-SQA- SCOTTISH QUALIFICATIONS AUTHORITY

**Hanover House
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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number-	2140010	**-Session-1990-91**
-Superclass-	WH	

-Title-   **CLOTHING MACHINING: MANUFACTURING TECHNOLOGY 1 ($X^1/_2$)**

-DESCRIPTION-

Purpose

This module is designed to provide the student with the knowledge and skills required to develop a broader understanding of techniques and problems relating to manufacturing processes of needles, threads, fabrics and seams used in the garment and allied industries.

It is intended that this module is taught in conjunction with other related modules and forms part of a course of study which should include complementary industrial experience.

It is aimed at those following a career in clothing machine engineering.

Preferred
Entry Level

Standard grade in Mathematics at 3
Standard grade in Science at 3
Standard grade in English at 3.

Outcomes

The student should:

1.   outline the manufacturing stages and basic features of the industrial sewing machine needle;

2.   outline the characteristics, properties and uses of the basic fibre types used for thread and fabric production;

3.   outline the construction of the main British standard seam types;

4.   outline the basic factory layout and organisational structure used for garment manufacture.

Assessment
Procedures

Acceptable performance in this module will be satisfactory achievement of all the Performance Criteria specified for each Outcome.

The following abbreviations are used below:

PC   Performance Criteria
IA   Instrument of Assessment

Note: The Outcomes and PCs are mandatory and cannot be altered. The IA may be altered by arrangement with SQA. (Where a range of performance is indicated, this should be regarded as an extension of the PCs and is therefore mandatory.)

OUTCOME 1

OUTLINE THE MANUFACTURING STAGES AND BASIC FEATURES OF THE INDUSTRIAL SEWING MACHINE NEEDLE

PCs

(a)   The outline of the various production methods used in needle manufacture is correct.
(b)   The illustration of the structure of the basic sewing machine needle is correct.
(c)   The identification of basic needle features is correct.

IA   Objective Test

The student will be set an exercise consisting of objective items to test knowledge of the manufacturing stages and basic features of the industrial sewing machine needle.

The exercise will consist of oral/written short answer questions in accordance with PC as follows:

(a)   Various production methods used in
       needle manufacture   1

(b)   diagrammatic illustration of the
       structure of the basic industrial
       sewing machine needle   1

(c)   basic needle features   10

Satisfactory achievement of the Outcome will be based on all PC being met. This will be demonstrated by the student producing 1 correct response to each of (a) and (b) and 10 correct responses to (c).

OUTCOME 2   **OUTLINE THE CHARACTERISTICS, PROPERTIES AND USES OF THE BASIC FIBRE TYPES USED FOR THREAD AND FABRIC PRODUCTION**

PCs

(a)   The explanation of the classification of textiles and threads is correct for:

(i)   natural;
(ii)   man-made.

(b)   The identification of the fibre structure is correct.
(c)   The description of the process of converting fibres to yarn is correct.
(d)   The definition of a range of physical properties related to fibres is correct.

IA   Objective Test

The student will be set an exercise consisting of objective items to test knowledge of the characteristics, properties and uses of basic fibre types used for thread and fabric production.

The exercise will consist of oral/written short answer questions in accordance with the PC as follows:

(a)   explanation of the classification of
         textiles and threads   2
(b)   identification of fibre structure   1
(c)   description of conversion process   1
(d)   physical properties   5

Satisfactory achievement of the Outcome will be based on all PC being met. This will be demonstrated by the student producing 2 correct responses to (a), 1 correct response to each of (b) and (c) and 5 correct responses to (d).

OUTCOME 3   **OUTLINE THE CONSTRUCTION OF THE MAIN BRITISH STANDARD SEAM TYPES**

PCs

(a)   The identification of the main British Standard seam types is correct.
(b)   The illustration of each of the main British Standard seam types is correct and incorporates the correct graphical symbol.
(c)   The identification of the characteristics of a properly constructed seam is correct.

IA   Objective Test

The student will be set an exercise consisting of objective items to test knowledge of the main British Standard seam types and their construction.

The exercise will consist of oral/written short answer questions in accordance with the PC as follows:

(a)   main British Standard seam types   1
(b)   illustrations of seam types   1
(c)   characteristics   1

Satisfactory achievement of the Outcome will be based on all PC being met. This will be demonstrated by the student answering each of the questions in accordance with the PC.

OUTCOME 4   **OUTLINE THE BASIC FACTORY LAYOUT AND ORGANISATIONAL STRUCTURE USED FOR GARMENT MANUFACTURE**

PCs   (a)   The identification of the departments within a clothing factory is correct.
             (b)   The outline of the activities of the departments is correct.

