



SHUKELA TRAINING CENTRE
31 Sugar Mill Way, Mount Edgecombe, 4300
P.O. Box 23, Mount Edgecombe, 4300
Telephone: +27 31 508 7700
Facsimile: +27 31 502 3520
Website: www.sasa.org.za

COURSE TITLE: PHASE 1 – MILLWRIGHT

COURSE DURATION: 17 WEEKS

TARGET POPULATION: 1st year Apprentices

COURSE CONTENT:

- Induction to Shukela.
- General safety in the workplace

Mechanical

- Identify and interpret engineering drawings.
- Identify engineering materials and treatments.
- Identify basic hand and measuring tools and their uses.
- Identify workshop equipment and their uses.
- Apply basic hand skills.
- Fuse and gas weld mild steel plate.
- Braze, hard solder and silver solder ferrous and non-ferrous metals.
- Arc weld mild steel.
- Gas cut mild steel plate.
- Identify and Fit keys and locking devices.
- Identify, remove, replace and inspect bearings and bushes.
- Remove and align "V" belts and chain drives.
- Remove, replace and align couplings. (Taper Alignment)



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Electrical

- Describe the generation of electricity.
- Design and wire basic electrical circuits.
- Identify and use electrical test and measuring instruments.
- Describe the construction, operation and maintenance procedures on batteries.
- Terminate and join LT cables.
- Describe the construction and operation of three phase motors.
- Maintain Single & three - phase motors.
- Describe the construction and operation of single - phase motors.
- Test and connect single - phase motors.
- Test and connect three phase motors.
- Describe the construction and operation of DC motors.
- Wire and fault find on relay panels.
- Design and wire alarm circuits.



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COURSE TITLE: PHASE 2 – MILLWRIGHT

COURSE DURATION: 18 WEEKS

TARGET POPULATION: 2nd year Apprentices who have successfully completed Phase1 or individuals who have been recommended for this course as a result of an Assessment conducted at this Centre.

COURSE CONTENT:

Mechanical

- Lift and move equipment.
- Identify types of lubrication systems.
- Make and fit seals, packing and gaskets.
- Identify inspect and maintain conveyers.
- Install and maintain Pneumatic equipment.
- Repair pumps.
- Identify, strip, assemble and replace valves.
- Repair clutch assembly.
- Identify, overhaul and maintain gearboxes.
- Repair brake assembly.
- DTI Alignment.
- Laser alignment.

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Effective Date:	1 January 2012	Title:	Course outline
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Electrical

- Describe the construction of, test and connect DC Motors.
- Design, wire and fault find on various motor control circuits.
- Design, wire and fault find on various industrial control circuits.
- Wire and fault find on various motor & starter control gear.
- Fault finding on various single and three phase prewired panels

Electronics

- Design, wire and fault find on electro-pneumatic circuits.
- Install and program PLC's
- Identify and test electronic circuits.
- Construct and test electronic circuits.
- Install and test an AC drive.
- Install and test a DC drive.

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COURSE TITLE:

PHASE 3 – MILLWRIGHT

COURSE DURATION:

15 WEEKS

TARGET POPULATION:

3rd or 4th year Apprentices who have successfully completed the Phase 2 Apprentice millwright course and are eligible to attempt the National Trade Test, Individuals who are eligible and have successfully completed an Assessment conducted at this Centre.

COURSE CONTENT:

The main aspects are:

- Install and maintain Hydraulic systems.
- Advanced Hand skills and Marking – Off.
- Reinforcement of best practices for alignment, breaks and Bearings.
- Advanced panel wiring.
- Manufacturing & fault finding on Electronic circuits.
- Testing of electrical circuits and equipment
- Wiring and calculations of Transformers
- Design, wire advanced motor control circuits.
- Design, wire and fault find on various industrial panels.
- Advanced wiring of motor & starter circuits.
- Fault finding on pre-wire AC & DC circuits.
- Fault finding on pre-wire AC circuits with PLC

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- Conduit
- Testing of cables and motors

A feature of this course is the building up of the trainee's confidence as he is subjected to numerous fault-finding exercises with the emphasis on quality and speed of output.

Regular tests ensure that the trainee is keeping pace and improving steadily. At the end of the course the trainee should have reached Trade Test Standard.

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