



CTC

COLLIERY TRAINING COLLEGE



PROSPECTUS

Introduction to CTC



The Colliery Training College (Pty) Ltd. was founded in 1965. Initially CTC was established to cater only for the mining sector, but has diversified and our training programs are now available to all interested parties. We are open to employers as well as the public and individual learners.

CTC follows a modular approach to training with competency based assessments for which learners retain credit. All our training is geared to meet workplace demands. Our workshops and training rooms are staffed with skilled training officers in their various areas of expertise. CTC is accredited by the Mining Qualifications Authority (MQA) and the Quality Council for Trades and Occupations (QCTO). A Memorandum of Understanding exists between CTC and relevant SETAs.

Vision Statement

Working in partnership and in accordance with employers' requirements to develop and maintain the highest standard of training and rescue drill preparedness.

Mission Statement

To meet the technical training requirements of customer partners through:

- Consultation and liaison with them, regulators and other stakeholders regarding the training needs and standards required.
- Ensuring that our activities are executed in accordance with the requirements of ISO 9001:2015 and ISO 45001:2018.
- Ensuring effective training delivery, focussing on safety, costs and methodology.
- Promoting diversity, employment equity, black economic empowerment and staff development.

Facilities and services at CTC

Accommodation

Affordable shared accommodation, meals and sporting facilities are available at CTC for all mining, engineering, mineral processing and private students that receive training at CTC. Friendly staff and good food is part of your package. We also have 24-hour security at our premises. Accommodation is available at our two hostels Durain and Clarain.

Durain

Durain is located on CTC's main campus with space to accommodate 203 students, in shared rooms and bathroom. There is a dining room for meals and a television room with selected DSTV channels. Because every student is important we have the following available for the health and wellbeing:

- Tennis
- Swimming Pool
- Darts and board available on request at office
- Table tennis

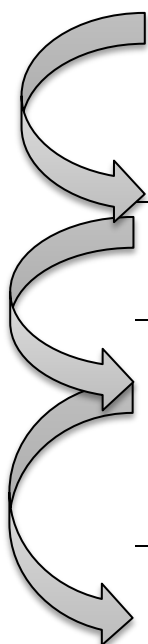
Clarain

Clarain is located in Reyno Ridge, with transport daily to and from CTC. Clarain accommodates 146 students. There is a shared dining room and television room with selected DSTV channels, as well as 24 hour security on the premises. Even being away from our main campus comes with the benefits of having the following available for relaxation:

- Swimming pool
- Squash court
- Darts and board available on request at office
- Table tennis

A. Summary of Engineering Apprentice Training Route (2022)

(See more details in Section F. below)	Duration (Full Time)	Starting Dates (Also see Section D)	Fee (Including VAT)
1. Start with one of our Short Courses : Give your apprenticeship a jump-start with the following short courses. You will be issued with a certificate of completion and retain credit towards your full qualification as an artisan by attending these short courses. You will also receive a discount on the Basic or Advanced training fees as indicated. You may also select some of the short courses in section B below, retain credit and get discount on your basic or advanced training fee.			
1.1. Introduction to the Electrical Trades	3 Weeks	Please enquire	R11 427.52
1.2. Assistant Training	6 Weeks	Please enquire	R21 722.21
1.3. Serviceman Training	6 Weeks	Please enquire	R21 722.21
1.4. Operative Training	6 Weeks	Please enquire	R21 722.21
1.5. MQA skills programme for Artisan aids	Trade dependant	Please enquire	Please enquire
2. Start with Basic Training : (The above-mentioned short courses can give you credit for modules towards basic training) Additional costs to that mentioned below will be: Toolboxes, PPE, Multimeter and Accommodation. Millwright and Fitter and Turner training comprise two blocks of Basic Training. Any fees paid towards 1.1., 1.2 or 1.3. above will be deducted from the fee.			
	12 Weeks	10 Jan, 4 Apr, 27 Jun & 19 Sep	R35 408.74
3. Go on to Advanced Training : Any fees paid towards 1.4. above will be deducted from the fee.			
	12 Weeks	10 Jan, 4 Apr, 27 Jun & 19 Sep	R35 408.74
4. Gain on job experience : 12-18 Months if you have a learnership agreement with an employer. If no learnership agreement is in place 3-5 years proven experience with employers are required before a trade test may be attempted. If you are not sponsored by an employer, it will be your own responsibility to secure On Job Training placement. The On Job Training can be commenced before Advanced Training is started, or it can be done entirely after completion of Advanced Training.			
	12 -18 Months	Determined by employer	-
5. Come back for Final Training and Trade Test : Requirements: Minimum 4 N2 subjects or matric (Science and maths) or NCV level 3 with 7 subjects above 40%. On the Job Training must be complete and the learner registered at any SETA. Millwright and Fitter and Turner training will be 16 weeks to prepare for trade test.			
	12 Weeks	10 Jan, 4 Apr, 27 Jun & 19 Sep	R620.07 per day



