

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

Functional Area - Product Manufacturing

Title	Intermediate computer numerical control (CNC) precision turning
Code	106510L4
Range	This unit of competency is applicable to the production department of the corporation of tooling manufacturing industry. Practitioners should be capable to understand the knowledge of intermediate computer numerical control (CNC) turning, operate Intermediate CNC turning machines and carry out precision turning
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <ol style="list-style-type: none"> 1. Understand the techniques and technologies of intermediate computer numerical control (CNC) turning <ul style="list-style-type: none"> • Understand the specifications and characteristics of the thread • Understand the computer-aided manufacturing software of turning (CAM), including the 3D model programming and the application of output and input interface system CAM • Understand the intermediate programming methods of (CNC) turning, including instructions of curves, tapered, all kinds of thread, pipe thread, trapezoidal thread, square thread, ball thread, flat thread, and variable lead thread, fixed program, recycling program and subroutine turning programming • Understand the functions of all kinds of cutting fluid and applications of the treatment methods of metal scrap • Understand the calculation of curves intersection in the geometry • Understand the influence of all CNC turning parameters on the milling effect and finished goods • Understand the characteristics and using methods of all kinds of Tool Setter • Understand the types and applications of intermediate standard fixtures • Understand the setting mode and principles of computer connections • Understand all kinds of specific tools and carriage • Understand the relationship between different processing parameters and tool life, including feed rate and cutting speed 2. Carry out intermediate computer numerical control (CNC) precision turning <ul style="list-style-type: none"> • Apply all kinds of measuring instruments to Initially measure the finished goods • According to the requirements of finished goods, apply CAM software to compile turning tool path program • According to engineering design requirements, set the appropriate parameters • Carry out Direct Numerical Control (DNC) in appropriate timing • Set and use the automatic tool path correction of Tool Setter • Use special fixtures to fix the sheet workpiece and complex shape of workpiece, and carry out calibration • Manage the tool of CNC turning machine, set and amend the information of tool life • Using the appropriate processing parameters to extend tool life • Design and manufacture specific fixture in accordance with different requirements • According to engineering design requirements, carry out intermediate CNC precision turning • Calculate the appropriate processing parameters, including intermediate and cutting speed, so as to optimise the turning efficiency • Select appropriate cutting fluid 3. Professional handling of intermediate computer numerical control (CNC) precision turning

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	<ul style="list-style-type: none">Follow safety guidelines of CNC turning (such as handle metal scrap produced in the turning process) and related Code, and in accordance with design drawings, specifications and production efficiency requirements, carry out CNC precision turning
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none">Capable to compile complex 3D CNC turning program 3DCapable to carry out complex precision turning of parts and finished goods to ensure the finished product meet the required precision, and coordinate with the appropriate parameters to extend the tool life
Remark	Person who has the above knowledge and ability should also obtain the knowledge and ability of Foundation computer numerical control (CNC) turning processing (106403L3) at the same time.