

DIESEL MECHANIC



MINING QUALIFICATIONS AUTHORITY

CODE: CCD

COURSE CONTROL DOCUMENT

INDEX

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1. INTRODUCTION

The Training Modules were revised in 2014 and a special acknowledgement and word of thanks to the **TRG 9 DIESEL MECHANIC GROUP** for the work they have done.

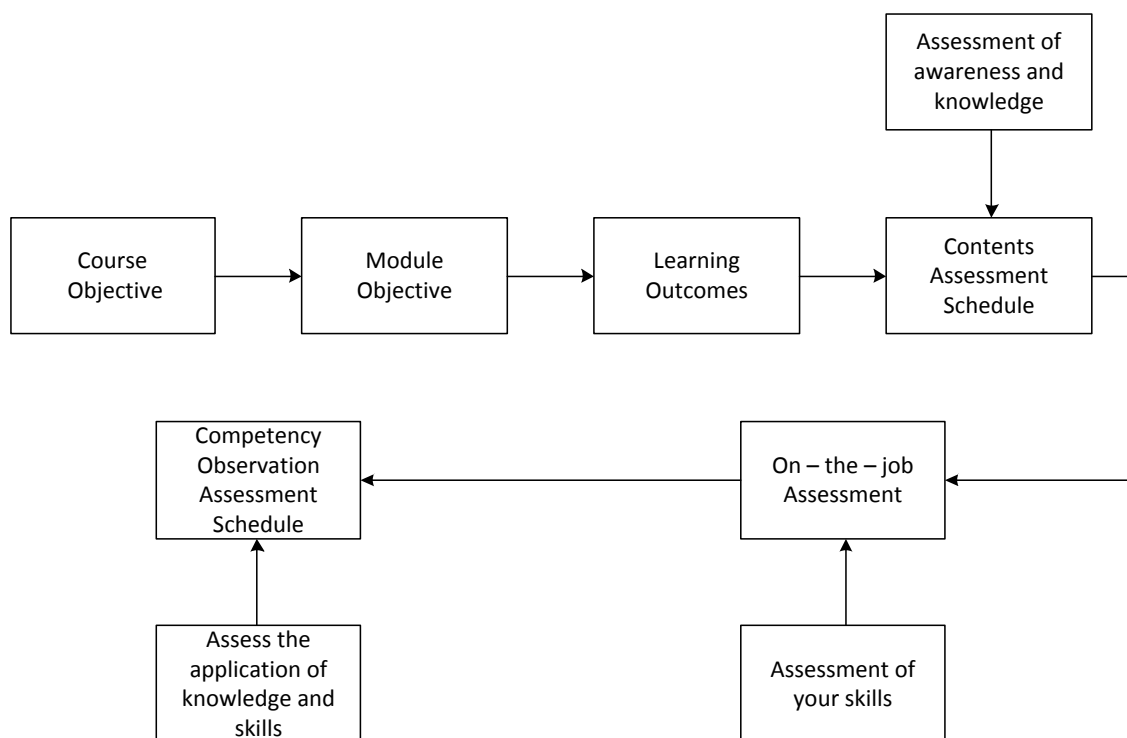
This course was written in a competency modular based format. This simply means that each fact that you need to know is stipulated.

At the beginning of each module you will find course details. The course details, together with the name and code of the module, will confirm that you are studying the correct study material.

The Module objective tells you exactly what you should know by the end of the module.

The learning outcomes are the specific issues that you will be assessed on.

This diagram will explain it better.



The training programme that you are about to commence has been prepared to enable you to become skilled in your trade in the shortest possible time.

It is based on sound concepts and is set out in a certain format. The format is really very simple, firstly you are told precisely what you must do and how you should do it – this is called an **objective**. You are also given the necessary information to enable you to learn

what is required – this is called a **resource**. You are then expected to study the resource and ask for an assessment when you are ready – this test is called a **Formative Assessment**. The programme is set out in different **modules** and you can proceed at your own pace. When learning new subjects, one needs to become familiar with certain words and their meanings. The meaning of certain words and phrases used in these modules are described below.