B. Summary of other Engineering Training courses (2022)

Course	Duration (Full Time)	Starting Dates (Also see Section D)	Fee (Including VAT)
6. Basic Gas Cutting and Welding: This course is open to anyone interested in acquiring these skills. Credit will be retained toward any trade enrolled for within one year; the fee will then also be discounted from the Basic Training fee.	2 Days	Please enquire	R3 328.22
7. Basic Rigging: This course is open to anyone interested in acquiring basic rigging skills. Credit will be retained toward any trade enrolled for within one year; the fee will then also be discounted from the Basic Training fee.	2 Days	Please enquire	R3 332.19
8. Advanced Rigging: This course is open to anyone interested in acquiring advanced rigging skills. Credit will be retained toward the Rigger trade if enrolled within one year; the fee will then also be discounted from the Basic Training fee.	5 Days	Please enquire	R7 393.11
9. Electrical Fault Finding: This course is recommended for qualified electricians or other technically qualified personnel and will not carry credits toward a trade.	2 Weeks	Please enquire	R6 207.30
10. Basic PLC: This course is open to anyone interested in acquiring skills required to design and write programs for a programmable logic controller. Credit will be retained toward the Electrical, Millwright and Instrumentation trades if enrolled within one year; the fee will then also be discounted from the Basic Training fee.	3 Days	Please enquire	R4 992.33
11. Gas Testing Training: The entry requirements are a minimum of 3 months relevant underground experience in a production section of a colliery. (No credits toward a qualification.)	2 Weeks	Please enquire	R5 935.68
12. Basic Electronics: This course is open to anyone interested in acquiring skills associated with electronic circuitry. Credit will be retained toward the Electrical, Millwright and Instrumentation trades if enrolled within one year; the fee will then also be discounted from the Basic Training fee.	3 Weeks	Please enquire	R9 311.60
13. Advanced Electronics: This course follows on the Basic Electronics course. Credit will be retained toward the Electrical, Millwright and Instrumentation trades if enrolled within one year; the fee will then also be discounted from the Basic Training fee.	2 Weeks	Please enquire	R6 207.30
14. Medium Voltage Switching: This MQA Accredited Skills Program is a requirement in terms of the Mines Health and Safety Act for qualified persons performing MV switching on mines. (No credits toward qualification)	5 days	Please enquire	R7 293.74
15. Medium Voltage Switching (Refresher): Some mines have it as a requirement that their competent persons performing MV switching attend a refresher course. (No credits toward qualification)	2-3 days	Please enquire	R5 233.48
16. Flameproof: For qualified artisans. Learners enrolled CTC from Underground Mining operations receive this training free of charge. (No credits toward a qualification.)	2 Weeks	Please enquire	R5 935.68

Course	Duration (Full Time)	Starting Dates (Also see Section D)	Fee (Including VAT)
17. Basic Hydraulics: This course is open to anyone interested in acquiring these skills. Credit will be retained toward any trade enrolled for within one year; the fee will then also be discounted from the Basic Training fee.			
	2 weeks	Please enquire	R6 207.30
18. Basic Pneumatics: This course is open to anyone interested in acquiring these skills. Credit will be retained toward any trade enrolled for within one year; the fee will then also be discounted from the Basic Training fee.			
	2 weeks	Please enquire	R6 207.30

C. Training Approach

We have a modular approach to training and try to accommodate client needs as far as possible. Our training covers both theory and practical sessions, with computer based assessments. We train the following trades: Electrician, Fitter / Mechanic Fitter, Rigger Ropeman, Fitter & Turner, Auto Electrician / Transportation Electrician, Instrumentation Mechanician, Millwright, Diesel Mechanic, Earthmoving equipment Mechanic, Plater / Welder / Boilermaker.

Our phases include basic training, advance training and then the final trade test preparation phase. Generally in the basic phase of training, which is 12 weeks, we take the learners through the basics of the chosen trade, including hand tools and basic processes of the trade. The advance training takes them deeper into the more complex methods and requirements of the trade of choice. The final training and preparation is the preparation towards the trade test where they ensure all the building blocks has been covered and that the candidate can complete the trade test successfully based on both the workplace and theory aspects of the trade of choice.

D. Minimum entry requirements

- Grade 12 Maths and Science at least an E symbol
- NCV level 3 or 4, 7 subjects above 40%
- N2 completed with Maths and Science Recommended subjects as required by the trade specifications for trade test acceptance – to be completed prior to final stage of training as per table below:

<u>Rigger</u>	<u>Fitter/Fitter & Turner</u>	<u>Electrician/Auto-Electrician</u>	<u>Instrumentation</u>
Mathematics	Mathematics	Mathematics	Mathematics
Engineering Science	Engineering Science	Engineering Science	Engineering Science
Engineering Drawing	Engineering Drawing	Engineering Drawing and or Industrial Electronics	Industrial Electronics
Riggers Theory	Fitting & Machining Trade Theory	Electrical or Motor Electrical Trade Theory	Instrument Trade Theory
<u>Diesel Mechanic/Earthmoving Equipment Mechanic</u>	<u>Plater/Boilermaker</u>	<u>Millwright</u>	<u>Welder</u>
Mathematics	Mathematics	Mathematics	Mathematics
Engineering Science	Engineering Science	Engineering Science	Engineering Science
Engineering Drawing	Plating & Structural Steel Drawing	Engineering Drawing and or Industrial Electronics	Engineering Drawing
Diesel or Motor Trade Theory	Platers' Theory	Electrical Trade Theory	Welder theory
		Fitting & Machining Trade Theory	

Training dates

Engineering training	Period (2022)	Training Days	Accommodation days
1 st Block	10 Jan – 1 Apr	59 days	83 days
2 nd Block	4 Apr – 24 Jun	54 days	83 days
3 rd Block	27 Jun – 16 Sep	58 days	83 days
4 th Block	19 Sep – 9 Dec	60 days	83 days

Millwright Training	Period (2022)
1 st block	10 Jan – 29 April
2 nd block	4 Apr – 22 Jul
3 rd block	27 Jun – 14 Oct

E. Registration process

Registration for Basic, Advance or Final Training can take place on-line, in person or via e-mail.

Step 1: Request registration documentation and a quote.

