-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- **0064552** **-Session-1986-87**

-Superclass- **XH**

-Title- **STEAM GENERATING PLANT (x $^{1}/_{2}$)**

-DESCRIPTION-

Type and Purpose

A general module ($^{1}/_{2}$) which enables the student to acquire a broad, general knowledge of the principles of operation, constructional features and applications of steam plant and systems. The module is designed to suit the needs of non-specialist staff who may come in contact with steam generating plant. It does not attain the level of competence appropriate to skilled maintenance staff.

Preferred Entry Level

04800 Engineering Communication (1/2)

Learning Outcomes

The student should:

1. know the function, principles of operation and applications of steam plant;
2. apply a systems approach to the analysis of plant;
3. know the function and constructional features of system components;
4. know the routine maintenance requirements;
5. know the appropriate regulations and procedures required for the safe working and routine maintenance of steam plant.

Content/ Context

Corresponding to the Learning Outcomes:

1. application, function and principles of operation of steam plant including: fire-tube and water-tube boilers; superheaters; economisers and fuel burning systems.

2. systems approach: boundaries; annotated block diagrams to show inputs, processes and outputs.

3. identification of the main components; constructional features. Outline treatment of steam plant control systems; gauges and indicating devices; relief valves, feed check valves and other safety devices/features.

4. routine inspection and maintenance tasks including: draining and cleaning; checking/testing for leaks; checking the operation of safety devices.

5. Appropriate safety regulations and procedures.

Suggested Learning and Teaching Approaches

Teaching methods should be primarily student-centred.

The use of well defined assignments in which the student is involved in the process of finding out, communicating, planning, implementing and appraising is strongly recommended.

Films, slides, models and simulations should be used to reinforce the learning outcomes.

Students should be encouraged to discuss problems, exchange ideas and assist each other. They should have ready access to relevant catalogues, technical publications and specifications.

Safety and safe working practices should be emphasised at all times.

Assessment Procedures

All learning outcomes must be validly assessed.

The student must be informed of the tasks which contribute to summative assessment. Any unsatisfactory aspects of performance should, if possible, be discussed with the student as and when they arise.

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 Written exercise.

PC The student satisfactorily:

(a) states the function and application of the steam plant units listed in the Content/Context;

(b) describes the principles of operation of fire-tube and water-tube boilers.

LO2 & 3 IA Written/graphics exercise.

PC From given data relating to a steam generating system, the student:

LO2 (a) draws a systems diagram;

(b) indicates the system inputs and outputs and processes;

LO3 (c) identifies the main system elements and states their function within the system;

(d) describes the constructional features of the main components.

LO4 IA Assignment report.

PC For a specified steam generating system, the student compiles a report which includes:

(a) an accurate description of the system;

(b) a description of the routine maintenance tasks/listed in the Content/Context.

LO5 IA Written exercise:

PC The student satisfactorily:

(a) identifies the risks involved in the routine maintenance and operation of steam plant.

(b) describes the appropriate safety procedures required for the safe operation and routine maintenance of steam plant.