2. COMMON TERMS

It is important to understand the following concepts:

• Competency	This refers to your ability to use your knowledge (facts you have studied) and skill (the know how to do it) through applying it to perform certain tasks successfully in accordance to a specific standard.
• Observation	A large portion of equipping you with the required competencies will be the observation of practical demonstration of your skills. Simply “Can you do the job successfully?”
• Practice	Refers to the application of specific knowledge in practical ways and experiments. Simply “Show me you can do it”.
• Self-Test	Is a framework of questions, which will assist you to test your retention of knowledge of the most important learning contents. Pay attention to this for it will also assist you in the questions you find in the assessment. Check you answer by comparing them to the notes.
• Module	This is a complete unit of instruction. It contains objectives, hazard identification, resource material, self-tests, practices, and an assessment and has a computer based training aid.
• Objective	This is a written statement, which describes an intended outcome. It tells you what you are required to do the conditions under which you will work and what standards are required.
• Hazard Identification Control Form (HIAC form)	This is to make you aware of all the hazards that you will and encounter while you are doing the module and to advise you on how to avoid the hazards.
• Resource and	This is the material and people provided to help you achieve the

Additional Resource	objectives. It may consist of written notes, a film or audio-visual cassette, display board or a demonstration by your Training Officer.
<ul style="list-style-type: none"> Modular Outcomes Guide (MOG) 	This map of the module will assist you in studying the contents of the module. The name of the module is in the middle surrounded by the main outcomes that you will have to be familiar with after completion of the module. This map will enable you to get the bigger picture of the module and can also serve as a very helpful study aid. You can make short notes under each outcome. The map is also linked to the main course map to enable you to know exactly where the module fits into the Fitting course.
<ul style="list-style-type: none"> Formative Assessment 	This is the assessment which finds out whether you are able to achieve the objective. The assessment will be given by a Training Officer and should only test what is asked in the objective. Although your Training Officer might ask you to manufacture or make a component different to that asked for in the objective, the skills needed, will be the same and the same standards will still apply.
<ul style="list-style-type: none"> Training Officer 	This is the official title of your tutor. In this method of learning he is really your coach and will help you when you don't understand the resource material or you are confused with the programme. He/she is also the person who examines you in the assessment. He/she is an important person.
<ul style="list-style-type: none"> Assessor 	This is an accredited person that is registered with the MQA and SAQA and will test you for competence by means of questioning, observation and work evaluation.
<ul style="list-style-type: none"> Competent Person 	Within the context of these modules this means a person who has successfully completed the task, which you are learning.
<ul style="list-style-type: none"> Practice 	This is a test which is contained in the resource material. It helps you to become skilled and reduces the chances of your not being successful in the assessment. Your Training Officer may give different dimensions and/or values for the practices to those given in the modules. He may also ask you to do more practices.

• Control Documents	The document that you are reading is a control document. It contains the index, course map and personal progress summary. It explains the procedures that should be followed.
• Index	This provides you with the contents of the training programme.
• Course Map	This is a diagram or chart, which shows the sequence of and the relationship between the various modules. It tells you where to start and where to go after you have completed a module.
• COAS	Competency Observation Assessment Schedule refers to the assessment of theoretical awareness and knowledge as well as the application of practical skills.
• Personal Progress Summary	This is a control document, which serves as your record of progress. The Training Officer has to record each module completed by you on this summary.
• Safety	This means avoiding injury to yourself, your fellow workers and damage to equipment and your tools. When the assessments are done on any of the modules which include practical work the Training Officer will not sign off any student as competent if the work is not performed according to the safety standards set.

