



TEXAS A&M
UNIVERSITY *at* QATAR



ABOUT MULTIVERSITY

Texas A&M University at Qatar is a leader for Qatar Foundation's vision for multiversity to enrich learning and success of students across Qatar Foundation's partner universities. The multiversity vision aligns with Texas A&M's own purpose of developing leaders dedicated to serving the greater good, and we understand that graduates will be better equipped as engineering leaders through diverse experiences that cultivate holistic learning and multidimensional skills beyond the traditional classroom. To achieve this vision, Texas A&M University at Qatar is offering a multiversity training with Hamad Bin Khalifa University on smart grid.



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Hamad Bin Khalifa University
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Training Modules for KAHRAMAA Engineers with TAMUQ and HBKU Students

Module 1 Smart Grid

Certificates will be provided to the attendees

MODULE 1 - SMART GRID

The training presents the smart grid basics, its enabling technologies, current state, and the future perspectives. The taught material contains an overview of the smart grid architectural, renewable energy integration opportunities and challenges, power electronics as enabling technology of the smart grid, microgrids structure and control, energy storage, EV charging systems and challenges, demand response, advanced metering infrastructure, communication and networks in smart grids, information security for smart grids, data management, and economy of the smart grids.

REGISTRATION

Kindly ensure that you finalize your registration before May 10th, 2023 using the provided link.

<https://forms.gle/fkUATX1TLs7M4Xc58>

Instructors

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TRAINING OBJECTIVES

The objective of this training is to equip the attendees with an overview of smart grid elements and fundamentals. By the end of this training, attendees will be able to:

1. Advance their knowledge and understanding about state-of-the-art smart grid technologies and their benefits.
2. Understand how advanced technologies should be integrated to enable a modern grid.
3. Understand how renewables can be integrated more seamlessly using smart grid technologies.
4. Help make decision on smart grid technology selection when working in their day-to-day jobs.
5. Get an overall picture of what the grid of future would be like with advance information and communications technology (ICT).
6. Get an understanding of the technology, business, and operations of dispersed energy generation through consumption.

ABOUT

TRAINING OUTLINE and SCHEDULE

1. Smart grid concepts and terminologies.
2. Smart grid architecture, substations automation, energy generation, transmission, and distribution systems.
3. Renewable energy integration and microgrid technology.
4. Energy storage and EV charging technologies, challenges and opportunities.
5. Demand response, demand side management, smart grid protection
6. Smart meters and advanced metering infrastructure.
7. Cyber Security for smart grid
8. Smart grid standards.
9. Leveraging grid data to enhance resilience: examples from utilities.
10. Challenges and possible solutions, a smart grid roadmap.

Day 1 - May 21, 2023

Smart grid architectural overview
Leveraging grid data to enhance resilience: examples from utilities

Day 2 - May 22, 2023

Renewable energies and integration: opportunities, challenges, and enabling technologies
Micro grids: structure and control
Renewable energy dominated grid, challenges and solutions

Day 3 - May 23, 2023

Energy storage technologies, challenges and opportunities
Smart transportation

Day 4 - May 24, 2023

Grid interactive energy efficient buildings
Demand response and demand side management

Day 5 - May 25, 2023

Advanced metering infrastructure and communication
Cyber security for smart grid
Standards in smart grids and interoperability

