



employment & labour

Department:  
Employment and Labour  
REPUBLIC OF SOUTH AFRICA



# TRAINING STANDARDS FOR COMMERCIAL DIVING



**ARYAN**  
**OFFSHORE**  
**COMPANY**

# TRAINING STANDARDS FOR COMMERCIAL DIVING

I, Phumudzo Maphaha, duly designated by Minister of Employment and Labour in terms of section 27(1) of the Occupational Health and Safety Act, Act No. 85 of 1993 as Acting Chief Inspector for the purposes of the aforementioned Act, and acting in terms of the powers and functions conferred upon me by section 27(2), and those assigned to me by provisions of the Act, hereby endorse/approve the training standards for commercial diving to be utilized for the training of commercial divers in terms of Regulations 11(1)(a) of the Commercial Diving Regulations, 2022.



Mr P Maphaha

Acting Chief Inspector

Date: 20 May 2022



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# 1 Introduction

## 1.1 Objective

The objective of this Diver training standard is to ensure the Learner Diver is:

- a) capable in physical abilities;
- b) capable of rational thoughts during execution of underwater tasks;
- c) competent to dive through experience and familiarity of equipment and technique;
- d) capable to safely plan and execute a commercial dive for the certification class trained to.

The training set out in the modules will provide the Learner Diver with a general appreciation of the techniques and challenges involved in carrying out the specified underwater work. For the Learner Diver to be considered a competent worker for specific tasks, further specialist training and experience must be undertaken on those tasks.

## 1.2 Definitions

*Bottom Time* is defined as the time period from the Diver leaving surface till start of his ascent.

*Class* is defined as the training level that represents the diving specific competence of the Commercial Diver i.e., Class I

*Confined water* is defined as any enclosed body of water such as a swimming pool, aquaculture pond, aquarium, where the safety of the diver is not affected by environmental and geographical factors.

*Depth* is defined as the distance from top or surface to the bottom of something.

*Open water* is defined as any large body of water, including harbours, lakes, and rivers where the safety of the diver is affected by environmental factors.

*Personal diving equipment* is defined as the suit and equipment worn by a diver including helmet and underwater emergency breathing apparatus.

*Module A* is the theory module for diver training. It is intended to be presented in the class (lecture) room or in an approved e-learning platform.

*Module B* covers the practical training requirements for diver certification under this standard. All practical training must be attended at the approved training facilities.

*Specific task training* is training over and above that stipulated as a minimum requirement for Class I diver training. Competency in the use of specialised tools can be gained by the diver under the guidance of a competent supervisor.



### 1.3 Training Classifications

This Training Standard has Classifications Level which learner divers advance through. Each Classification level has a Theory (Module A) and a Practical (Module B). Advancement to the next Classification Level requires proof of Certification in Theory and Practical Instruction.

Table 1: Diver Training Classification, Classes and Criteria

CLASSIFICATION		DESCRIPTION
Theory and Practical Training		
	Diving Theory	Theoretical principles of diving. Classroom based, no practical component. Diving First Aid Training including Drowning Module.
VI	SCUBA Air - Confined water	SCUBA Air diving operations using open circuit in confined water. Limited to 08 msw
V	SCUBA Air - Scientific	SCUBA Air Diving operations using open circuit for scientific purposes only. Limited to 20 msw
IV	Commercial SCUBA Air	Commercial SCUBA Air diving operations using open circuit for inland/inshore work. Commercial SCUBA nitrox diving operations using open circuit for inland/inshore work. Limited to 30 msw
III	Surface Supply Air	Surface supplied air diving operations for Inland / inshore work. Nitrox diving operations for inland/inshore work. Limited to 30 msw
II	Offshore Surface Supply Air	Offshore Surface supplied diving operations, including open bell. Limited to 50 msw
IIM	Offshore Surface Supply Mixed Gas	Offshore Surface supplied mixed gas diving operations including open bell. Limited to 75 msw
I	Saturation Diving	Saturation diving operations using closed bell.