3. METHOD OF USE

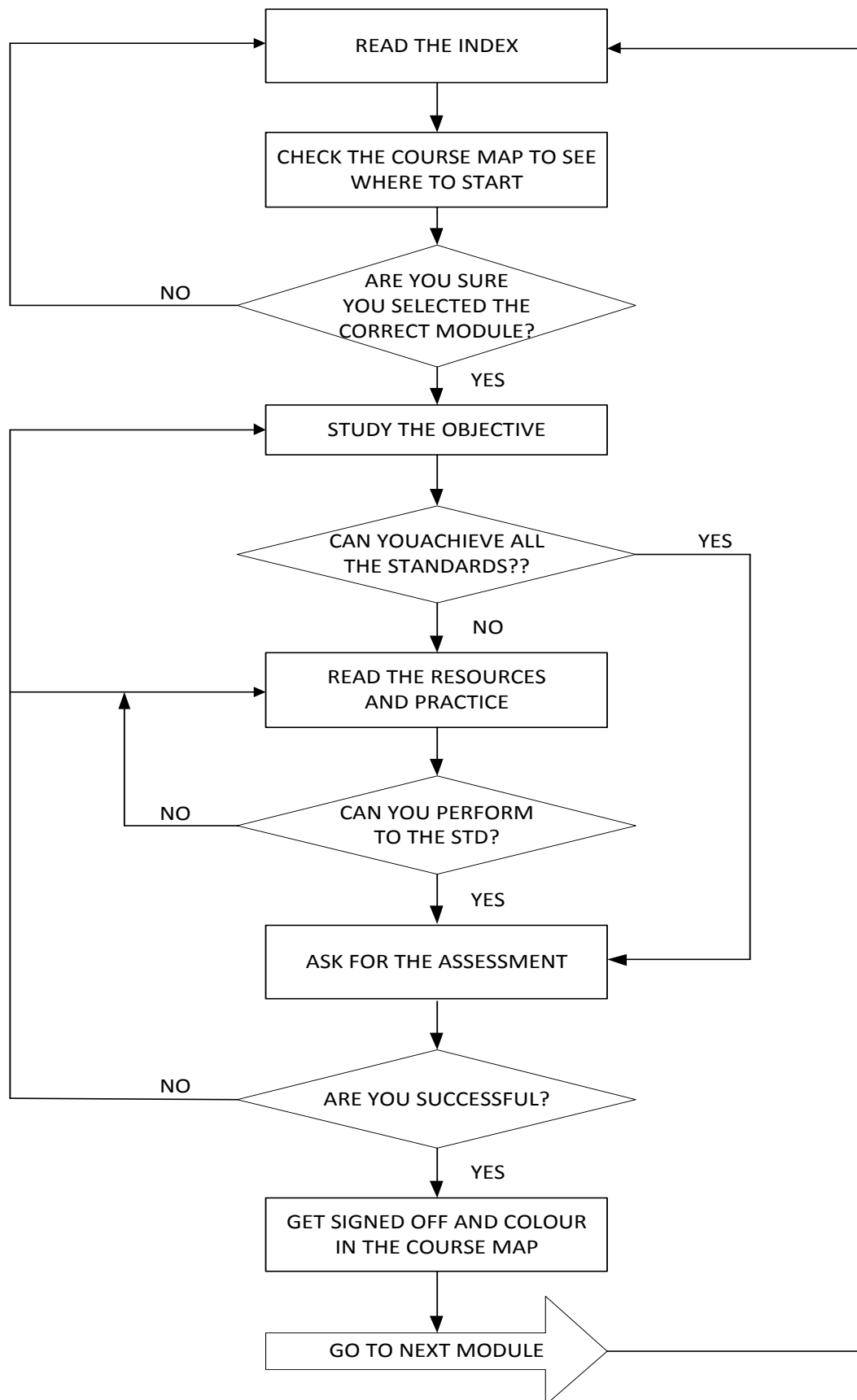
It is recommended that you use the training programme in the following manner (The course map and modular outcome guides will assist you in doing this):

1. Read the index and then the course map.

Study the course map thoroughly before you begin with the course.

2. Select the appropriate module.
3. Read the objective of the module first and make sure you understand what you have to do. You can now study the module using your modular outcomes guide.
4. If you feel you are able to achieve the objective, ask the Training Officer for the assessment. He may ask you to provide evidence of your competence.
5. If you are unable to achieve the objective you must study the resources, and practice until you are competent. You should then ask your Training Officer for the assessment again.
6. When you have successfully completed the test, ask your Training Officer to sign your personal progress summary sheet to that effect.
7. Mark off on the course map to show that you have completed that module.
8. If you do not achieve the required standards you are to repeat steps 4 and 6 again.
9. After you have been declared competent and signed off, refer to the course map and select a new module.