Step 2: **Learners not attached to an employer** is required to pay a 50 % deposit to secure a place. Submit the proof of payment, an I.D. copy, the booking form and the “contract for goods delivered and services rendered” (Annexure A) to CTC. This contract outlines the payment terms and conditions. Once this has been received we will process and confirm your booking. In the case of **learners attached to employers**, the employers will be requested to enter into a service level agreement with CTC. (Proforma available on web site.)

Step 3: Show up on the first day of the training block with all the required documentation and tools.

For short course engineering skills training registration, the candidate/client can register in person or via e-mail, sending the required documentation to us.

Step 1: Request the documentation from us specifying which short course and specific requirement. We can send you a quote to ensure you have the correct information and payment amounts.

Step 2: Learners not attached to an employer is required to pay a 100 % deposit to secure a place. Submit the proof of payment, an I.D. copy, the booking form and the “contract for goods delivered and services rendered” (Annexure A) to CTC. Once we have received, we will process and confirm your booking. In the case of **learners attached to employers**, the employers will be requested to enter into a service level agreement with CTC. (Proforma available on web site.)

Step 3: Show up on the agreed day of the training with all the required documentation and tools.

For trade test preparation ensure that you have met all the entry requirements and have your evidence portfolio signed off before registration then follow the exact same process as for the engineering skills training.

F. Course details

The short course details are as follows:

Introduction to mechanical trades – (4 Weeks) This course is ideally suited for a candidate who would like to know more about mechanical trades and if they would like to determine suitability for the mechanical trades. They cover the basics of all the mechanical trades.

Upon completion of this training the candidate is issued with a certificate of attendance and a module report on the modules completed. Credit will be retained toward the mechanical trades if enrolled within one year; the fee will then also be discounted from the Basic Training fee. The candidate has have own P.P.E. but a toolbox can be hired from CTC per day.

Introduction to electrical trades – (3 weeks) This course is ideally suited for a candidate who would like to know more about the electrical trades. It covers a very broad exposure to the electrical trades available to the candidate and assists to determine suitability for the electrical trades as well as specialisation within the field.

Upon completion of this training the candidate is issued with a certificate of attendance and a module report on the modules completed. Credit will be retained toward the Electrical, Millwright and Instrumentation trades if enrolled within one year; the fee will then also be discounted from the Basic Training fee. The candidate has have own P.P.E. but a toolbox can be hired from CTC per day.

Assistant training – (6 Weeks) This course is suited for candidates who have some exposure but no formal training. This training is available in both mechanical and electrical trades. During the time here they are being trained in some of the basic training modules. This is the forerunner for the serviceman training program. Credit retention and discounts apply.

Candidate is required to have own toolbox and P.P.E. Upon completion of this training the candidate is issued with a certificate of attendance and a module report on the modules completed.

Serviceman training – (6 weeks) This course is suited for candidates who have some exposure to their respective trade, but no formal training achieved. The candidate is recommended to have completed the assistant training course prior to this course. After the completion of this course they would have completed a course similar to the basic training in the same trade.

Candidate is required to have own toolbox and P.P.E. Upon completion of this training the candidate is issued with a certificate of attendance and a module report on the modules completed. Credit retention and discounts apply.

Operative training - (6 Weeks) This course is the last segment of training after the candidate has completed the assistant and serviceman training. Ideally suited for someone who has exposure and experience within the trade of their choice. This will complete their training to a large extend on both basic and advance modules in our modular training approach.

Candidate is required to have own toolbox and P.P.E. Upon completion of this training the candidate is issued with a certificate of attendance and a module report on the modules completed. Credit retention and discounts apply.

Gas testing – 2 weeks The entry requirements are a minimum of 3 months relevant underground experience in a production section of a colliery. The application has to be accompanied with a copy of the red ticket and a letter from the employer to confirm experience. This course aligns with the DMR requirements. You will cover the following in the course: Gasses, regulations, underground workshops, ventilation and gas testing practice.

Candidate will be issued with a certificate of competence upon completion of the course. There will also be a practical assessment. Bookings are essential as space is limited.

Flameproof Course – 2 Weeks. The entry requirements for this course entails that you are a qualified artisan in any trade or that you are on a valid learnership/apprenticeship with a company for training completing your basics and advanced training at CTC, includes junior engineers. You will cover some of the following aspects: flameproof enclosures, standards and modification, methane, hydrogen, diesel engines, increase of safety aspects, flameproof termination and electrical lighting, electrical cables and electrical protection of mining equipment.

Candidates will be issued with a certificate of competence upon completion of the course. Bookings are essential as space is limited.

Medium Voltage Course – 5 days with 7-14 weeks on-job-training. The entry requirements for this course entails that you have to be a qualified millwright or electrician with a minimum of 2 year experience. The candidate will be exposed to a week of theory and are then required to do 7-14 weeks of on-the-job training during which they need to complete tasks to log experience. A final theoretical assessment of one day and practical assessment of one day will be conducted at CTC and results to be forwarded to the MQA.

Candidates who have an MQA levy paying employer can register for the MQA skillsprogram in which you received a MQA-certificate of competence which does not expire. Should you not be have an MQA levy payer employer you will still be able to complete the course but you will receive a CTC certificate of competence which expires after 2 years.

This course covers the following aspects: Introduction to medium voltage systems, substations, protection, NERM, ECM, permits, switching, phasing, completion of workbook, pre-assessment, computer and practical assessment.

We also have MV –refresher courses running as per request from our clients. The individual needs to have done the novice course. Duration is 3 days.