             IA   Objective Test

The student will be set an exercise consisting of objective items to test knowledge of the basic factory layout and organisational structure used for garment manufacture.

The exercise will consist of oral/written short answer questions in accordance with the PC as follows:

(a)   departments   1
(b)   departmental activities 1

Satisfactory achievement of the Outcome will be based on all PC being met. This will be demonstrated by the student producing correct responses to each of (a) and (b).

**The following sections of the descriptor are offered as guidance.
They are not mandatory.**

CONTENT/CONTEXT

Safety and safe working practices should form an integral part of the module activities during investigation of practical machine operation and the effects produced in relation to the actual sewing performance of the selected machine thread, fabric and seam types.

Corresponding to Outcomes 1-4:

1.   Recognition of the stages appropriate to the manufacture of industrial sewing machines needles: development - hand to machine; materials - metallic structure and mechanical properties of needle steel wire; general and specialised characteristics - butt to point.

2.   (A)   Recognition of fibre groups used for basic thread and fabric production principles:

                (i)   Classification of textile fibres, their source and methods of manufacture:

                        Natural: cellulosic (seed and bast); protein (wool, selected hair fibres and silk); mineral-asbestos.

                        Man-made: regenerated   (cellulosic);   modified regenerated (acetates); synthetic (polamide, polyester, polyacrylic; modacrylic, polyurethane; mineral (glass, metallic).

                (ii)   Basic terminology: natural; regenerated; modified; regenerated and synthetic fibres.

                (iii)   Sources: America, Egypt, Asia etc.

        (B)   Main dimensions and importance of selected fibres in relation to their staple length, fineness and quality for processing into yarns and fabrics:

                Natural: (vegetable/animal) cotton flax, jute, wool and silk.

                Synthetic: (man-made) viscose, acetates, nylon, polyester and acrylics.

        (C)   Characteristics, appearance, properties, structural and behavioural aspects of fibres:

                (i)   Strength to coolness;
                (ii)   Chain linkage and components;
                (iii)   Microscopic appearance;
                (iv)   the basic requirements of a textile fibre;
                (v)   general process of converting into yarns;

(vi)   basic requirements of a textile fabric used in garment construction;

(vii)   Tensile properties related to fibre structure.

"Yield Point", "tenacity", "extensibility", "elasticity" and "elastic recovery".

(viii)   Effects of high and low values of tensile properties on behaviour of materials in garment form.

3.   Theory and Construction of Main British Standard seam types.

A.   British standard classification and numbering systems and graphical symbols as listed in Parts I and II of BS 3870 (150 - 4915 and 4916).

(i)   superimposed seams;
(ii)   lapped seams;
(iii)   bound seams;
(iv)   flat and edge seams.

B.   (i)   strength;
(ii)   elasticity and extensibility;
(iii)   security;
(iv)   durability;
(v)   appearance;
(vi)   comfort.

C.   Elements affecting properly constructed seams;

(i)   stitch type;
(ii)   stitch density;
(iii)   thread tension;
(iv)   thread strength;
(v)   thread elasticity;
(vi)   material (fabric) characteristics;
(vii)   machine parameters.

D.   Defects in seam construction:

(i)   seam pucker;
(ii)   seam slippage;
(iii)   seam breakage;
(iv)   seam grin;
(v)   seam malformation;
(vi)   seam run-off.

4.   Departments within a clothing machine factory. Function/activities of each department.

SUGGESTED LEARNING AND TEACHING APPROACHES

This module should be presented in the sewing room/workshop where the tutor should carefully explain and demonstrate the various techniques using a programme of exercises related to a theme or vocational bias which will interest the student.

The student would follow an activity-based learning approach to become familiar with the technology and machines in questions. Students could work singly or in pairs.

In the initial stages the tutor would fully explain and demonstrate each operation or process or machine. Terminology and principles should be introduced in the context of the exercises.

Student activities would be essentially centred on a practical exercise assignment and the tutor would be expected to prepare precise briefs for each assessment exercise.

A set of complete exercises, where applicable, should be available for the students to relate and compare standards.

Information charts and posters relating to needles, threads, fabrics, seams, machines and work aids should be displayed to assist the students with the exercises.

Safety and safe working practices should form an integral part of all instruction. It should be stressed throughout the module that the need for good house-keeping, tidy layout of workplaces, materials, tools and machines is imperative.

09/02/98 JH/AM