4. FLOW DIAGRAM SHOWING THE METHOD OF USE



To enable you to become familiar with the method of use we are going to give you an objective and assessment for this module. You have, of course, already read the resource material.

Objective

Without using references you must be able to:

a. Explain the following terms :

- Module
- Objective
- Resource/additional resources
- Formative Assessment
- Training Officer
- Competent person
- Practice
- Self test
- Control documents
- Index
- Course map
- Personal progress summary
- Safety

b. Explain, using a diagram if necessary, the method to be followed when using this training programme.

Your answers are to be in writing and all of them must be correct.

Resource

The notes which you have read in the previous pages.

Additional Resource

Your Training Officer.



SELF TEST

Check if you have understood the resource notes by answering these questions in the space provided. Do not use references.

1. What is meant by the following terms:

i. Module

ii. Objective

iii. Hazard Identification and Control Form (HIAC Form)

iv. Resources / Additional Resources

v. Formative Assessment

vi. Training Officer

vii. Competent Person

viii. Practice

ix. Self Test

x. Control Document

xi. Index

xii. Course Map

xiii. Personal Progress Summary

xiv. Safety

2. Explain the recommended method of using this training programme. If necessary, use a diagram to assist in your explanation.

Check your answers against the module notes or given answers (where applicable). If they are correct, ask your Training Officer to sign off your work. The Training Officer will spot check your work before signing.

LEARNER	TRAINING OFFICER
DATE :	DATE :
SIGNATURE :	SIGNATURE :

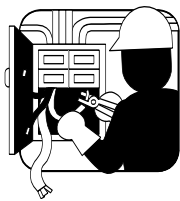
5. EXPLANATION OF ICONS USED IN THE MODULE BOOKS



Content
Competency



Danger Hazards



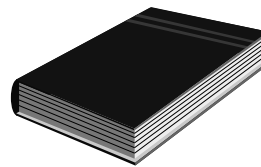
Practice



Mining Industry
Application



Dictionary



Additional
Resources



Self Test



Computer Based
Training Aids (CBTA)



