ASHRAE®

GLOBAL TRAINING CENTER
DUBAI

2019-2020 Instructor-Led Course Catalog

High-Quality, Authoritative, and Credible Technical Training

"This course presented a unique opportunity to learn from the best instructors in the field. Although I am not new in the field of HVAC, this course contained new and valuable information. I recommend this course for those who are getting started in the field, and also to those seeking to gain more knowledge and insight in the field."

Abdelrahman O. - Cairo, Egypt

"ASHRAE Standard 90.1 training has enabled me to understand the performance of buildings and the various compliances that can be achieved using the standard to design better and more efficient buildings."

Mohammed M. - Dubai, UAE

"I wanted to get into the HVAC industry and the ASHRAE training provided very good exposure to what is involved and what to expect in the field as an engineer. It refreshed some concepts as well as taught interesting new ideas."

Shahrukh S. - Kuwait

www.ashrae.org/gtc

ASHRAE Global Training Center

Learning for the Future

ASHRAE GLOBAL TRAINING CENTER
DUBAI

The ASHRAE Global Training Center (GTC) offers a variety of full-day and multi-day courses to help you stay in the forefront of HVAC&R technology. GTC offers authoritative technical instructor-led training presented at

- ASHRAE online course series
- ASHRAE Chapter (upon request)
- Companies (upon request)
- Other industry meetings/conferences

ASHRAE is an approved Continuing Education provider for the American Institute of Architects (AIA) and a U.S. Green Building Council (USGBC) Education Partner. Continuing Education hours earned from ASHRAE courses and seminars may be applied toward renewal of state-licensed professionals and maintenance of LEED® professional credentials.

American Institute of Architects (AIA)

Green Building Certification Institute (GBCI)

Available Instructor-Led Courses

Air-to-Air Heat Recovery Fundamentals and Applications (MENA)
This course reviews real-world examples of where and how air-to-air energy recovery technologies are integrated into some of the most commonly used, commercially available systems. A variety of different dedicated outdoor air systems (DOAS), neutral air systems, and enhanced dehumidification strategies (with single and multiple heat exchangers) are examined in detail, along with the advantages and important considerations for using air-to-air energy recovery in many different applications. Best practices for mechanical design, exchanger selection, and control strategies will be discussed throughout. Participants should be interested in learning how to evaluate different DOAS setups incorporating air-to-air energy recovery and how to avoid common errors in equipment design while simultaneously evaluating these systems beyond just peak performance.
Instructor: Hassan Younes, Member ASHRAE, BEAP, BEMP, HBDP, CPMP, HFDP, OPMP

Commercial Building Energy Audits (MENA)
This course covers the information needed to perform commercial building energy audits. Best practices and other information relevant for building owners, managers, and government entities will be discussed. The seminar includes a summary of materials essential for performing Level 1, 2, and 3 audits, time-saving tips for every auditor, how to hire an auditor, what to ask for in a comprehensive audit report, and how to build a successful energy efficiency retrofit team. This course has been customized for the Middle East by instructors well versed in the concerns for professionals in the region.
Instructor: Hassan Younes, Member ASHRAE, BEAP, BEMP, HBDP, CPMP, HFDP, OPMP

Commissioning Process in New and Existing Buildings
This coure covers the information needed to perform commercial building energy audits. Best practices and other information relevant for building owners, managers, and government entities will be discussed. The seminar includes a summary of materials essentials for performing Level 1,2, and 3 audits, time-saving tips for every auditor, how to hire anauditor, what to ask for in a comprehensive audit report, and how to build a successful energy efficient retrofit team. This course has been customized for the Middle East by instructors well versed in the concerns for professionals in the region.
Instructor: Hassan Younes, Member ASHRAE, BEAP, BEMP, HBDP, CPMP, HFDP, OPMP

Desinging for IAQ: Complying with Standard 62.1 (MENA)
This course focuses on the basic requirements of ASHRAE Standard 62.1-2016, Ventilation for Acceptable Indoor Air Quality. The newest version of the standard includes a major change to the scope of the standard by which residential occupancies are moved from ASHRAE Standard 62.1 to 62.2. This course provides an overview of the requirements of the new standard with emphasis on changes from the previous version and practical application of the standard to modern VAV systems. New requirements to the indoor air quality procedure for determining minimum ventilation rates are discussed. In the 2016 version, changes were made in determining air class for laboratory exhaust systems and the use of sensors for demand control ventilation, and these changes are discussed as well. The course presents sample calculations for code review and for physical operation.
Instructor: Hassan Younes, Member ASHRAE, BEAP, BEMP, HBDP, CPMP, HFDP, OPMP

Visit **www.ashrae.org/gtc** for more details and to register.

Courses subject to change without notice.

