

Title	Demonstrate knowledge of the principles of physics to aeronautical engineering (EASA 147 Maintenance)		
Level	5	Credits	7

Purpose	<p>This knowledge-based unit standard is one of a series intended for people under training to gain authorisation to certify, to European Aviation Safety Agency (EASA) standards, the release to service of aircraft or aeronautical components following maintenance or repair.</p> <p>People credited with this unit standard are able to demonstrate knowledge of the principles of physics to aeronautical engineering (EASA 147 Maintenance).</p>
----------------	---

Classification	Aeronautical Engineering > Aeronautical Maintenance Certification
-----------------------	---

Available grade	Achieved
------------------------	----------

Guidance Information

- 1 This unit standard is aligned with the European Aviation Safety Agency Examination Standard for *Module 2 Physics* and will be evidenced by meeting these requirements. This can be located through the EASA website at <http://www.easa.europa.eu>.
- 2 *Knowledge* – will be in the context of aeronautical maintenance as defined by European Commission Regulation (EU) No 1321/2014 as follows: ‘A detailed knowledge of the theoretical and practical aspects of the subject and a capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner’; will include making judgements regarding the scope, processes, and quality of maintenance for release to service certification; and will be in accordance with industry texts as defined by the candidate’s workplace or enterprise.
- 3 *Industry texts* include but are not limited to –
published aeronautical training manuals or text books;
enterprise exposition;
manufacturer publications;
government and local body legislation;
airworthiness or regulatory authority requirements.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of the principles of physics to aeronautical engineering (EASA 147 Maintenance).

Performance criteria

1.1 The principles of matter are described.

Range may include but is not limited to – nature, structure and states of matter; chemical elements and compounds.

1.2 The principles of mechanics are explained.

Range may include but is not limited to – statics (e.g. forces, centre of gravity, elements of theory of stress, strain and elasticity, nature and properties of solid, fluid and gas), kinetics (e.g. linear movement, rotational movement, periodic motion, simple theory of vibration, harmonics and resonance, velocity ratio), dynamics (e.g. mass, momentum), fluid dynamics (e.g. specific gravity and density, viscosity, static, dynamic and total pressure).

1.3 The principles of thermodynamics are explained.

Range may include but is not limited to – the principles of operation of thermometers and temperature scales, heat transfer, laws of thermodynamics, gases, expansion and compression, the principles of operation of refrigerators and heat pumps, thermal energy.

1.4 The principles of optics (light) are explained.

Range may include but is not limited to – nature and speed of light, laws of reflection and refraction, fibre optics.

1.5 The principles of wave motion and sound are explained.

Range may include but is not limited to – sinusoidal wave motion, Doppler effect.

Planned review date	31 December 2027
----------------------------	------------------

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	16 August 2012	31 December 2020
Review	2	28 September 2017	31 December 2024
Review	3	27 October 2022	N/A

Consent and Moderation Requirements (CMR) reference	0028
--	------

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Ringa Hora Services Workforce Development Council qualifications@ringahora.nz if you wish to suggest changes to the content of this unit standard.