Course details on the various full trades offered by CTC

Auto Electrician: Auto-Electricians have the responsibility to overhaul and repair all electrical systems on a vehicle. This also includes maintaining of all systems i.e. headlight adjustment, re-wiring of circuits, setting engine timing, battery maintenance. They also get familiar using portable electric hand tools and test benches. The following modules are done during training:

Basic Training(12 Weeks)

- Principals of basic electricity
- Use electrical testing instruments
- Conductors and cables
- Fault finding on basic electrical circuits
- Remove and mount bearings
- Starter motors
- Alternators
- Ignition system and lights
- Monitoring circuits
- Auxiliary circuits
- Maintain a storage battery

Advance Training(12 Weeks)

- Electronic ignition and fuel injection
- Wiring harness and connectors
- General maintenance
- Diagnosis and testing of electrical systems
- Combined tasks
- Headlight adjustment
- Basic Electronics

Diesel Mechanic/EMEM: (Earth Moving Equipment Mechanic) Diesel mechanics maintain all functions of diesel vehicles, including heavy earthmoving equipment used on opencast mines, etc. The following modules standards are done during training:

Basic Training (12 Weeks)

- Examine bearings
- Tension and align V-belts
- Cut and fit gaskets
- Lift and move equipment
- Start a four-stroke petrol/diesel engine
- Maintain cylinder heads
- Maintain lubrication systems
- Maintain fuel systems
- Maintain cooling systems

Advance Training(12 Weeks)

- Principles of pneumatics
- Principles of hydraulics
- Repair a steering system
- Overhaul a power transmission
- Maintain auto-electrical systems
- Grind valves
- Maintain clutches
- Assemble a differential and final drive
- Tune up an engine fitted with a distributor or in-line fuel system

Electrician: Electricians are responsible for the inspection and maintenance of all types of electrical equipment on machinery, in beneficiation plants and buildings, including offices, hostels, houses, etc. They are also responsible for the distribution of electricity, which includes the laying of cable networks and connection of transformers. The following modules are done during training:

Basic Training(12 Weeks)

- **Theory:**
Magnetism
Units and prefixes
Ohm- and Kirchoff's laws
- **Instruments:**
Use of electrical measuring instruments
Testing of cables
Determining of the layout of resistance circuits
- **Buildings:**
Lights and lighting circuits
Stove switching
Thermostatic controls
Construct and wire installations
Testing of single-phase installations
- **Single-phase motors:**
Single-phase motor theory
Testing of single-phase motors
Connecting a single-phase motor

Advance Training(12 Weeks)

- Semi-automatic motor starters
 - Fully-automatic motor starters
 - Resistance starters connected to slip-ring motors
 - Liquid starters connected to slip-ring motors
 - Pole changing (two speed) motors
 - Direct current machines
 - Ward-Leonard speed control
 - Energy meters
 - Load balancing
 - Testing of three-phase installations
- Basic Electronics
- Soldering of components
 - Identification of resistors, diodes and inductors and the use there-of
 - Using an oscilloscope
 - Construct rectification circuits

- Forward-reverse controlled through a rotary switch and contactors
- **Three-phase motors:**
 - Three-phase motor theory
 - Testing of three-phase motors
 - Phasing of induction motors
 - Direct-on-line starters
 - Forward-reverse starters
 - Sequence starters
 - Overhaul a three-phase motor
- **Transformers:**
 - Transformer theory
 - Star and Delta connections
 - Connecting transformers for various applications
- **Relays:**
 - Reading of electric circuits
 - Determining of the operation of a circuit from a circuit diagram
 - Use of retaining circuits
 - Use of electrical- and mechanical interlocking circuits
- **Hand Tools:**
 - Reading of engineering drawings
 - Use of measuring instruments and marking off of materials
 - Using a drilling machine, grinder, welding machine and oxy-acetylene equipment
- Identify and use Zener diodes
- Construct a voltage doubler
- Identify transistor action and transistor configurations
- Test regulated power supplies
- Test thermistors and thermistor phase control
- Explain and apply PLC operating principles

Fitters and Turners: Fitters and turners manufacture and construct components for machinery and use power operated tools such as lathes, milling- and drilling machines. They are also responsible for the mechanical maintenance of all machinery and the assembling and fitting of new components and equipment. The following modules/unit standards are done during training:

Basic Training(12 Weeks)

- Make and fit a key
- File and saw a workpiece
- Drill and tap holes
- Make up a pipe system
- Overhaul valves
- Maintain and align couplings
- Tension and align V-belts
- Lift and move equipment

Advance Training(12 Weeks)

- Principles of pneumatics
- Principles of hydraulics
- Line up a fluid drive coupling
- Overhaul hydraulic brakes
- Overhaul an electromagnetic brake
- Maintain clutches
- Maintain gearboxes
- Overhaul a multi-stage centrifugal pump

Basic Turning (6 weeks)

- Maintain a lathe
- Operate a lathe
- Plan a turning workpiece
- Turn a coupling pin and bush
- Maintain a milling machine
- Plan a milling workpiece
- Mill a keyway and hexagon

Trade test training for Fitters and Turners is 16 weeks as it is a dual trade

Fitters including Machining: Fitters (including machining) are responsible for the mechanical maintenance of machinery, including the assembling and fitting of new components. They also manufacture and construct components for machinery, using power-operated tools to a small extent, excluding the lathe. The following modules/unit standards are done during training:

Basic Training(12 Weeks)

- Make and fit a key
- File and saw a workpiece
- Drill and tap holes
- Make up a pipe system
- Overhaul valves
- Maintain and align couplings
- Tension and align V-belts
- Lift and move equipment

Advance Training(12 Weeks)

- Principles of pneumatics
- Principles of hydraulics
- Line up a fluid drive coupling
- Overhaul hydraulic brakes
- Overhaul an electromagnetic brake
- Maintain clutches
- Maintain gearboxes
- Overhaul a multi-stage centrifugal pump

Instrumentation: The instrumentation trade has to do with the measurement and control of various process parameters such as temperature, pressure, flow, level etc.

