-SQA- SCOTTISH QUALIFICATIONS AUTHORITY

NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION

GENERAL INFORMATION

-Module Number- **3310074** **-Session-1994-95**

-Superclass- **WH**

-Title- **WOVEN FABRIC PRODUCTION: PRINCIPLES OF WEAVING MACHINES 1**

-DESCRIPTION-

GENERAL COMPETENCE FOR UNIT: Operating a loom or weaving machine, identifying shedding mechanisms, describing weft insertion and the relationship between the primary motions of a loom or weaving machine.

OUTCOMES

1. investigate the relationship between the primary motions of a loom or weaving machine;

2. investigate the characteristics and uses of shedding mechanisms;

3. describe the principles of weft insertion systems;

4. operate a loom or weaving machine under supervision.

CREDIT VALUE: 1 NC Credit

ACCESS STATEMENT: 3310084 Woven Fabric Production: Weaving Preparatory Processes; 3310064 Woven Fabric Production: Fabric Structures 1.

For further information contact: Committee and Administration Unit, SQA, Hanover House, 24 Douglas Street, Glasgow G2 7NQ.

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STATEMENT OF STANDARDS

UNIT NUMBER: 3310074

UNIT TITLE: WOVEN FABRIC PRODUCTION: PRINCIPLES OF WEAVING MACHINES 1

Acceptable performance in this unit will be the satisfactory achievement of the standards set out in this part of the specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

OUTCOME

1. INVESTIGATE THE RELATIONSHIP BETWEEN THE PRIMARY MOTIONS OF A LOOM OR WEAVING MACHINE

PERFORMANCE CRITERIA

(a) The identification of the primary motions of a loom/weaving machine in the sequence in which they occur is correct.
(b) The construction of a timing diagram for a given loom type is correct with respect to given specifications.

RANGE STATEMENT

Primary motions: shedding; weft insertion; beat-up.

EVIDENCE REQUIREMENTS

Written evidence of the ability to identify the operational sequence and written/graphics evidence of the operational sequence of a given loom or weaving machine covering the specified ranges.

OUTCOME

2. INVESTIGATE THE CHARACTERISTICS AND USES OF SHEDDING MECHANISMS

PERFORMANCE CRITERIA

(a) The description of the operating principles of tappet shedding is correct.
(b) The description of the principles of dobby shedding is correct.
(c) The description of the principles of jacquard shedding is correct.
(d) The preparation of pattern control for a dobby mechanism is correct with respect to given specifications.

RANGE STATEMENT

Shedding mechanisms: tappet; dobby; jacquard.

Pattern control: lags; pegs; card; card cutting; electronic.

EVIDENCE REQUIREMENTS

Written/graphics evidence of the ability to make comparisons between the characteristics and uses of different shedding mechanisms. Practical evidence of the ability to prepare pattern control for a dobby mechanism. The above specified ranges must be covered.

OUTCOME

3. DESCRIBE THE PRINCIPLES OF WEFT INSERTION SYSTEMS

PERFORMANCE CRITERIA

(a) The description of the method of weft insertion by shuttle is accurate.
(b) The description of the method of weft insertion by multiple gripper is accurate.
(c) The description of the method of weft insertion by rapier is accurate.
(d) The description of the methods of weft insertion by jet is accurate.
(e) The identification of the functions of reeds is correct and relevant calculations are accurate.
(f) The calculations of reeds are accurate with respect to given specifications.

RANGE STATEMENT

Reeds: single; double; scotch; Huddersfield; metric.

EVIDENCE REQUIREMENTS

Written/graphics evidence of the techniques involved in weft insertion, written evidence of the functions of reeds and relevant calculations. The specified ranges must be covered.

OUTCOME

4. OPERATE A LOOM OR WEAVING MACHINE UNDER SUPERVISION

PERFORMANCE CRITERIA

(a) The use of the start-up and close-down procedures is correct with respect to safe working practices and procedures.
(b) The setting and operating procedures are accurate with respect to safe working practices and procedures.
(c) The procedures for repairing warp and weft breaks are correct with respect to safe working practices and procedures.

RANGE STATEMENT

Procedures: start; stop; setting; operating; repairing faults; broken ends; leaf looking.

EVIDENCE REQUIREMENTS

Practical evidence of the ability to use start-up and close down procedures, setting and operating procedures, repairing and covering the above range.

