

**TRAINING MODULE**  
**ENERGY EFFICIENCY IN AIR-CONDITION AND MECHANICAL VENTILATION (ACMV) MANAGEMENT**

**PROGRAM OUTLINE DAY 1**

<i>Time</i>	<i>Topic</i>	<i>Duration</i>
<b>8.30 a.m.</b>	<b>Participants Registration</b>	<b>30 mins</b>
<b>9.00 a.m.</b>	<b>Introduction &amp; Overview of the Training Program</b>	<b>15 mins</b>
<b>9.15 a.m.</b>	<b>Chapter 1: Introduction to Air-Conditioning &amp; Mechanical Ventilation</b> 1.1 Principles of Refrigeration 1.2 Psychometrics 1.3 Cooling Load Estimation & Software	<b>1 hr</b>
<b>10.15 a.m.</b>	<b>Break</b>	<b>15 mins</b>
<b>10.30 a.m.</b>	<b>Chapter 1: Introduction to Air-Conditioning &amp; Mechanical Ventilation (...cont.)</b> 1.4 Refrigerant Issue 1.5 Types of Air-Conditioning Systems (introductory) 1.6 Types of Mechanical Ventilation Systems (introductory).	<b>1 hr 30 mins</b>
<b>1.00 p.m.</b>	<b>Lunch Break</b>	<b>1 hr 15 mins</b>
<b>2.15 p.m.</b>	<b>Chapter 2: Factors Affecting Air-Conditioning Design</b> 2.1 Human Comfort 2.1.1 Dry Bulb Temperature 2.1.2 Relative Humidity 2.1.3 Air Movement 2.2 Indoor Design Conditions 2.3 Outdoor Design Conditions 2.4 Ventilation Requirements 2.5 Heat Source (Radiation, Convection & Conduction)	<b>1 hr</b>
<b>3.15 p.m.</b>	<b>Tea Break</b>	<b>15 mins</b>
<b>3.30 p.m.</b>	<b>Chapter 3: Types of ACMV System – Design &amp; Selection</b> 3.1 Design and Selection of ACMV 3.2 ACMV Systems <b>Chapter 4: Understanding Cooling Load &amp; Load Profile</b> 4.1 Peak Cooling Loads 4.2 Diversity Factors 4.3 Base Cooling Factors 4.4 Phantom Loads	<b>2hr 30 mins</b>
<b>6.00 p.m.</b>	<b>End of day 1</b>	

**PROGRAM OUTLINE DAY 2**

<b>Time</b>	<b>Topic</b>	<b>Duration</b>
<b>9.00 a.m.</b>	<b>Chapter 4: Understanding Cooling Load &amp; Load Profile (...cont.)</b> 4.5 Full Load and Part Load Operation 4.6 Chillers Configuration 4.7 Peak Load Shaving 4.7.1 Ice Thermal Storage System 4.7.2 Chilled Water Thermal Storage System 4.7.3 District Cooling System	<b>1 hr</b>
<b>10.00 a.m.</b>	<b>Chapter 5: Water and Air Distribution System</b> 5.1 Piping 5.2 Valves	<b>30 mins</b>
<b>10.30 a.m.</b>	<b>Break</b>	<b>15 mins</b>
<b>11.00 a.m.</b>	<b>Chapter 5: Water and Air Distribution System</b> 5.3 Pumps 5.4 Cooling Towers 5.5 PAHUs, AHUs, FCUs, Fans	<b>1 hr</b>
<b>12.00 p.m.</b>	<b>Chapter 6: Energy Efficient Equipment/Components</b> 6.1 Variable Speed Drives (VSD) 6.2 Heat Recovery Wheel	<b>1 hr</b>
<b>1.00 p.m.</b>	<b>Lunch Break</b>	<b>1 hr 15 mins</b>
<b>2.15 p.m.</b>	<b>Chapter 7: Testing &amp; Commissioning and Sustainable Maintenance</b> 7.1 Testing & Commissioning 7.2 Sustainable Maintenance	<b>1 hr</b>
<b>3.15 p.m.</b>	<b>Tea break</b>	<b>15 mins</b>
<b>3.30 p.m.</b>	<b>Chapter 8: SAVE Chiller Program Case Studies</b> 8.1 Introduction 8.2 Case Study 1 - Office Building 8.3 Case Study 2 – Hotel 8.4 Case Study 3 – Retail Mall	<b>2 hr 30 mins</b>
<b>6.00 p.m.</b>	<b>End of Training</b>	