

Specification of Competency Standards
for the Manufacturing Technology.
Unit of Competency.

Functional Area - Product Manufacturing

Title	Perform advanced EDM and master various machining parameters to improve quality of mould components
Code	106511L3
Range	This unit of competency is applicable to the product manufacturing departments / production departments of companies engaged in the tooling industries. Practitioners should be capable to understand the principles of advanced EDM (electrical discharge machining), and are able to perform advanced EDM operations such as mirror surface machining, EDM drilling, and micro EDM to meet precision surface finish requirements
Level	3
Credit	4
Competency	Performance Requirements - Understand relevant knowledge of advanced EDM processes - Understand surface finishes generated by EDM using different machining parameters - Understand principles, characteristics, applications, and precision surface finish standards for advanced EDM operations, include mirror surface EDM, EDM drilling, and micro EDM - Understand principles, characteristics, and applications of mirror surface EDM, and related surface finish standards - Understand principles, characteristics, and applications of micro EDM, and related precision micro surface finish standards - Understand impact of machining fluids on workpiece quality and EDM performance - Understand parameter setting and optimisation techniques for precision and micro EDM operations - Understand how different workpiece materials and engineering designs affect EDM parameter settings - Understand types, specifications, structure, applications, and working principles of CNC precision EDM machines, and differences between standard and precision EDM machines - Understand various machining instructions, program structures, and programming methods used in CNC EDM machines for precision and micro EDM operations - Understand intelligent solutions applicable to CNC EDM machines, include data acquisition, data enterprise, and preventive maintenance - Perform advanced electrical discharge machining - Able to set appropriate machining parameters according to workpiece materials and engineering drawings, and create precision and micro EDM programs - Able to set suitable EDM parameters and correction values under guidance, based on engineering drawings, include tolerances, surface textures, and surface finish requirements - Able to accurately install and align workpieces and electrodes - Able to evaluate the machining performance of EDM electrodes under guidance - Able to operate CNC precision EDM machines to perform advanced EDM operations, include mirror surface machining, ultra-fine surface machining, optimised surface roughness machining, EDM drilling and EDM milling - Able to maintain and troubleshoot CNC EDM machines under guidance, to ensure precision and surface quality

	• Able to select appropriate electrodes and machining conditions as the basis for estimating machining time in precision and micro EDM • Able to estimate machining time for precision and micro EDM based on product shape, accuracy, drawings, electrode movement, and machining conditions • Able to process and organise data collected from CNC EDM machines, to assess machining quality and equipment performance, and adjust production parameters in real-time to optimise production, according to departmental requirements • Able to retrieve production data from machine PLCs or external sensors 3. Professional handling of advanced EDM • Able to follow safety guidelines and regulations for precision and micro EDM operations, and comply with design drawings, specifications, and production efficiency requirements
Assessment Criteria	The integrated outcome requirements of this unit of competency are: • Able to operate EDM machines to perform various advanced EDM operations, include mirror surface machining, ultra-fine edge machining, optimised surface roughness machining, and EDM drilling • Able to operate micro EDM machines to perform micro EDM operations • Able to handle abnormal situations and perform maintenance on EDM machines, under guidance, to ensure machining accuracy and surface quality
Remark	This is the updated version of UoC 106511L4 Individuals who possess the above knowledge and competency are also required to possess the knowledge and competency of “ Perform electrical discharge machining (EDM) and monitor various machining data to improve quality of mould components (106405L2)”