11.4.8 Planning Development - New Build Standards 2024/2025

The Arab Academy for Science, Technology and Maritime Transport (AASTMT) advances sustainable urban development through an institution-wide approach to the design, construction and operation of buildings. Its Green Energy and Energy Management Policy and Engineering Affairs framework establish energy-efficient design, renewable energy integration, smart building management, natural ventilation, daylighting and water conservation as guiding requirements for new facilities. These measures support resource-efficient urban planning, mitigation of urban heat and pollution, and the development of resilient smart cities. The Academy's 2024–2025 water conservation framework further identifies leak detection in new buildings and water-efficient fixtures as institutional priorities.

Across Egypt, Alexandria (Main Campus, Abu Qir) provides an operational and academic platform for energy management and smart building systems. Cairo (including Heliopolis, Smart Village and Dokki) and Port Said are covered by the Academy-wide design standards and energy tracking framework; their individual new-build compliance records require facility-level confirmation. El Alamein demonstrates design-stage implementation through the June 2025 renewable energy and electric-vehicle charging specifications for its new College of Engineering and Technology. Aswan (South Valley) participates in the same institutional framework and has established a 150 kW grid-connected solar installation, an existing operational asset rather than a newly dated project. Together, these initiatives embed sustainable construction within the Academy's campus planning and professional education.

The Alamein Campus: A Living Laboratory for Sustainable Urbanism

- **Sustainable Engineering Building Infrastructure & Smart Energy Systems**

AASTMT inauguration and operationalized its state-of-the-art College of Engineering building at the New Alamein sustainable campus. The architectural envelope was constructed according to advanced bioclimatic standards, utilizing low-emissivity double-glazed facades to minimize solar heat gain, motion-sensor LED lighting, and high-efficiency VRF climate control systems. The design integrates rooftop photovoltaic arrays and rainwater harvesting channels to prevent localized flood hazards during coastal downpours, serving as a living benchmark for climate-resilient urban development along Egypt's Mediterranean coastline.



The Alamein Campus: A Living Laboratory for Sustainable Urbanism

Cairo Multi-Hazard Resilience & Sustainable Structural Engineering Forum

AASTMT hosted and led the Cairo Multi-Hazard Resilience Forum, convening national structural engineers, environmental scientists, and municipal planners to review disaster-resilient building standards. The forum established updated technical specifications for new educational and institutional builds, emphasizing structural earthquake resistance, advanced wind-load durability, and sustainable stormwater drainage systems to withstand extreme weather and flash floods. These engineering criteria are directly applied to all ongoing and planned AASTMT capital expansions to safeguard university infrastructure and surrounding urban communities.



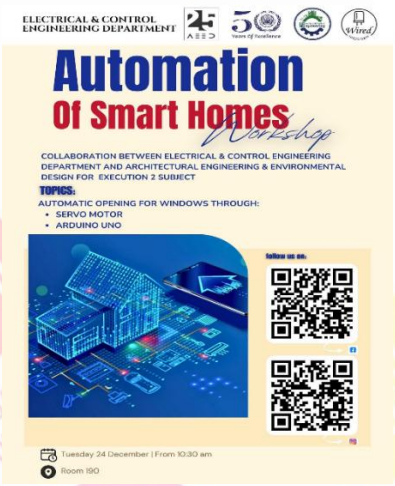
Cairo Multi-Hazard Resilience & Sustainable Structural Engineering Forum

Advancing Sustainable Construction: Innovation and Partnership at AASTMT

- **Automation of Smart Homes Workshop**

On 30 December 2024, the Departments of Electrical and Control Engineering and Architectural Engineering and Environmental Design collaborated on an applied workshop for Execution Design 2 students. The official event confirms that participants integrated smart control systems into building designs. Students explored automated window operation using servo motors and Arduino Uno. This interdisciplinary training strengthens practical capabilities relevant to smart cities, intelligent buildings and resource-conscious urban planning.





Advancing Sustainable Construction: Innovation and Partnership at AASTMT
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Water-Conscious Landscape Design and Sustainable Urban Communities

27 November 2024 | Alexandria program; field visit in New Cairo | Supporting academic

AASTMT's Landscape Architecture program organized a visit to the American University in Cairo and Madinaty. Students examined irrigation methods, rainwater harvesting and landscape design strategies, and learned about planning approaches for coastal urban communities such as Southmed. This field-based activity builds skills in water-sensitive urban planning, public space and flood risk mitigation relevant to the site design of new buildings.



Water-Conscious Landscape Design and Sustainable Urban Communities