7.4.3. Energy Efficiency Services for Industry

2023–2024

AASTMT provides direct services to local industry aiming at improving energy efficiency and clean energy via agreements signed within AAST Industry Advisory Council annual sessions, publications and prototypes resulting from research projects as well as free and paid consultancy and training offered by AAST different entities.

First: Academy's Industry Advisory Council

One of AASTMT important strategic objectives, included in its *AASTMT Strategic Plan (2021-2026)* , emphasizes maintaining effective long-term links with educational and industrial institutions in a way that serves society and achieves sustainable development goals. In light of this, important cooperation agreements are signed with major industrial companies. This takes place in each session of AAST Industry Advisory Council which is held yearly at AAST Alexandria Abukir-headquarter, hosting important figures and representatives from different industries.

AASTMT Strategic Goals and Enablers (2021-2026) on AASTMT webpage

- **19/5/2025: 7th Session of AAST Industry Advisory Council**
  AAST Industry Advisory Council 7th Session on AASTMT webpage
- **21/5/2024: 6th Session of AAST Industry Advisory Council**
  AAST Industry Advisory Council 6th Session on AASTMT webpage
- **16/5/2023: 5th Session of AAST Industry Advisory Council**
  AAST Industry Advisory Council 5th Session on AASTMT webpage

Second: Paid Services by AASTMT Productivity and Quality Institute

AASTMT offers Paid training and consultancy through AASTMT different entities

1. Productivity and Quality Institute (PQI)

- **Energy and Environmental Management Training**

Paid Energy and Environmental Management Courses offer Specialized Paid Training in the principles and practices essential for addressing the complex challenges of energy consumption and environmental sustainability. Local and international Energy and Environmental Management Certified Training Courses offered by PQI enhance businesses sustainability and reduces an organization's impact on the environment while improving its operating efficiency by controlling its energy consumption which helps in reducing product manufacturing.

Energy and Environmental Management Training Courses-AASTMT PQI

Local Training Accredited Certificates	International Training Accredited Certificates
▪ Understanding ISO 14001:2015 Course.	▪ ISO 14001:2015 Environmental Management Systems Auditor/Lead Auditor Course.

▪ Documents and Records Preparation for ISO 14001:2015 Requirements Course.	▪ ISO 14001:2015 Environmental Management Systems transition Course.
▪ Internal Audit for ISO 14001:2015 Course.	▪ ISO 50001:2011 Energy Management Systems Auditor/Lead Auditor Course.
▪ Energy Management Technology Course.	
▪ Energy Management System ISO 50001 Awareness and Internal Audit Course.	

- **ISO 50001 Energy Management System Consultancy (EnMS)**

AASTMT PQI offers Paid Consultancy service in the form of ISO 50001 Energy management Systems Consultancy Service (EnMS) to the following corporates.

  - Elab
  - Eprium
  - ABB
  - Arcas Egypt
  - Suez Steel
  - Wood Technology Company

The purpose of the EnMS is to enable organizations to establish or re-structured the systems and processes necessary to improve energy performance, including energy efficiency, use, consumption and reduce running cost.

ISO 50001 Energy management Systems Consultancy Service-AASTMT PQI on AASTMT webpage

Also, collaborative consultancy projects with other entities took place to optimize the energy and environmental management in different facilities.

Check the link below
Collaborative consultancy Project with ABB on AASTMT webpage
Collaborative Consultancy Project with Arcas Egypt on AASTMT webpage

2. Oil and Gas Certification (OPITO)

OPITO certification is internationally recognized and vital for professionals in oil, gas, maritime, and renewable energy industries. The Arab Academy for Science, Technology and Maritime Transport (AASTMT), College of Engineering and Technology (CET) is the only center in Egypt and North Africa offering this prestigious qualification.

OPITO Certification

3. Energy Research Unit – Innovation One Stop Shop (IOSS)

AASTMT IOSS is an entity, related to AASTMT energy research unit, that provides many services in the field of innovative renewable energy, all under one roof. Its goal is to provide industry and startups with technical assistance, consulting and networking opportunities required to run a successful and innovative renewable energy project in Egypt.

