SAQCC FIRE

D&GS TRAINING SUB COMMITTEE

COURSE CURRICULUM

COURSE	**Fire Detection Practical**	
ORIGINATOR	**Keith Norgate**	
DATE	06th August 2013	
Amendment 1	5th October 2013	Technical changes - Issued
Amendment 2	6th October 2013	Word change
Issued	30th October 2013	Issued

EQUIVALENT TRAINING COURSES AVAILABLE		
TITLE	TRAINING SCHOOL	CONTACT DETAILS
Fire detection practical	Fire Systems Training	011 450 4706

STATUS OF CURRICULUM - Issued

EQUIVALENT UNIT STANDARD	

None known

PURPOSE OF TRAINING COURSE

This training course is for learners to learn the installation of fire detection components and systems.

Learners who have completed this course will have a practical knowledge of how to install and connect fire detection components.

LEARNING ASSUMED TO BE IN PLACE

This course assumes the learner is already proved competent in:
Workshop practice
Cables and Cabling
Electrical and electronic theory

OUTCOMES REQUIRED

Topics Covered:

1. Safety and Regulations
2. Job planning
3. Tools used for Installation
4. Electronic components
5. Installing equipment

1. SAFETY AND REGULATIONS

Outcome 1: Explain site safety requirements

Learning Outcomes:

The learner should have an awareness of health and safety requirements and may include:

- The OSHA act
- The Mines Health and Safety Act
- Working at heights
- Ladder checks
- Hot work permits
- Lock out procedures
- Working in confined spaces
- Site safety file
- Tool box talks
- Reporting of accidents

Assessment:

- Learners to be aware of all safety requirements for working on sites

2. JOB PLANNING

Outcome 1: Plan and prepare a fire detection job

Learning Outcomes:

The learner should be able to understand and identify:

- Completion of tool requisitions
- Obtaining permit to work requisition
- Preparing a safe working area.
- Prepare a Bill of Materials for the installation
- Prepare purchase requisitions
- Prepare cable schedules and routes

- Co ordinate staff availability
- Drawing up a written plan and organize a schedule for the effective and efficient implementation and completion of a task

Assessment:

- The learner should be able to produce a typical job schedule.
- Learner should be able to produce "as built drawings"

3. TOOLS USED FOR INSTALLATION

Outcome 1: Test Equipment

Learning Outcomes:

The learner should be able to understand and identify:

- The scales on the multi-meter
- The leads on the multi-meter
- Measuring voltage and current.
- Measuring resistance
- The use and purpose of a loop line tester
- The operation of the loop line tester

Assessment:

- Learner to demonstrate how to select the correct scale and be able to operate the **multi** meter with confidence
- Learner to explain how to operate a loop line tester with confidence

Outcome 2: Apply soldering techniques.

The range includes:

- Soldering techniques include soldering electronic circuitry and joining cables.
- 'Joints' include but is not limited to end-on-end joints, T-joints and cable-onto-terminal joints.

Learning Outcomes:

The learners should be able to:

- Select soldering equipment that best suits the job/task to complete.
- Prepare for work activity by listing the components, tools and resources needed.
- Prepare the work area and materials for a practical demonstration.
- Solder in accordance to standard practice.
- Solder stranded wires
- Inspect joint for visible defects and clean the work area.
- Demonstrate safety procedures when soldering.

Assessment:

- Learner is given a typical scenario and must decide on the method that best suits the application. Prepare for work activity by listing the components, tools and resources needed.
- Prepare work area and materials and perform soldering correctly.
- Inspect joint for faults and neatness.
- Dispose of scrap material and restore work area to a safe and serviceable condition.

4. ELECTRONIC COMPONENTS

Outcome 1: Electrical and electronic components

Learning Outcomes:

The learner should be able to understand and identify:

- Power supplies and transformers.
- Relays
- Resistors
- Diodes and LED's
- Batteries
- Capacitors
- Wiring of these components

Assessment:

- Learner to describe how to identify and measure these components.
- Learner to demonstrate how to wire and connect these components.

Outcome 2: Test and replace electronic components

Learning Outcomes:

The learner should be able to:

- Test resistors, and transformers using appropriate test equipment.
- Test diodes with a multi meter.
- Look up semi-conductor components in a technical manual.
- Adhere to safety precautions when handling electrostatic sensitive devices. *The range includes: Safety precautions for the work-area, receipt and storage of components, PCB assembly and testing*.

Assessment:

- Testing is done practically using appropriate meters and results are recorded.
- The operation of referencing components is practically demonstrated.
- Components are tested for faults.

5. INSTALLING EQUIPMENT

Outcome 1: Installing equipment

Learning Outcomes:

The learner should be able to understand and identify:

- Different types of fixings for brick, concrete, plasterboard etc
- Mounting of the fire panel
- Mounting devices on the ceiling
- Mounting devices on the wall

Assessment:

Learner to demonstrate:

- Knowledge of different fixing techniques
- Where and how to install all the fire detection components.

Outcome 2: Termination of cables

Learning Outcomes:

The learner should be able to understand and identify:

- Cutting and stripping cables and conductors
- Terminating and jointing cables and conductors
- Use of heat shrink
- Identifying solid and stranded conductors
- Identifying conductor sizes

Assessment:

Learner to demonstrate:

- How to cut and strip cables
- How to terminate cables
- Identifying different wire sizes

Outcome 3: Wiring of conventional fire detection devices

Learning Outcomes:

The learners should be able to understand:

- Connecting conductors to fire detector bases

- Connecting conductors to siren and strobe lights
- Wiring of manual call points
- Installation of end of line resistors
- Connecting to zone inputs and outputs of fire panels
- Identifying power cables in the fire panel
- Wiring and connecting external relays

Assessment:

- Learner to demonstrate how to wire circuits and fire detection components to provide a fully configured system.
- Learner to demonstrate how to connect a shut down relay

Outcome 4: Wiring of addressable fire detection devices

Learning Outcomes:

The learner should be able to understand:

- Wiring A class circuits
- Connecting conductors to addressable fire detector bases
- Connecting conductors to addressable siren and strobe lights
- Terminating screens
- Wiring of addressable manual call points
- Wiring addressable I/O units
- Wiring short circuit isolators

Assessment:

- Learner to demonstrate how to wire circuits and addressable fire detection components to provide a fully configured system.

Outcome 5: Addressing line devices

Learning Outcomes:

The learners should be able to understand:

- Binary coding
- Different method of addressing devices

Assessment:

Learner to demonstrate knowledge of binary coding.
Learner to address certain line devices

Outcome 6: Testing the installation

Learning Outcomes:

The learner should be able to understand:

- How to power up the panel
- Identify faults on the panel
- How to repair line faults
- Identify open circuit conditions
- Identify short circuit conditions

Assessment:

Learner to demonstrate how to switch on the fire panel and clear all line or cable faults.