

Domain**FITTING AND MACHINING****Title:****Demonstrate an understanding of
engineering materials used in the fitting and
machining working environment****Level: 2****Credits: 8****Purpose**

This unit standard is intended for those who demonstrate an understanding of engineering materials used in the fitting and machining working environment. People credited with this unit standard are able to explain the engineering materials used in the fitting and machining working environment, identify materials used in common engineering applications and conduct heat treatment on material.

This unit standard is intended for those who work in the fitting and machining working environment.

Special Notes**1. Entry information:**

Prerequisite:

- Unit 1157 Demonstrate basic knowledge of work place health and safety

- 2 This unit standard is to be delivered and assessed in the context of fitting and machining operations.
- 3 Assessment evidence may be collected from a real workplace or a simulated workplace in which fitting and machining operations are carried out.
- 4 Performance of all elements in this unit standard must comply with industry standards.
- 5 Regulations and legislation relevant to this unit standard include the following:
 - Labour Act 2007(Act no 11, 2007)
 - Regulations relating to the health & Safety of employees at work under Schedule 1 (2) of the Labour Act No.11 of 2007 and all subsequent amendments

Quality Assurance Requirements

This unit standard and others within this Subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details

of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority on www.nta.com.na

Elements and Performance Criteria

Element 1: Explain the engineering materials used in the fitting and machining working environment

Performance Criteria

- 1.1 Basic metallurgy and heat concept are explained.
- 1.2 Properties of base metals, alloys and synthetic materials are explained.
- 1.3 Metal specification and testing are discussed.
- 1.4 Ferrous and non-ferrous are differentiated
- 1.5 Synthetic materials are described.

Element 2: Identify materials used in common engineering applications

Performance criteria

- 2.1 Types of engineering materials are identified and differentiated from one another.
- 2.2 Physical properties of engineering materials are described.
- 2.3 Common applications and methods of processing and manufacturing of engineering materials are described.
- 2.4 Common metal tests used in engineering are described.
- 2.5 Heat treatment processes are identified and explained.
- 2.6 Changes in metal properties caused by heating are explained.
- 2.7 External factors effects on engineering materials are explained.

Element 3: Conduct heat treatment on material

Performance Criteria

- 3.1 Heat treatment process is selected.
- 3.2 Required quenching medium for metals are selected.
- 3.3 Test and inspections of heat treated parts performed.

Registration Data

Subfield:	Mechanical Engineering
Date first registered:	29 November 2018
Date this version registered:	29 November 2018
Anticipated review:	2023
Body responsible for review:	Namibia Training Authority