Competency



Important

DIESEL MECHANIC COURSE CONTENT

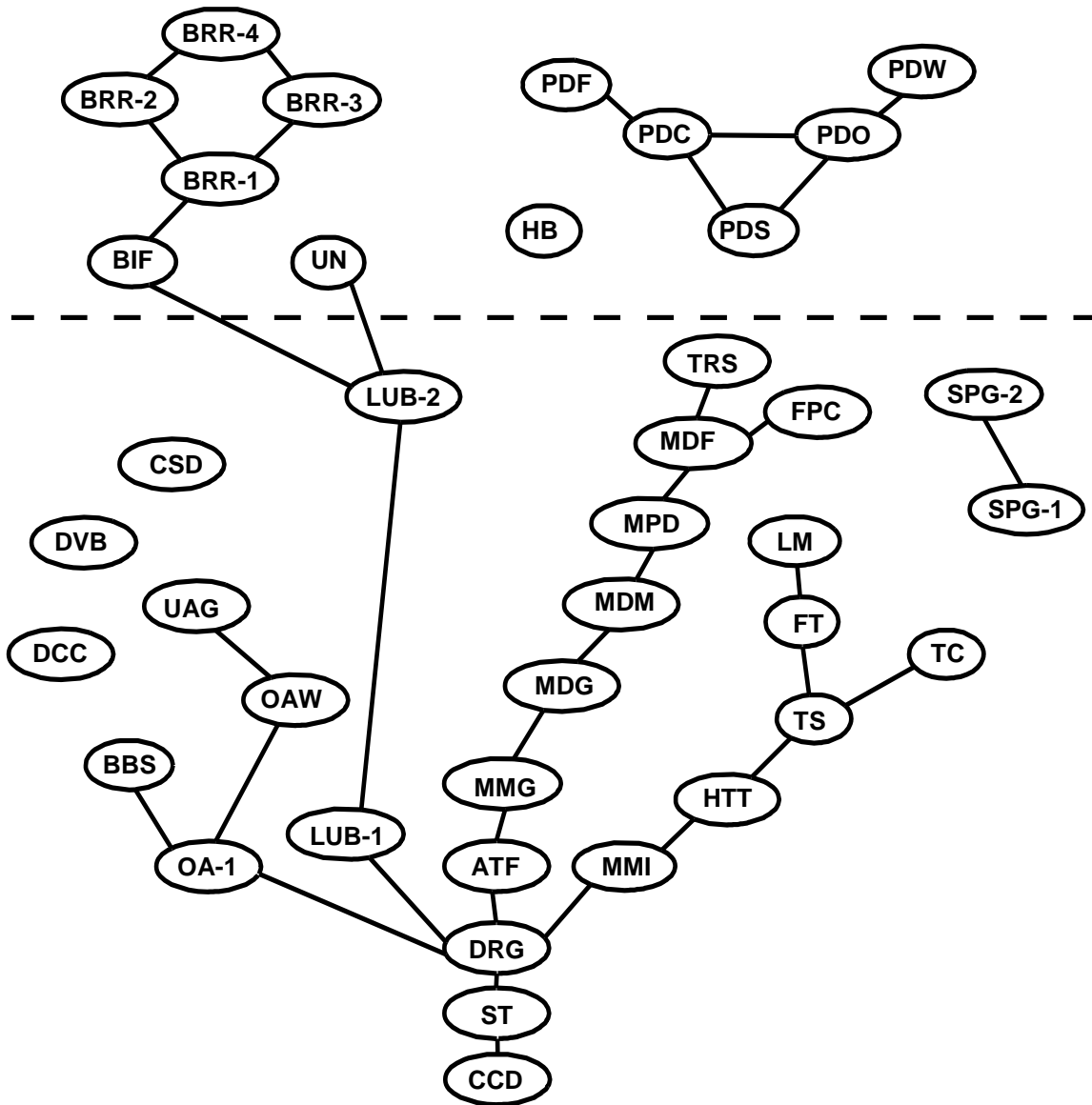
BASIC TRAINING MODULES

MODULE	CONTENT
CCD	Course control document
ST	Perform safe work practices (Acts & Regulations)
DRG	Read engineering drawings
MMI	Use measuring instruments
ATF	Allowances and tolerances for fits
TS	Identify threads
HTT	Use a file and saw
MMG	Maintain a pedestal grinder
MDM	Maintain a pedestal drill
MDG	Sharpen a drill
MPD	Plan a drilling workpiece
MDF	Drill a flange
FPC	Fit split pins and circlips
TRS	Drill and tap holes
TC	Cut a thread with stocks and dies
FT	Fit washers and tighten screws
LUB – 1	Set a dripfeed lubricator
LUB – 2	Pack a plumber block
BIF	Examine bearings
BRR – 1	Mount a bearing manually
BRR – 2	Remove a bearing mechanically
BRR – 3	Remove and mount bearings fitted with adapter sleeves
BRR – 4	Remove and mount a bearing in a press
SPG – 1	Cut and fit gaskets
SPG – 2	Fit seals and packings
OA – 1	Operate oxy-acetylene cutting equipment
OAW	Use welding equipment
BBS	Temper and grind a chisel
LM	Lift and move equipment
UAG	Use an angle grinder
UN	Remove and replace universal joints
HB	Overhaul hydraulic brakes
PDS	Start a four-stroke petrol/diesel engine
PDC	Maintain cylinder heads
PDO	Maintain lubrication systems
PDF	Maintain fuel systems
PDW	Maintain cooling systems