ASSESSMENT RECORDS

In order to achieve this unit, candidates are required to present sufficient evidence that they have met all the performance criteria for each outcome within the range specified. Details of these requirements are given for each outcome. The assessment instruments used should follow the general guidance offered by the SQA assessment model and an integrative approach to assessment is encouraged. (See references at the end of support notes).

Accurate records should be made of assessment instruments used showing how evidence is generated for each outcome and giving marking schemes and/or checklists, etc. Records of candidates' achievements should be kept. These records will be available for external verification.

SPECIAL NEEDS

In certain cases, modified outcomes and range statements can be proposed for certification. See references at end of Support Notes.

NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION

SUPPORT NOTES

UNIT NUMBER: 3310074

UNIT TITLE: WOVEN FABRIC PRODUCTION: PRINCIPLES OF WEAVING MACHINES 1

SUPPORT NOTES: This part of the unit specification is offered as guidance. None of the sections of the support notes is mandatory.

NOTIONAL DESIGN LENGTH: SQA allocates a notional design length to a unit on the basis of time estimated for achievement of the stated standards by a candidate whose starting point is as described in the access statement. The notional design length for this unit is 40 hours. The use of notional design length for programme design and timetabling is advisory only.

PURPOSE This module will enable the candidate to extend his/her knowledge of the principles and operation of loom mechanisms.

SQA publishes summaries of NC units for easy reference, publicity purposes, centre handbooks, etc. The summary statement for this unit is as follows:

The module will enable you to acquire a degree of specialist knowledge in the principles of loom mechanisms and provide a foundation for subsequent study and development.

CONTENT/CONTEXT Safety regulations contained in the Health and Safety at Work Act, COSHH and other relevant legislation and observed.

Corresponding to Outcomes 1-4:

1. The knowledge of the operating sequence of primary motions, observation of various looms or weaving machines, and the preparation of timing diagrams for different types of machines.

2. The comparison of tappet, dobby and jacquard mechanisms. The relationship between fabric structure and the type of shedding mechanism used. The use of bowls, lags or card to produce a dobby control from a given peg plan.

3. The comparison of shuttle, rapier, multiple gripper and jet systems of weft insertion. The function of reeds, double reeds, reed calculations and sley movements.

4. The practical aspects of start-up, leaf looking, setting and operating procedures, pick spacing, weft colour pattern, and peg plan to ensure that the fabric is free of broken or misplaced warp ends and weft picks are followed.

APPROACHES TO GENERATING EVIDENCE Mechanisms and techniques should be discussed and demonstrated using lectures, tutorials, video presentations, OHP and practicals.

Practical exercises should be performed to ensure the competence of the candidate in specified areas and these should be enhanced by small group activities using a range of looms/weaving machines appropriate to the candidate's vocational needs and interests.

The use of working models should be extensively used to provide access to machinery for the candidates.

Safety, safe working practices and correct use of equipment should be an integral part of this module.

ASSESSMENT PROCEDURES Centres may use Instruments of Assessment which are considered by tutors/trainers to be the most appropriate. Examples of instruments which could be used are as follows:

Outcome 1 It is recommended that written/graphics exercises are set here to identify the correct operational sequence of the primary motions in weaving and their operational sequence on given looms or weaving machines relating to material contained in Performance Criteria (a)-(b).

Outcome 2 It is recommended that written/graphics exercises are set here to compare and describe specified shedding systems relating to Performance Criteria (a)-(c) and a practical exercise set where a pattern control for a dobby mechanism is prepared and fitted relating to Performance Criterion (d).

Outcome 3 It is recommended that written/graphics exercises are set here to compare and describe specified weft insertion systems and their suitability for particular fabric classifications as contained in Performance Criteria (a)-(c), plus practical exercises and calculations relating to the functions of reeds as in Performance Criterion (d).

Outcome 4 It is recommended that practical exercises are set here where the candidate demonstrates competence in a series of operations and procedures prior to and during the weaving processes stipulated in Performance Criteria (a)-(c).

PROGRESSION Candidates could progress on to Higher National units.

RECOGNITION Many SQA NC units are recognised for entry/recruitment purposes. For up-to-date information see the SQA guide 'Recognised and Recommended Groupings'.

REFERENCES

1. Guidelines for Module Writers.
2. SQA's National Standards for Assessment and Verification.
3. For a fuller discussion on assessment issues, please refer to SQA's Guide to Assessment.
4. Procedures for special needs statements are set out in SQA's guide 'Students with Special Needs'.