Energy Research Unit – Innovation One Stop Shop (IOSS)

Services:

1. Technical services
2. Business consultancy
3. Technical and business training and capacity building
4. Identifying potential innovative projects for funding
5. Cooperation and open innovation among regional players

Also training courses offered by AASTMT- Energy Research Unit include

1. Renewable Energy System
2. Solar energy
3. Practical fundamental solar energy
4. Wind Energy System
5. Energy Management and Auditing (EMA)
6. Building Management system (BMS)

TRAINING COURSES on the AASTMT news page

Third: Free Services by Different AASTMT Entities

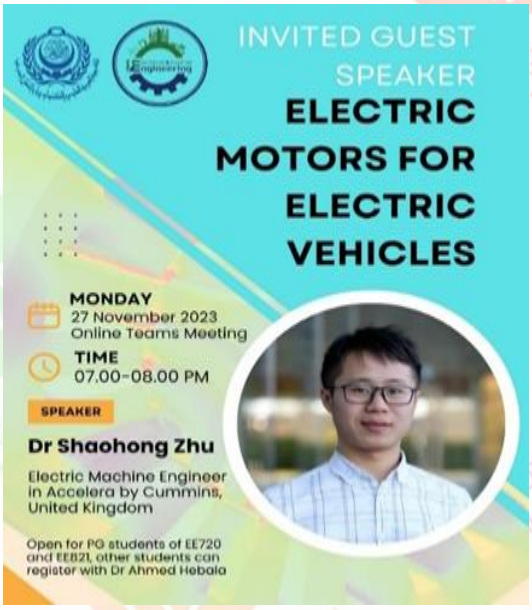
Different AAST institutes offered free trainings, workshops and seminars to industry and graduate students. 2023/2024 Free services offered by AASTMT include;

10/12/2024 **Nuclear energy Symposium**	AASTMT's El Alamein campus hosted a symposium in collaboration with the Dabaa Nuclear Energy Agency and the Russian Cultural Center, focusing on nuclear energy cooperation and sustainability.  *Nuclear Energy Symposium*

2/12/2024 **Egypt Energy Transition Workshop**	AASTMT organized a workshop titled: "Towards Egypt's Energy Vision 2030: Egypt's Just Energy Transition: Decarbonization, Electrification, Education, and Access" which was attended a number of faculty members from Egyptian colleges and universities, in addition to industry figures, governmental and advisory bodies. This workshop stems from a collaboration between the Faculty of Engineering & Technology at AASTMT and the Texas A&M University (USA), specifically the Institute of Energy at Texas A&M.  *Egypt Energy Transition Workshop*
(21/10/2024) **Moving towards the future: Innovations in energy" Symposium**	AASTMT Energy and Petroleum Logistics Management Department, College of International Transport and Logistics, hosted, Dr. Walid Al-Khadrawi, an expert in the field of hydrogen energy sustainability in the oil and gas sector in Egypt, to present a scientific symposium entitled "Moving towards the future: Innovations in energy".  *Innovations in energy" Symposium-2024*
(30/7/2024)	AASTMT Department of Marine and Platform Engineering at the College of Engineering and Technology was pleased to organize the international workshop, "Green Hydrogen Applications in the Maritime Industry",

Green Hydrogen Applications in the Maritime Industry Workshop	through collaboration with the University of Genova and the Clean Hydrogen Partnership.  *Green Hydrogen Workshop*
16/5/2024 **Green Economy in Ports Workshop**	Collaborative Work shop between AASTMT Port Training institute and The British University in Egypt brough together al staff members and participants from different Egyptian ports to dicuss sustainability in ports.  *AASTMT Port Training Institute-Green Economy in Ports Workshop*
(3/5/2024) **Uni-Green Project Workshops**	A 6-day bootcamp was organised at the AASTMT, as an outcome to Uni-Green Projects. In this workshop, participants will learn how to find innovative solutions to mitigate climate change effects locally and turn their ideas into business.

	 *Go-Green Workshop*
(1/1/2024) **Energy Manag. Strategies for Marine Application: HOMER Pro-Renewable Energy Software Seminar**	AASTMT Department of Marine and Platform Engineering at the College of Engineering and Technology announced the holding of a free seminar for graduate students under the title: "Energy Management Strategies for Marine Application: HOMER Pro Renewable Energy Software." It will be delivered by engineer Mayar Nabil Renewable energy and water desalination consultant at the Desert Research Center (Applied Research Center).  *Homer Software Seminar*

(27/11/2023) **Electric Motors for Electric Vehicles Seminar**	Presented by Dr. Shaohong Zhu, Electric Machine Engineer in Accelera by Cummins, United Kingdom, this free seminar is prepared for AASTMT graduate students, final year students, and all those interested in the field of motors in electric vehicles towards green and clean energy. 
(27/11/2023) **Tesla USA and how to apply for summer training in Tesla USA" Seminar**	AASTMT hosted Engineer Jalal Salama (Senior Manufacturing Controls Engineer at Tesla, Texas USA and a graduate of the Mechanical Engineering Department at the Academy's main headquarters in Abu Qir) to inform about his experience at Tesla and how to apply for summer training in Tesla US.  *Tesla Seminar*

Fourth: Research

AASTMT staff members collaborate in many publications and projects serving renewable energy, energy management and efficiency as well as environmental and climate aspects.