Basic Training(12 Weeks)

- Use Measuring Instruments and Marking Tools
- Convert Units and Prefixes
- Analyse Electrical Units
- Use Digital Multimeter and Analogue Multimeter
- Test a Resistance Box
- Use Electrical Measuring Instruments
- Explain Electro Magnetism
- Select conductors and cables
- Test a low tension cable
- Fit a 15 ampere plug top
- Fit a compression gland
- Fit a gland
- Join a cable
- Introduction to Instrumentation
- Signal Transmission
- Pressure Measurement
- Flow Measurement
- Level Measurement
- Temperature Measurement
- Density and Mass Measurement
- Automatic Control
- Final Control Elements
- Principles of pneumatics
- Explain Principles of Flow
- Flow Measurement Electrical Methods
- Process Pressure Sensors
- Pressure Measurement Using a Dead Weight Tester
- Pressure Measurement Using Manometers
- Air Regulators, Filters and Lubricators
- Differential Pressure Measurement Electronic Methods
- Install, Maintain and Calibrate a D/P cell
- Current To Pressure Converter
- Temperature Measurement Resistance Methods

Advance Training(12 Weeks)

- Introduction to Automatic Control
- Interaction between Instruments in a Control Loop
- Fundamental Concepts of Auto Control
- Control Time Elements
- On – Off and Proportional Control
- Reset and Derivative Control
- Tune Automatic Controllers
- Programmable Logic Controllers
- Introduction to SCADA Systems
- Cascade Control Loop
- Fibre Optic Theory and Application
- Introduction to Profibus Communication
- The Fieldbus Communication Protocol
- Specialised Network Equipment
- TCP / IP Protocol and IP Addressing
- Workgroup and Domain Network Modules
- Different Server Functions
- Network Troubleshooting
- Adding a Computer To The Network
- Manufacture Network Cables
- Build, Configure and Test a Network
- Electronics (basic and advanced)
- PLC

- Temperature Measurement
Thermocouples
- Stroke Control Valves
- Instrument Drawing Symbols
- Density and Mass Measurement

Millwright: Millwrights inspect and maintain all types of electrical equipment on machinery and in beneficiation plants. They are also responsible for the mechanical maintenance of machinery, including the assembling and fitting of new components and equipment. The following modules are done during training:

Basic Training

Electrical Training(12 Weeks]

- **Theory:**
Magnetism
Units and prefixes
Ohm- and Kirchoff's laws
- **Instruments:**
Use of electrical measuring instruments.
Testing of cables
Determining of the layout of resistance circuits
- **Buildings:**
Lights and lighting circuits
Construct and wire installations
Testing of single phase installations
Single phase motors
Three phase motors
Transformers
- **Relays:**
Reading of electric circuits
Determining of the operation of a circuit from a circuit diagram
Use of retaining circuits
Use of electrical- and mechanical interlocking

Mechanical Training(12 Weeks]

- Make and fit a key
- File and saw a workpiece
- Drill and tap holes
- Overhaul valves
- Maintain and align couplings
- Tension and align V-belts
- Lift and move equipment

Advance Training

Electrical Training (12 Weeks]

- Semi-automatic motor starters.
- Fully-automatic motor starters.
- Resistance starters connected to slip-ring motors.
- Liquid starters connected to slip-ring motors.
- Pole changing (two speed) motors.
- Direct current machines.
- Ward-Leonard speed control.
- Energy meters.
- Load balancing.
- Testing of three-phase installations.

Electronic Training

- Soldering of components.
- Identification of resistors, diodes and inductors and the use there-of.
- Using an oscilloscope.
- Construct rectification circuits.
- Identify and use Zener diodes.
- Construct a voltage doubler.
- Identify transistor action and transistor configurations.
- Test regulated power supplies.
- Test thermistors and thermistor phase control
- Explain and apply PLC operating principles.

Mechanical Training (12 Weeks]

- Principles of pneumatics
- Principles of hydraulics
- Line up a fluid drive coupling
- Overhaul hydraulic brakes
- Overhaul an electromagnetic brake
- Maintain clutches
- Maintain gearboxes
- Overhaul a multi-stage centrifugal pump

Boilermaker: Plater/Boilermakers are responsible for fabrication by means of cutting, bending, rolling and welding different steel profiles into parts for machinery, conveyor systems and underground and surface vehicles. The following modules are done during training:

Basic Training (12 Weeks)

- Make a template
- Fabricate a flat bar bracket
- Fabricate a pipe clamp
- Fabricate a cone
- Develop and fabricate an angled cone
- Fabricate a square angle iron frame
- Develop and fabricate and equal pipe T-piece

Advance Training (12 Weeks)

- Fabricate a pipe reducer
- Develop an off-set pipe lateral
- Develop a tapering Y-piece
- Develop and fabricate an off-centre chute
- Weld stainless steel
- Weld cold cast iron
- Use TIG welding equipment
- Use MIG welding equipment
- Fabricate a pipe bend
- Examine and repair a chute
- Examine and repair a hopper
- Erect a steel construction
- Service boilers

Welder: As a welder you will cover four welding processes, namely SMAW (Shielded metal arc welding), GMAW (Gas metal arc welding), FCAW (Flux core arc welding) and GTAW (Gas tungsten arc welding). All positions and different metals will be welded according to international standards. At CTC we also use state of the art technology using our “Lincoln Electric Vertex Engage Virtual welding machine” providing endless welding time.

