

**1. Module details**

<b>Module name</b>	<b>Commissioning Air Handling Systems</b>
<b>Module duration</b>	0.5 module (18-20hrs)
<b>Module code</b>	NUE356
<b>Discipline code</b>	TBA

**2. Module purpose**

To enable students to Commission Air Handling Systems and all associated plant and equipment that is the responsibility of a mechanical services technician

**3. Prerequisites**

EA130 Commissioning HVAC Systems

**4. Relationship to competency standards**

NES404e, NES503e, NES303e

**5. Content****1. Fundamentals**

- Building specifications/requirements/responsibilities
- Standards and Codes
- Local Government regulations
- Reporting procedures
- Pre-commissioning checks
- Calibration of instruments, data collection and recording documentation

**2. Pre-commissioning Checks**

- Fire dampers
- Sprinklers, etc
- Fire sequence. ie. spill air / full out side air
- Insulation

**3. Power and Transmission Equipment**

- Motors
- Vibration
- Safety – coupling and guards
- Fan Laws
- Belt / coupling drives

**4. Air Systems**

- Air tabulation instruments
  - air flow
  - pressure
  - temperature
- Fan testing

- Air balancing procedures
- Leakage testing
- System capacity calculations
- Ancillary Equipment
  - Controls
  - Filtration equipment
  - Dampers
  - Outlets
  - Drainage
  - Lighting
  - Alarms
  - Modulating / damper motors
  - Flexible connections – supply and return air
  - Air Handling hardware – hinges, safety locks, etc

**5. Commissioning Sheets**

- Testing of fire trips
- Motor amps draw
- Damper operation
- Noise
- Vibration

**6. Assessment strategy**

**Assessment methods**

Short answer questions, practical exercises, assignment and on site commissioning and evaluation of equipment

**Conditions of assessment**

**7. Learning outcome details**

**Learning outcome 1**

**Read and interpret building mechanical service installation specifications, building codes and local government regulations, compile and report performance levels to industry standards.**

**Assessment criteria**

- 1.1 Interpret system specifications from design documentation.
- 1.2 Apply relevant building codes and local government regulations to a commissioning project.
- 1.3 Explain the application of fluid mechanic principles as applied to air handling system

**Learning outcome 2**

**Carry out pre – commissioning checks**

<b>Assessment criteria</b>	<ul style="list-style-type: none"> <li>2.1 Check operation of fire protection systems according to AS 1668.1</li> <li>2.2 Check condition of ductwork for air and water leakage</li> <li>2.3 Check power supply to fan, controls and other electrical ancillary equipment</li> <li>2.4 Check and adjust all damper motors and dampers</li> <li>2.5 Check that all filtration equipment is correctly installed</li> <li>2.6 Check condensate drain line is correctly installed and meets water board requirements</li> <li>2.7 Check correct installation of ductwork flexible connections</li> <li>2.8 Check and adjust all air handling hardware</li> </ul>
<b>Learning outcome 3</b>	<b>Correctly test, adjust and balance all associated power and transmission equipment.</b>
<b>Assessment criteria</b>	<ul style="list-style-type: none"> <li>3.1 Check correct rotation of all motors ,etc</li> <li>3.2 Check equipment for vibration</li> <li>3.3 Check all safety guards / couplings are correctly fitted</li> <li>3.4 Check drive belt tension and alignment</li> </ul>
<b>Learning outcome 4</b>	<b>Correctly test, adjust and balance, using appropriate Instruments on an air handling system</b>
<b>Assessment criteria</b>	<ul style="list-style-type: none"> <li>4.1 Accurately use air measuring test instruments</li> <li>4.2 Correctly test and adjust and balance and air handling system</li> <li>4.3 Calculate capacity of the air handling system</li> </ul>
<b>Learning outcome 5</b>	<b>Commission sheets / reports according to manufactures data sheets and system design requirements &amp; specifications</b>
<b>Assessment criteria</b>	<ul style="list-style-type: none"> <li>5.1 Record current draw of all motors</li> <li>5.2 Test and verify that system complies with all authority requirements</li> <li>5.3 Record air on / air off conditions and air velocities</li> <li>5.4 Check and record all relevant, air pressure and temperature</li> <li>5.5 Confirm that the system conforms with AS1668.2 (minimum ventilation requirements)</li> <li>5.6 Use fan laws if required to verify air quantities, velocities, and pressures</li> </ul>

**8. Delivery of the module**

**Delivery strategy**

Class room, Practical workshop, On site commissioning, and Assignment

**Resource requirements**

**Occupational health and safety requirements**

Students should be made aware of occupational health and safety issues in all situations and be expected to demonstrate safe working practices at all times.