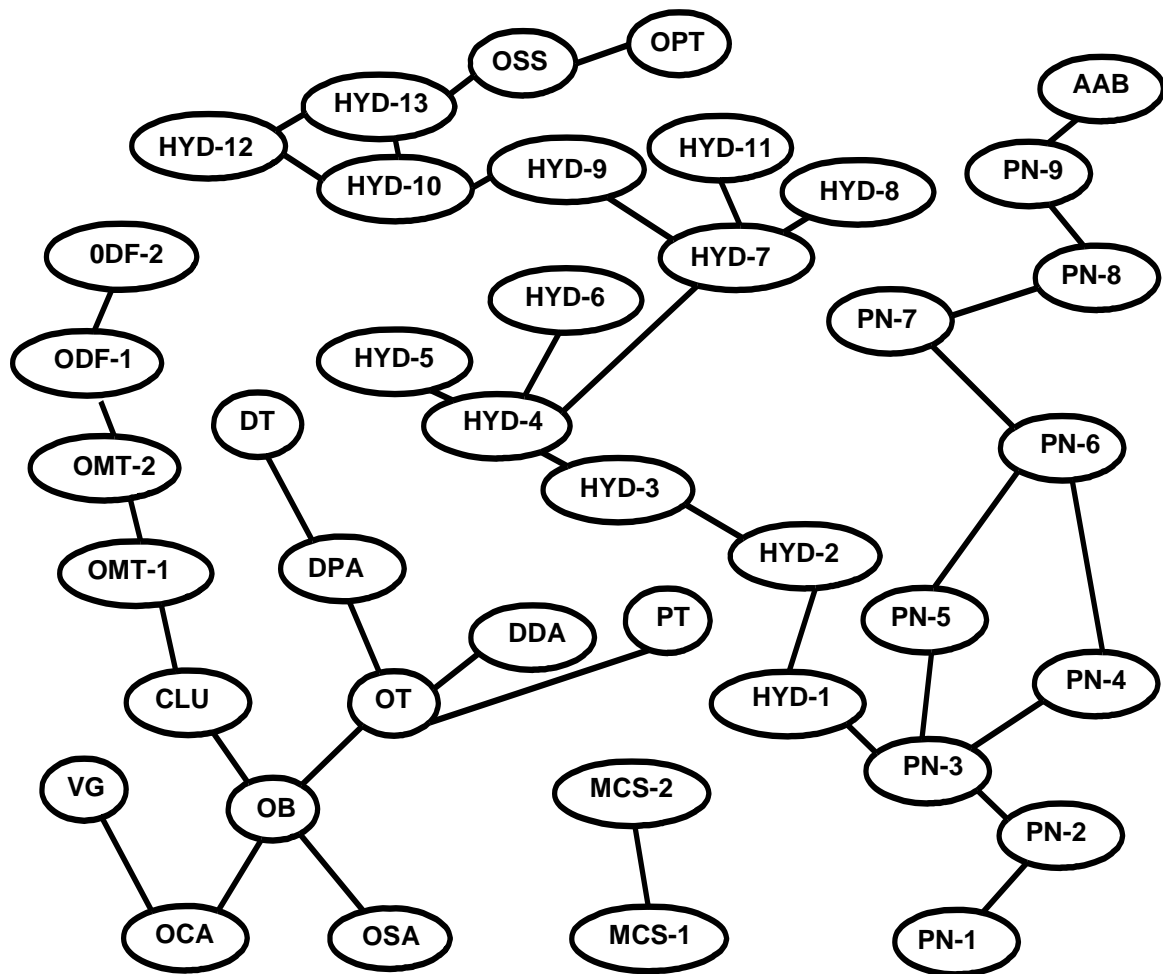
ADVANCED TRAINING MODULES

MODULE	CONTENT
PN – 1	Principles of pneumatics
PN – 2	Construct a circuit with single-acting cylinders
PN – 3	Fit and adjust a service unit
PN – 4	Control the speed of single-acting cylinders
PN – 5	Construct a circuit controlled from two points
PN – 6	Control the speed of a double-acting cylinder
PN – 7	Design and construct a pneumatic circuit
PN – 8	Set pressure sequence valves
PN – 9	Construct and set a circuit with a time delay valve
AAB	Maintain air assisted brakes
HYD – 1	Principles of hydraulics
HYD – 2	Test the pump in a circuit
HYD – 3	Fit and set pressure relief valves
HYD – 4	Construct a circuit with a single-acting cylinder
HYD – 5	Construct a circuit with double-acting cylinders
HYD – 6	Construct a circuit with a check valve
HYD – 7	Construct a circuit with rotary motion
HYD – 8	Control the speed of an actuator
HYD – 9	Construct a dual circuit
HYD – 10	Construct a circuit with sequenced actuators
HYD – 11	Construct a circuit with an accumulator
HYD – 12	Make up hydraulic hoses
HYD – 13	Diagnose and test an hydraulic circuit
OSS	Repair a steering system
OPT	Overhaul a power transmission
MCS – 1	Maintain a storage battery
MCS – 2	Maintain auto-electrical systems
OCA	Overhaul a cylinder head assembly
OSA	Overhaul a sub assembly
VG	Grind valves
OB	Overhaul and maintain the blower of an engine
CLU-DM	Maintain clutches
OMT – 1	Select the gear ratios on a manual transmission
OMT – 2	Overhaul a manual transmission
ODF – 1	Strip, clean and inspect a differential and final drive
ODF – 2	Assemble a differential and final drive
OT	Overhaul and maintain a turbocharger
PT	Tune up on a pressure timed (PT) fuel system
DPA	Tune up an engine fitted with a distributor or in-line fuel system
DDA	Tune up on a direct pump fuel system
DT-DM	Test an engine on a dynamometer

BASIC TRAINING



ADVANCE TRAINING



7. EXAMPLE OF LOG BOOK

BASIC MODULES

Module	No. of Attempts	Date achieved	Signed Off	