The following training is covered

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| <ul style="list-style-type: none"> • Introduction to welding • Types of welds • Welding calculations • Weld plate 2G, 3G, 2F, 4F • TIG welding • MIG welding | <ul style="list-style-type: none"> • Environmental protection • Welded joints • Welding inspection and quality • Weld Pipe 2G, 6G, 5G • Aluminium weld |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Rigger / Ropes Man: are specialists in lifting and moving heavy and difficult to handle loads. The following modules are done during training:

Basic Training(12 Weeks)

- Identify and coil ropes
- Operate oxy-acetylene cutting equipment
- Perform Basic Arc welding
- Whip and seize ropes
- Worm, parcel and serve a rope
- Tie knots and bends
- Tie hitches
- Check and use ladders
- Erect temporary work platforms
- Splice manila rope
- Splice wire rope
- Reeve blocks (1)
- Hints for riggers

Advance Training(12 Weeks)

- Check and maintain lifting equipment and rigging hardware
- Lift and move equipment
- Splice a non-spin wire rope
- Erect and use a tripod
- Erect and use an “A” frame
- Erect and use a raised pole
- Reeve blocks (2)
- Inspect and identify faults in winding ropes
- Prepare a hoist rope test specimen
- Inspect a safety detaching hook
- Examine and use overhead cranes
- Winch a load into a tower

G. Trade test information

There are 2 options to select from for candidates in order to be accepted for trade testing.

1. **Contracted-Learners:** A learner may be employed and registered on an apprenticeship with a relevant seta after the institutionalised training has been completed with the training provider. **On-job training** is required with a logbook being signed off by the employer in order to apply with the relevant seta for approval and acceptance and to be ready for trade testing as a **contracted-learner**. Thereafter the employer may book for the Final training at **CTC** for the learner.
2. **Non-Contracted-Learners:** **RPL** (Recognition of prior learning experience) testing is a requirement. The **RPL test** will determine the skills gap and **CTC** will recommend a training period for the candidate to close the gaps to be ready for the trade testing. A learner who is not registered on a Learnership (apprenticeship) needs to obtain and receive relevant practical skills at a company or mine for a period of 3 years before he / she can apply with the relevant Seta for approval and acceptance for trade testing. These candidates are called **non-contracted learners**. Once approval has been received from the Seta, candidates can book for the **RPL** and final training at **CTC**.

Minimum N2 with the relevant subjects per trade required to apply for trade testing with the relevant seta's for both **as indicated in the minimum requirements**

For more information and specific modules/unit standards, please feel free to contact CTC's Engineering Department, 013-692 3122.

Coal Mining & Mineral Processing



A production miner/blaster or mineral processing plant operator supervises the crew, machines and equipment involved in the operation of mining or processing of coal. Just as coal is vital to the future of our country, production miners/blasters and processing plant operators are vital to the future of our coal mining industry. The industry requires these skilled and competent people that are all trained at CTC.

The production miner/blaster or mineral processing plant operators are in charge of underground, opencast, or plant production and are responsible for the health and safety of the employees that are supervised, and for the attainment of set production targets.

Coal mining today is highly mechanised and the production miners/blasters and process operators are responsible for the efficient operation of sophisticated mining machinery.

A. Summary of the Mining and Mineral Processing Training Courses (2022)

(See more details in Section B. below)	Duration (Full Time)	Starting Dates (Also see Section C.)	Fee (Including VAT)
Short Courses: Give your career as a miner a jumpstart with one of the following short courses.			
1. Fall of Ground Competent person A (Underground)	1 Week	Please enquire	R4 412.01
2. Fall of Ground Competent person B (Underground)	2 Weeks	Please enquire	R8 824.03
3. Blasting Assistant (Underground)	1 Week	Please enquire	R4 412.01
4. Fall of Ground Competent Person A (Surface)	8 Days	Please enquire	R6 981.32
5. Blasting Assistant (Surface)	8 Days	Please enquire	R6 981.32
6. Gas Testing Course (Miners)	10 Days	Please enquire	R5 942.31
7. Flameproof Course (Miners)	5 Days	Please enquire	R4 425.27
8. Miner Basic Training Underground: The five core, fundamental and specific modules/unit standards required for the blasting ticket or the NQF Level 3, MQA accredited National Rock Breaker Certificate is covered.	30 Weeks	Please enquire	R881.07 (per day)
9. Qualification Preparation	5 Days	Please enquire	R881.07 (per day)
10. Final Assessment (Underground)	1 Day	Please enquire	R2 788.98
11. Opencast Blasting Certificate Training: This course leads to the NQF Level 3, MQA accredited National Certificate: Rock Breaking: Surface excavations and quarries and/or DMR Blasting Certificate. Duration 23 Weeks (Full time) including all theory, practical training and assessments.	23 Weeks	Please enquire	R881.07 (per day)
12. Opencast Blasting Certificate Training: (On-site route). This route is intended for learners with sufficient surface mining experience. Learners must apply for acceptance as a candidate to train on this route.	23 Weeks (Part time)	Please enquire	R45 860.88
13. Mineral Processing Documentation Costs			
Basic Course			R1 116.52
Advanced Course			R1 846.82
On-job Manuals Basic Course			R985.91
Assessment Documentation			R837.04
14. Basic Coal Preparation: This program allows for plant operators or prospective plant operators to gain entry level information in regards to the operation of a plant.	7 Weeks	Please enquire	R1079.82 (per day)

15. Advanced Lump Ore Beneficiation Course: This program will be replaced in future by a NQF Level 4 National Certificate. Refer to Advanced Coal preparation section for more information.

