, ASAT-15, Cairo, May 2012
5. Salama Abdelhady, Hassanin "An Experimental Analysis of Energy Recovery For Humidity Control In Split A/C System", ICEE, Aswan, Egypt, 2011
6. Salama Abdelhady, A. Abou El-Azm, H. Saeh, "Failure Analysis of Wind Turbines in ZAFARANA Wind Farm," 15th International Conference on Applied Mechanics and Mechanical Engineering; 05/2012.
7. Salama Abdelhady, "A Substitute to the Quantum Theory by an Entropy Approach," 7th International Conference on Mathematics and Engineering Physics (ICMEP-7), Cairo, May 2014.
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- 9..Salama Abdelhady. "Proper understanding of nature of the Nerve Impulse and Its Entropy," [hs://www.emedevents.com 12th-annual-world-co,](https://www.emedevents.com/12th-annual-world-co)  
<https://www.bitcongress.com/NeuroTalk2023/scientificprogram.asp>

#### References:

1. Professor Omar Hanafy Helwan University
2. Professor Sedky Zewail University
3. H. E. Dr. Elham Ibrahim Energy Commissioner

4. H. E. M. Shaker El-Marakby Minister of electricity