			Learner	Training Officer
CCD				
ST				
DRG				
MMI				
HTT				
ATF				
MMG				
MDG				
MDM				
MPD				
MDF				
LUB-1				
LUB-2				
BIF				
BRR-1				
BRR-2				
BRR-3				
BRR-4				
TS				
FT				
TRS				
TC				
FPC				
SPG-1				
SPG-2				
DVB				
LM				
UAG				

Module	No. of Attempts	Date achieved	Signed Off	
			Learner	Training Officer
OA-1				
OAW				
BBS				
UN				
HB				

ADVANCED MODULES

Module	No. of Attempts	Date achieved	Signed Off	
			Learner	Training Officer
PN-1				
PN-2				
PN-3				
PN-4				
PN-5				
PN-6				
PN-7				
PN-8				
PN-9				
HYD-1				
HYD-2				
HYD-3				
HYD-4				
HYD-5				
HYD-6				
HYD-7				
HYD-8				
HYD-9				
HYD-10				
HYD-11				
HYD-12				
HYD-13				

Module	No. of Attempts	Date achieved	Signed Off	
			Learner	Training Officer
PDS				
PDW				
PDF				
PDO				
PDC				
OSS				
OPT				
MCS-1				
MCS-2				
OCA				
OSA				
VG				
OB				
CLU				
OMT-1				
OMT-2				
ODF-1				
ODF-2				
OT				
PT				
DPA				
DDA				
DT				

COURSES COMPLETED

Course	Date Completed	Learner	Training Officer
Basic Training			
Advanced Training			
Final Training			

ADDITIONAL COURSES COMPLETED

Course	Date Completed	Learner	Training Officer
Induction			
First Aid			
Business Wise			
Strata Control			
Rigging			
Health & Safety 1			
Health & Safety 2			

ADDITIONAL COURSES COMPLETED

Course	Date Completed	Learner	Training Officer
Mines & Work Act			
Risk Assessment			
Gas Testing			
Flameproof			

BASIC TRAINING	%	DATE	TRAINING OFFICER
FIRST ASSESSMENT			
SECOND ASSESSMENT			

ADVANCED TRAINING	%	DATE	TRAINING OFFICER
FIRST ASSESSMENT			
SECOND ASSESSMENT			

	DATE	LEARNER	TRAINING OFFICER
ISSUED			
RETURNED			

	DATE	LEARNER	TRAINING OFFICER
ISSUED			
RETURNED			

PHASE TESTS COMPLETED

BASIC TRAINING

Code	Description	Attempt	Date	Learner	Training Officer

ADVANCED TRAINING

Code	Description	Attempt	Date	Learner	Training Officer



REMBER ALWAYS WORK SAFE

Once you have passed the self test, you are now at liberty to request a Formative Assessment from your Assessor.