



HTS UNIVERSITY



FIRST CLASS

AUGUST 29, 2018

LAST CLASS

OCTOBER 24, 2018

5:30 P.M. - 8:00 P.M.

HTS UNIVERSITY: HVAC FUNDAMENTALS

COURSE OUTLINE*

Module 1: Wednesday, Aug 29	Building Loads & Indoor Air Quality
Module 2: Wednesday, Sept 5	Refrigeration Cycle & Piping Design
Module 3: Wednesday, Sept 12	Psychrometrics
Module 4: Wednesday, Sept 19	Building HVAC Systems & Components
Module 5: Wednesday, Sept 26	VRF Design Basics
Module 6: Wednesday, Oct 3	Duct Design
Module 7: Wednesday, Oct 10	Fans, Motors & VFD's
Module 8: Wednesday, Oct 17	Automated Temperature Controls
Module 9: Wednesday, Oct 24	Engineering & Systems Economics

**Participants will earn 3 PDH's per class and dinner will be provided.*

WHERE

HTS Texas
3350 Yale St.
Houston, TX
77018



PURPOSE

HTS University is a 9 week training program designed to enhance Engineers' fundamental HVAC skills. This program is specifically geared towards engineers new to the industry and those engineers looking to improve their basic HVAC knowledge.

RSVP

htsuniversityhouston.eventbrite.com

Your space will be reserved when payment is received.

Please email meghan.mcconnell@hts.com with any questions.

COST

**\$70 per class or
\$50 per class
with a 5 class
minimum.**

Payment can be made by:
Emailing the credit card authorization form to Meghan McConnell at meghan.mcconnell@hts.com or mailing a check to HTS Texas Attn: Jeff Mamaux 3350 Yale Street Houston, TX 77018. Checks can be made out to 'HTS Texas'.

Cost includes meals, course book(s), psychrometric chart, ducting calculator, and notepad. Participants are expected to provide their own pencils/pens and calculators.

MODULE 1

BUILDING LOADS AND INDOOR AIR QUALITY

Heating and cooling loads are the primary basis for designing most heating and cooling equipment sizing. They determine the size of the equipment, ductwork, and piping. These items in turn have a significant impact on the initial cost of new construction. Students will learn the standards and methods needed to assess sizing.

MODULE 2

REFRIGERATION CYCLE AND PIPING DESIGN

The focus of this training module is the vapor compression refrigeration cycle as it is used for comfort cooling and heating. With this module, the student will be able to differentiate between various refrigerants and the components within the direct expansion (DX) piping layout. The student will also be able to size DX lines between evaporators and condensers given a set of specific job-site conditions. We will briefly cover installation details from a technical aspect and Houston specific project considerations.

MODULE 3

PSYCHROMETRICS

This module will discuss the fundamentals of psychrometrics, including a detailed review of the Psychrometric Chart, with a focus on temperature, humidity, dew point and other important parameters used every day in the HVAC industry. Students will be shown examples of how psychrometrics can be applied in both constant air volume and variable air volume system applications. Students will be challenged by solving problems and taking a quiz at the end of the class.

MODULE 4

BUILDING HVAC SYSTEMS AND COMPONENTS

This module will begin with a brief overview of the refrigerant cycle followed by a review of various HVAC building systems including DX, Chilled Water, and Condenser Water Systems. Plus, discover applications for HVAC components including boxes, fans, VFD's, pumps and RD's.

MODULE 5

VRF DESIGN BASICS

This course will focus on key design concepts for successful systems and essential information for equipment schedules. Students will be given an overview of OA basics when taken direct to VRF and will learn what the major areas of design coordination between trades are. The course will also detail information regarding insulation, refrigerant piping, pipe hangers, UV coating and other important spec items and drawing details.

MODULE 6

DUCT DESIGN

The focus of the duct design training is to teach air pressure and airflow basics, typical duct layouts, and different design principles. Hands-on learning will allow students to design a typical duct system and calculate the pressure losses.

MODULE 7

FANS, MOTORS AND VFDS

This training module is designed to provide an overview of the physical & performance characteristics of fans as well as an understanding of the importance of fan efficiencies. Students will be able to identify the various types of fans and fan blades. Understanding of site issues and how to overcome them using fan laws and static pressure profiles will also be demonstrated. Students will be able to evaluate a fan curve and sound data in order to provide ideal fan selections. This module will also cover basic conceptual background and applications of Variable Frequency Drives.

MODULE 8

AUTOMATED TEMPERATURE CONTROLS

The purpose of this module is to educate the market on the parts of a BAS system and how they fit together, the how and why of selecting valves and actuators that fit typical HVAC systems, and how a Building Automation System supports or contributes to LEED points.

MODULE 9

ENGINEERING AND SYSTEMS ECONOMICS

This module will define some of the terminology used in ASHRAE 90.1 and how to calculate simple payback and cash flow analysis. The second half of the class will cover the energy used in different systems and the cost of that energy to help evaluate which system should be used.



Delivering Real Success®



HTS UNIVERSITY

HTS TEXAS

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HTS University Fall 2017 Houston

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