Designing High-Performance Healthcare HVAC (MENA)
This course provides a discussion of fundamentals of system design for healthcare facilities, design considerations, basic methodology of HVAC design, psychrometrics, energy, and sustainability goals of high-performance healthcare facilities. In addition, this course will cover definitions of the key elements of high-performance in healthcare, control sequences and set points, and energy conservation strategies and relationships to temperature/relative humidity requirements.
Instructor: Hesham Safwat, Ph.D., Member ASHRAE

District Cooling for Designers and Owners (MENA)
This course presents practical guidance contained in two ASHRAE publications: District Cooling Guide, Second Edition and Owner's Guide for Buildings Served by District Cooling. District cooling systems, when designed and operated properly, can be an energy-efficient alternative to conventional in-building chilled water plant adding to an owner's sustainability portfolio and allowing the building owner to focus on their own business, rather than operating and maintaining a chilled water plant. District cooling systems can provide buildings in a particular area with chilled water for comfort and process cooling with the benefits to the building owner of greatly reduced or eliminated maintenance cost, much lower space requirements, and no concerns as to plant capacity or load growth. This 6-hour course covers what designers and owners need to know about district cooling to enable it to provide energy efficiencies and reliable operation. Topics covered include Planning, Central Plant Design, Distribution System Design, Building Interfaces, Thermal Energy Storage, and Operation and Maintenance from both the designer and owner perspectives. The instructors will take attendees through the guidance provided in these new tools made available from ASHRAE to advance the successful applications and use of district cooling technology.
Instructors: Gary Phetteplace, Ph.D., Fellow/Life Member ASHRAE; Brian Kirk, Member ASHRAE; and Steve Tredinnick, P.E., Member ASHRAE

Emerging Trends and Sustainable Design in Refrigeration and Cold Chain (MENA)
Refrigeration and the cold chain are part of a growing, worldwide industry. There is a need for facilities to be designed with energy-efficient and sustainable technologies to ensure proper storage while minimizing harm to the environment. This course provides insight into the fields of refrigeration and the cold chain, including the newest trends and the sustainable aspects of design. First, the course will look at the basics of refrigeration, as well as types of refrigerants and their use. Industry trends related to topics like thermal insulation, low-charge ammonia systems, material handling, and automation will be discussed. Next, the course will provide an introduction to cold chain, including various types of cold-chain routes paired with descriptions, photographs, diagrams, and illustrations. Concepts important to the sustainable design of cold chain facilities will be covered, including building layout, thermal insulation, energy-efficient refrigeration systems, heat recovery systems, water recycling, and renewable energy systems.
Instructors: Harshal Surange, Member ASHRAE

Effective Energy Management in New and Existing Building (MENA)
This course offers techniques for the adoption of energy optimization and the introduction of specialized energy-saving systems in the Middle East. The training weaves together energy management principles found in ASHRAE Handbook—HVAC Applications, U.S. ENERGY STAR® guidelines, and ASHRAE/IES Standard 100-2018, Energy Efficiency in Existing Buildings, a standard used internationally to guide organizations in reducing overall energy costs by providing procedures and programs essential for energy efficiency, maintenance, management, and monitoring. The course provides numerous how-to solutions from successful energy managers who achieved a reduction in energy consumption by implementing sustainable energy technologies. These solutions demonstrate how to take advantage of the ENERGY STAR Portfolio Manager for documented performance tracking and recognition as an ENERGY STAR in a hospital, high-rise building, bank, and a convention center. Among other course features are interactive exercises that uses data loggers to collect data during the course to demonstrate real-time logging of CO_2, light, temperature, and relative humidity in the classroom, as well as the best ways to use data-logging instruments.
Instructors: Samir Traboulsi, Ph.D., P.Eng., Fellow Life Member ASHRAE; and Hassan Younes, Member ASHRAE, BEAP, BEMP, HBDP, CPMP, HFDP, OPMP

The Future of Refrigerants: Challenges and Opportunities (MENA)
This training provides a background review of international treaties and initiatives that support the transition from hydrochlorofluorocarbon (HCFC) and hydrofluorocarbon (HFC) refrigerants towards non-ozone-depleting, low-global-warming-potential substances. A review of proposed refrigerants and how they can be used in different HVAC&R applications based on theoretical and empirical analyses is discussed. Challenges and opportunities associated with the different types of refrigerants are presented, including hydrofluoroolefins and natural refrigerants. Current and future refrigerant options suiting the region are covered, as well as related standards and codes of systems and substances. Finally, the course wraps up with a discussion on the systems perspective and how to best understand the opportunities for energy-efficiency improvements along with hands-on experience with free software, such as life-cycle climate performance web applications and the heat pump design models.
Instructors: Omar Abdelaziz, Ph.D., Member ASHRAE; and Karim Amrane, Ph.D., Member ASHRAE

