

6187-204 Understand how to apply scientific principles within MES

2nd November 2012

Evolve Multiple Choice Test - Areas of Weakness Summary

Following is a list of the areas of the 6187-204 test in which a significant proportion of candidates have shown particular weakness during the first 6 months of the test's operation. It is **not** recommended that centres neglect the delivery of other areas of the syllabus in favour of the areas listed below. However, centres should consider whether their current delivery of each of these areas is sufficient, especially when taking into account the test specification (a copy of the test specification follows the list below).

Outcome 1 - Know the standard units of measurement used in the mechanical services industry

- Application and use of internationally recognised SI units of measurement (1.1)
- Application and use of SI derived units (1.2)

Outcome 2 - Know the properties of materials used in the mechanical services industry

- Principle applications of solid materials used in the mechanical services industry (2.2)
- Detailed properties of solid materials (2.3)
- Reasons why solid materials breakdown (2.4)
- Detailed properties of water (2.6)
- Detailed properties of gas (2.8)

Outcome 3 - Know the relationship between energy, heat and power in the mechanical services industry

- Methods of heat transfer (3.4)
- How units of energy and heat are related and derived (3.5)
- How to carry out simple heat, energy and power calculations (3.6)

Outcome 4 - Know the principles of force and pressure and their application in the mechanical services industry

- How units of force and pressure are derived from SI units (4.1)
- How to carry out simple force and pressure calculations (4.3)

- Relationship between velocity, pressure and flow rate in systems (4.4)
- Reasons why pipework restricts the flow of liquids and gases (4.5)

Outcome 5 - Know simple mechanical principles and their application in the mechanical services industry

- Principles behind simple machines (5.1)
- Principles of basic mechanics (5.2)

Outcome 6 - Know the principles of electricity as they relate to the mechanical services industry

- Basic principles of electron flow theory (6.1)
- Purpose and application of simple units of electrical measurement for use in the mechanical services industry (6.2)
- How to carry out simple electrical calculations (6.3)

Test Specifications

Learning Outcome	Number of questions	Percentage of the overall test
1 Know the standard units of measurement used in the mechanical services industry	3	9
2 Know the properties of materials used in the mechanical services industry	13	37
3 Know the relationship between energy, heat and power in the mechanical services industry	8	23
4 Know the principles of force and pressure and their application in the mechanical services industry	5	14
5 Know simple mechanical principles and their application in the mechanical services industry	2	6
6 Know the principles of electricity as they relate to the mechanical services industry	4	11
Total	35	100