-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- **0074694** **-Session-1987-88**
-Superclass- **XF**

-Title- **CNC PART PROGRAMMING 2**

-DESCRIPTION-

Type and Purpose

A specialist module which enables the student to extend his/her skills in manual part programming.

Preferred Entry Level

74698 CNC Part Programming I

Learning Outcomes

The student should:

1. plan operational layouts;
2. write manual part programmes;
3. prove part programmes.

Content/ Context

Corresponding to Learning Outcomes 1-3:

1. Operational layouts for complex components with internal and external features, for turning, milling, drilling, and boring operations.
2. Part programmes for interactive, conversational and ISO coded systems which include: tool radius compensation; a range of tools; linear and polar co-ordinate programming techniques; use of a range of fixed cycles such as drilling, pecking, slot milling, datum shifts, threading; use of sub-routines, repeat loops, and nesting.
3. Methods of proving part programmes eg. execution on a CNC machine tool and graphic simulation.

Suggested Learning and Teaching Approaches

Learning should take place in an environment where techniques and processes can be demonstrated. There should be reasonable access to a CNC machine tool and/or computer system with software to simulate advanced machining operations.

Assessment Procedures

Acceptable performance in the module will be satisfactory achievement of the performance criteria specified for each Learning Outcome.

The following abbreviations are used below:

LO Learning Outcome
IA Instrument of Assessment
PC Performance Criteria

LO1 IA Planning Layouts for:

(a) a turned component and

(b) a prismatic component.

PC The student plans an efficient operational layout for:

(a) a turned component with internal and external features, using a minimum of three tools;

(b) a prismatic component with profiling, slotting, and drilling/boring operations.

LO2 IA Part programmes for:

(a) a turned component;

(b) a prismatic component.

PC The student:

(a) writes efficient part programmes for components which meet the criteria stated for the components described in LO1 PC (a) and (b), to include the following features:

(I) tool radius compensation;
(ii) range of tools;
(iii) linear and polar co-ordinate programming techniques;
(iv) use of fixed cycles;
(v) use of sub-routines, loops and resting;

(b) produces operator instructions.

LO3 IA Programme Proving for the programmes written in LO2.

PC The student proves the programmes on a machine tool or graphic simulator.