4 x 3 week over
period of 1 Year

Please enquire

R1 079.82
(per day)

B. Course Details

Minimum Requirements:

Underground & Opencast Mining (Qualification)

DMR Route:

- N2 with a minimum of six (6) subjects
- Abet Level 3
- Grade 10

MQA Route:

- Grade 11 with Mathematics and a first language

Mineral Processing (NQF 2) Grade 10 with Mathematics and literacy.

Underground Basic Training. During the Basic training, all students will complete the core, fundamental and specific modules/unit standards, some of the modules include:

- Elementary mining (Ventilation, dust, etc.)
- Support
- Cutting
- Drilling
- Blasting
- Loading
- Belt Conveyors

Production Training within a production section of the mine

This phase of training takes place in all relevant service departments on the mine where the student is employed, and includes general mining work. At a later stage all the above branch into:

- Blasting Certificate Qualification
- Continuous Miner Qualification
- Longwall Mining Qualification
- On the successful completion of the above Qualifications, the student will also have obtained the following certificates:
- Gas Testing
- Flameproof for supervisors
- Skills Programme Fall of Ground Competent Person "A" (DMR Route)

For more information and specific modules/unit standards, please feel free to contact CTC's Mining Department at Greenside Colliery, 013-691 9933/4/5.

Opencast Blasting Training National certificate: Rock breaking: Surface excavations and quarries and/or DMR Opencast Blasting Certificate.

Duration: 23 Weeks (Full time). This includes all theoretical training, practical training, required shifts (DMR requirement) and assessments.

Skills Programmes:

Competent Person A: Surface Excavations

- Blasted

Course Information:

- 8 day course presented at C.T.C that includes theoretical, practical and assessment.
- Legal requirement for a person / employee declaring a work place safe.
- The completion of this skills programme can increase a learner's opportunity for employment and promotion.
- Requirement for a DMR Blasting Certificate.

Blasting Assistant: Surface Excavations

Course Information:

- 8 day course presented at C.T.C that includes theoretical, practical and assessment
 - Legal requirement for all persons assisting with blasting operations on a surface excavation.
 - The completion of this skills programme can increase a learner's opportunity for employment.
- For more information and specific modules/unit standards, please feel free to contact CTC's Opencast Mining Department at 013-692 3121 Ext 270/271.

Mineral Processing The current courses presented at CTC are aimed at mineral processing but are also applicable to other beneficiation processes. Both the Basic and Advanced courses are being presented under the auspices of the South African Coal Processing Society.

Basic Coal Preparation for Plant Operators The course is presented over a period of 7 weeks, 2 days per week for theoretical lecturing, and learners are given the opportunity to complete on-job practical training to complete their work book within this 7 weeks. After the 7 weeks spent for theory, learners are scheduled for practical assessments which is conducted at CTC.

The course is mainly aimed at training plant operators in all basic principles of mineral processing. It provides plant operators with the necessary skills to master all mineral processing techniques in order to meet the various requirements for the utilisation potential of ore.

Advanced Coal Preparation The course is aimed at more senior mineral processing personnel, and provides the student with a wider and more advanced scope regarding Coal Preparation and utilisation in general. It also prepares the student to play a more meaningful role in the management of the ore beneficiation environment. It is presented during four 3-week study schools, over a period of a year. Apart from the final theoretical examination for each study school, the student is required to do a thesis, which is to be presented to a panel of external examiners after completion of all four study schools.

For more information and specific modules/unit standards, please feel free to contact CTC's Mineral Processing Department at 013-692 3121.

C. Training Schedule:

<u>Course</u>	<u>Start date</u>	<u>Duration</u>
Mineral Processing: Basic Coal Preparation	07 Feb – 24 Mar	7 Weeks
	25 Apr – 10 Jun	7 Weeks
	13 Jun – 29 July	7 Weeks
	15 Aug – 30 Sep	7 Weeks
	17 Oct – 02 Dec	7 Weeks
Mineral Processing: Advanced Coal Prep.	17 January 2022	1 Year (4 Study schools)

Underground Blasting Qualification	17 January 2022	29 Weeks (Excl. on job training)
	07 March 2022	29 Weeks (Excl. on job training)
	25 April 2022	29 Weeks (Excl. on job training)
	13 June 2022	29 Weeks (Excl. on job training)
	01 August 2022	29 Weeks (Excl. on job training)
	19 September 2022	29 Weeks (Excl. on job training)
	07 November 2022	29 Weeks (Excl. on job training)
Opencast Blasting Certificate	22 March 2022	23 Weeks
	30 May 2022	23 Weeks
	15 August 2022	23 Weeks
	24 October 2022	23 Weeks
Competent Person A: Surface Excavations	31 January 2022	8 Days
	28 February 2022	8 Days
	04 April 2022	8 Days
	16 May 2022	8 Days
	20 June 2022	8 Days
	18 July 2022	8 Days
	22 August 2022	8 Days
	19 September 2022	8 Days
	17 October 2022	8 Days
	14 November 2022	8 Days
Blasting Assistant: Surface Excavations	17 January 2022	8 Days
	14 February 2022	8 Days
	23 March 2022	8 Days
	04 May 2022	8 Days
	30 May 2022	8 Days
	04 July 2022	8 Days
	10 August 2022	8 Days
	05 September 2022	8 Days
	03 October 2022	8 Days
	31 October 2022	8 Days

Booking Forms and Contract for Goods Delivered, Price List

COURSE AND ACCOMMODATION BOOKING FORM

INCOMPLETE FORMS WILL NOT BE ACCEPTED AND WILL BE RETURNED.