HVAC Design: Level I—Essentials (MENA)
The ASHRAE Global Training Center for Building Excellence is organizing a three-day HVAC Design Essentials training to provide intensive, practical training for HVAC designers and others involved in the delivery of HVAC services in the MENA region. In three days, gain real-world practical design skills and knowledge that can be put to immediate use in designing and maintaining HVAC systems. Developed by industry-leading professionals selected by ASHRAE and customized for the Middle East, the training provides the fundamental and technical aspects of designing and maintaining HVAC systems.
Instructors: Walid Chakroun, Ph.D., P.E., Fellow ASHRAE; Hassan Younes, Member ASHRAE, BEAP, BEMP, HBDP, CPMP, HFDP, OPMP; and Samir Traboulsi, Ph.D., P.Eng., Fellow Life Member ASHRAE

HVAC Design: Level II—Applications (MENA)
Gain advanced instruction on HVAC system designs for experienced HVAC designers or those who have completed the HVAC Design Essentials (MENA) training. This two-day training provides complex information about designing, installing, and maintaining HVAC systems, resulting in skills that can be put to immediate use. Gain an in-depth understanding of ASHRAE Standards 55, 62.1, 90.1, and ASHRAE's Advanced Energy Design Guides.
Instructors: Walid Chakroun, Ph.D., P.E., Fellow ASHRAE; Hassan Younes, Member ASHRAE, BEAP, BEMP, HBDP, CPMP, HFDP, OPMP; and Samir Traboulsi, Ph.D., P.Eng., Fellow Life Member ASHRAE

Improving Existing Building Operation (MENA)
Improving Existing Building Operation (MENA) provides the fundamental and technical knowledge for the proper operation and maintenance of existing HVAC systems to maximize building performance. The training has been customized to take into account the special design requirements of the Middle East. This two-day *Improving Existing Building Operation* training focuses on the importance of proper operation and maintenance of existing HVAC systems. The training also introduces different methods for evaluating potential improvements to a building and its systems in the MENA region. Developed by industry-leading professionals selected by ASHRAE and customized for the Middle East, the training provides techniques to effectively select and communicate with consulting engineers and energy consultants.
Instructors: Hassan Younes, Member ASHRAE, BEAP, BEMP, HBDP, CPMP, HFDP, OPMP: and Hesham Safwat, Ph.D., Member ASHRAE

New Developments in Lower GWP Refrigerants (MENA)
This training provides a fast review of proposed refrigerants and how they can be used in different HVAC&R applications based on theoretical and empirical analyses. Challenges and opportunities associated with the different types of refrigerants are presented, including hydrofluoroolefins and natural refrigerants. Current and future refrigerant options suiting the region are covered, as well as related standards and codes of systems and substances.
Instructor: Omar Abdelaziz, Ph.D., Member ASHRAE

Standard 90.1: HVAC/Mechanical Design and Appendix G (MENA)
This course focuses on the major requirements of ASHRAE/IES Standard 90.1-2016, including incorporated addenda. The *Standard 90.1: HVAC/Mechanical and Appendix G (MENA)* course will also cover highlights of the envelope, mechanical, HVAC, and lighting requirements in Appendix G and its new compliance path and performance rating method. Baseline building conditions and climate zone information on many cities in the MENA region will also be provided.
Instructor: Samir Traboulsi, Ph.D., P.Eng., Fellow/Life Member ASHRAE

Understanding Standard 189.1-2014 for High-Performance Green Buildings (MENA)
Based on ANSI/ASHRAE/USGBC/IES Standard 189.1-2014, this course provides the minimum requirements for the design, construction, and plans for operation of high-performance green buildings, including new buildings and their systems, new portions of buildings and their systems, and new systems and equipment in existing buildings. Water-use efficiency, indoor environmental quality, energy efficiency, site sustainability, and a building's impact on the atmosphere are covered. The course presents the goals of establishing mandatory criteria in all topical areas, providing simple compliance options, and the complement of green building rating programs for ASHRAE Standard 189.1. Upon completion of this course, participants will understand the basic requirements of ASHRAE Standard 189.1, learn the background that led to the development of these requirements, and become familiar with how to apply the requirements in the standard to new commercial buildings and major renovation projects.
Instructor: Walid Chakroun, Ph.D., P.E., Fellow ASHRAE, LEED® AP

Variable Refrigerant Flow Systems: Design and Applications (MENA)
This course provides an overview of variable refrigerant flow (VRF) technology, including equipment and system types, heating/cooling operation, heat recovery, and the benefits of VRF systems. Also described is the VRF design process, including load profile analysis, unit sizing, ventilation air strategy, refrigerant piping design, and system monitoring/controls. Refrigerant safety considerations are explained, including a discussion of ASHRAE Standards 15 and 34. The course concludes with a focus on human comfort and sustainable design featuring example buildings, ventilation systems, and VRF system layouts.
Instructors: Samir Traboulsi, Ph.D., P.Eng., Fellow Life Member ASHRAE; and Hassan Younes, Member ASHRAE, BEAP, BEMP, HBDP, CPMP, HFDP, OPMP