1. Publications

AAST staff have plenty of publications in the field of energy and climate action.

Academic research catalogue on AASTMT webpage

Moreover, Renewable Energy and Sustainable Development (RESD) journal is a biannual international peer-reviewed journal established in AAST and dedicated to serve all aspects of renewable energy and its role in sustainable development.

RESD Journal on AASTMT webpage

It is worth noting RESD was included in the global database Scopus, in 20/4/2023, which is considered a unique experience for an Egyptian publishing house to manage a scientific journal that is included in Scopus and specified to the energy field.

RESD Inclusion in Scopus

2. Funded Projects

AASTMT has participated in a number of related Funded Projects within the years 2022, 2023 as listed below.

Research Projects on AASTMT webpage
AASTMT RESEARCH PROJECTS on AASTMT webpage

AASTMT Research Projects covering periods in 2023/2024

Project Name	Start date	End Date	Link
Promoting Integrated Green Competences for Sustainable Development in Architectural Education through Experimental Lab-based, Active Learning **(PRO Green)**	1/1/2024	30/12/2026	*PRO Green Project*
Climate smart, ecosystem-enhancing and knowledge-based rural expertise and training centres **(RURALITIES)**	1/10/ 2023	30/10/2026	*RURALITIES Project*

Strengthening education and research in Applied Informatics for Energy System Integration **(AI-ESI)**	1/1/2022	31/12/2026	*AI-ESI Project*
Green Shipping Pathways Towards a Clean Energy Transition in the Mediterranean **(GreenMed)**	1/10/2023	31/12/2025	*GreenMED Project*
Promoting the role of youth as active change-makers in addressing climate change in Egypt through education **(Uni-Green)**	1/9/2021	31/8/2024	*Uni-Green Research Project*
Integration of sustainable Development goals in universities for better climate change management" **(INVOLVE)**	15/1/2021	14/1/2024	*INVOLVE Project*
A Smart Public Parking System	1/1/2021	31/12/2023	*A Smart Public Parking System*
Monitoring, Assessment and Innovative Treatment Technology to Enhance Groundwater Quality for Irrigation toward Climate Change adaptation **(TREATMENT)**	1/10/2021	30/11/2023	*TREATMENT Project*

3. Projects' Outcomes

In 2023/2024, a number of outcomes, that have significant impacts on industry, resulted from AAST collaboration in joint funded projects and graduation projects.

Project	Outcome	
Smart Solar Waste Compactor	2024/2025 graduation project of AASTMT Industry Service Complex- Smart Solar Waste Compactor - aims to develop an intelligent device for compacting plastic waste in various institutions such as schools, hospitals, and factories, relying primarily on solar energy as its main power source. *Smart Solar Waste Compactor*	
Solar Agricultural Robot	2024/2025 graduation project of AASTMT Industry Service Complex- Solar Agricultural Robot - aims to develop an intelligent device for compacting plastic waste in various institutions such as schools, hospitals, and factories, relying primarily on solar energy as its main power source. *Solar Agricultural Robot*	
The liquid tree	A environmental photobioreactor that uses marine algae to purify the air and produce oxygen. The project is a low-cost version of a model used in the UAE, which costs around $10,000, while the students managed to build the unit in Egypt for less than 15,000 EGP. The amount of oxygen produced by this system is equivalent to that of ten mature trees, making it suitable for use in parks, schools, and crowded urban areas. *The Liquid Tree*	

Monitoring, Assessment and Innovative Treatment Technology to Enhance Groundwater Quality for Irrigation Purposes toward Climate Change Adaptation (TREATMENT)	In 2023, a Renewable, Innovative and Integrated Water Treatment Unit is designed to use energy harnessed from solar photovoltaic system to be used to lift water from a well, and subsequently, the water is directed through the four-stage nano-filter, where it undergoes a rigorous purification process. The end result is clean, potable water or water suitable for irrigation and cultivation and the PV system, serves as the sustainable energy source for the three-phase pump In 2024, the unit was successfully implemented and tested. The final report was released by May 2024.   *TREATMENT Project* *Water Treatment Unit Report-May2024* *Project Details*