STUDENT DETAILS:

SURNAME & INITIALS:		ID N°:		COMPANY:	
DESIGNATION:		TELEPHONE:		FAX:	
E-MAIL ADDRESS:			*SHORT COURSE*:		

COURSE INFORMATION

TRADE	ACCOMMODATION		GENDER		TRAINING COURSE												OTHER		PPE		START DATE	END DATE
	YES	NO	M A L E	F E M A L E	B A S I C	A D V A N C E	F I N A L	A S S I S T A N T	S E R V I C E M A N	O P E R A T I V E	G A S	F L A M E	M E D I U M	* S H O R T C O U R S E *	M U L T I M E T E R	T O O L B O X	B O O T S	O V E R A L L S				
TOTAL																						

PERSON RESPONSIBLE FOR PAYMENT OF INVOICE

Initials & Surname:		Vat Number:	
Postal Address:			Residential Address:
Telephone:			
Fax:			
E-Mail:			

C.T.C. Banking Details	
Bank:	FNB
Account N°:	58510747266
Branch:	Klipfontein - 270253
Type:	Cheque

Please send the completed form to:
bookings@ctctraining.co.za

Annexure A. Contract for Goods Delivered and Services Rendered

- 1 This is a contract entered into by Colliery Training College (Pty) Ltd (hereinafter referred to as "the Provider") and _____ {Name of person paying for the training} (hereinafter referred to as "the Client") on this date _____ {enter the date}.
- 2 The Provider's place of business is corner of Stevenson Street and OR Tambo Street, Klipfontein and the Client's residential address is:-

3 The Client hereby engages the Provider to provide training services and goods described herein under "Scope and Manner of Services." The Provider hereby agrees to provide the Client with such goods and services in exchange for consideration described herein under "Payment for Goods and Services Rendered."

4 Scope and Manner of Services. The following goods and services are to be rendered by the provider: {E.g.

1. Training from _____ {start date} to _____ {end date}

2. An e.g. Electrician Toolkit as per attached tool list}.

5 Payment for Goods and Services Rendered.

5.1 The Client shall pay the Provider for goods delivered and services rendered according to the Payment Schedule detailed below on any invoice for goods delivered and services rendered from the Provider.

	<u>Date</u>	<u>Amount</u>
1. Due date for first amount	<u>Upon registration</u>	<u>R 50% of quote</u>
2. Due date for second amount	_____	R _____
3. Due date for third amount	_____	R _____
4. Due date for fourth amount	_____	R _____
5. Due date for fifth amount	_____	R _____

(Please take note that the outstanding amount must be settled before student finishes)

5.2 Should the Client fail to pay the Provider the full amount specified, the account will be handed over to our attorneys for collection.

5.3 All training records pertaining to the service rendered and goods delivered remains the property of the provider and will not be released to the client until payment for services rendered has been made in full.

6. Signatures:

In witness of their agreement to the terms above, the parties hereby affix their signatures:

For the Provider : _____ Date: _____ Place: _____

Witness: _____

For the Client: _____ Date: _____ Place: _____

Witness: _____

Toolbox & Multimeter Prices

In addition to the course fees as stipulate learners may also require toolboxes and multi-meters; please enquire about these when asking for a quotation.

Toolbox and Multi-meter prices may escalate due to currency exchange rates that fluctuate

Toolbox Prices 2022

2022		Electrical	Fitter	Plater/Welder	Diesel/Mech	Millwright	Auto Electr	Rigger	Instrumentation	Welder
	Selling Price Jan 2022	R 4 382.04	R 7 438.10	R 8 565.12	R 8 994.90	R 8 798.31	R 7 180.49	R 10 450.00	R 7 163.59	R 7 106.00
	VAT	R 657.31	R 1 115.72	R 1 284.77	R 1 349.24	R 1 319.75	R 1 077.07	R 1 567.50	R 1 074.54	R 1 065.90
	Total Selling Price	R 5 039.35	R 8 553.82	R 9 849.89	R 10 344.14	R 10 118.06	R 8 257.56	R 12 017.50	R 8 238.13	R 8 171.90

Multi-Meter Prices 2022

2022		Fluke 177	Fluke 177 IS	Fluke 179	Fluke 179 IS	Fluke 28ii IS	TBM 252
	New Selling Price 2022	R 5 350.40	R 6 343.15	R 5 674.35	R 6 750.70	R 13 470.05	R 1 459.57
	VAT	R 802.56	R 951.47	R 851.15	R 1 012.61	R 2 020.51	R 218.94
	Total Selling Price	R 6 152.96	R 7 294.62	R 6 525.50	R 7 763.31	R 15 490.56	R 1 678.51

This is the way we work at CTC – these are our values:



At CTC we are Passionate about what we do: We are energised by the training solutions we deliver, the challenges we face and the opportunities we create. We are motivated to unlock the potential of our learners for our customer partners.



At CTC we Pull Together: As one team united in purpose, action and spirit, we use the diversity of our people, skills and experiences in our unique and unequalled institution. We harness the strengths of our stakeholders so that we jointly and continually improve the prospects of our learners.



At CTC we trust each other: We deliver on all our commitments; to our customer partners and each other. We are recognised for our exceptional and disciplined delivery of training. We act with openness, honesty and integrity in our relationships with learners, customer partners and suppliers so that these relationships may flourish



At CTC we show that we care: The learners and other people whose futures we touch and the environment we share matter deeply to us. We nurture, develop and celebrate all of these people. We always act with their dignity, safety and health foremost in our minds.



At CTC we Shape the Future: Our facilities and long history makes us the leading skills provider in South Africa. We will constantly redefine how training gets delivered. We set demanding targets, take tough decisions and courageously seeks to achieve them. We insist on excellence and are rewarded accordingly.