### 1.4 Competency Levels

The Competency Levels required by the diver are defined in Table 2:

Table 2: Training Competency Levels

LEVEL	COMPETENCY
NR	The subject is <b>Not Required</b> for the particular standard
Theory Only	
C-	This requires the Learner Diver to prove: <ul style="list-style-type: none"> <li><b>Factual Knowledge</b> of the subject. (demonstrate knowledge of specific details, elements, or terminology)</li> </ul>
C	This requires the Learner Diver to prove: <ul style="list-style-type: none"> <li><b>Conceptual Knowledge</b> of the subject. (knowledge of theories, models, principles, classifications, and categories)</li> </ul>
C+	This requires the Learner Diver to prove: <ul style="list-style-type: none"> <li><b>Application Knowledge</b> of the subject. (to know specific techniques, skills, algorithms, or methods)</li> </ul>
Practical and Theory	
A	This requires the Learner Diver to prove: <ul style="list-style-type: none"> <li><b>practical competence by demonstration</b> of a task under supervision <b>and</b></li> <li>is considered to have a Level <b>C+ Application Knowledge</b> of the subject.</li> </ul>
B	This requires the Learner Diver to prove: <ul style="list-style-type: none"> <li><b>practical competence by demonstration</b> of a task under supervision <b>and</b></li> <li>is considered to have a Level <b>C Conceptual Knowledge</b> of the subject.</li> </ul>
NYC	Not Yet Competent

## 1.5 Training Establishment Course Requirements

The approved training establishment shall meet the following requirements:

Requirement 1 - Subject theory must be successfully completed before the specific practical training is undertaken.

Requirement 2 - Proof of competence in the subject theory must be a measurable and documented process per Learner.

Note: A training competence assessment sheet shall be used. The sheet shall demonstrate knowledge development including measurables such as tests, verbal explanations, or written descriptions of specific procedures.

Requirement 3 - A written confirmation of the Proof of Competence to commence practical training shall be provided by the instructor.

Note: This shall be on the training competence assessment sheet and student record file.

Requirement 4 - Proof of competence in practical applications; including the progression of competence must be a measurable and documented process per Learner. To gain experience, appropriate time must be provided in completing the task on a repetitive basis.

Note: A training competence assessment sheet shall be used. The sheet shall demonstrate task development including measurables such as tests, timed tasks, degree of difficulty simulations, etc.

Requirement 5 - A written confirmation of the Proof of Competence in practical training shall be provided by the instructor before issuing of the final Diving Class Certificate.

Note: This shall be on the training competence assessment sheet and student record file.

Requirement 6 - All training diving operations shall meet the requirements of the applicable Code of Practice and Government regulations applicable to the Class of Diving.

Requirement 7 - All Offshore Class II and I training requirements will be compliant to the latest International Marine Contractors Association (IMCA) Diver Training Guidance Information. South African Diver Training is recognised internationally through the IMCA training recognition program.

Requirement 8 - All practical dives/swims must be completed with active tethering including the use of a Buddy line, Safety Line or Umbilical.

Requirement 9 - A record of attendance shall include the full names of the Instructor, Supervisors, Assistant Trainers, Experienced Standby Divers and Learner Divers. For any non-diving related lectures, a diving supervisor is not required to be present at the Dive Site.

## 1.6 Training Establishment Personnel Requirements

The approved training establishment personnel shall meet the following requirements:

Requirement 10 – Taking into consideration the requirement as indicated in 13.4.6 of the Inshore COP, all training dives must have a dedicated standby diver, who shall be at immediate readiness to aid the diver in the water and under the direct control of the Supervisor. Standby Diver would normally be on the surface, dressed to enter the water, need not be wearing his mask/helmet, but his equipment shall be immediately at hand. When surface supplied equipment is being used by the working divers, it shall also be used by the Standby Diver. A standby Diver shall have a minimum of 30 working dives after training and be qualified to the Classification level under instruction or above. No student shall act as the diving standby diver. For standby diver training duties, the trainee should be considered as the Diver 2 when conducting standby duties.

Requirement 11 - Diving Supervisors must:

- have at least two years of relevant industry experience Supervising at the Classification level under instruction. Experience at an advanced level will be accepted for intermediate and entry levels.
- be registered as a diving instructor in terms of the South African Diving Regulations for the Classification level under instruction.
- Have passed an instructor training standards and knowledge exam at the classification level he / she will instruct.
- hold a facilitator training certificate
- have successfully completed a Outcomes Based Assessments course.

For class II supervisors:

- Have been registered as a class II diver for at least one year.
- Have logged at least 50 dives after registration as a class II diver

**Note:** Class II and I Diving Supervisors must be registered on the IMCA CPD and maintain their in-date status.

## 1.7 Training Establishment Equipment Requirements

Requirement 12 - The following table provides a minimum equipment requirement for training schools. Equipment requirements will be audited on an annual basis.

*Table 3: Equipment Requirements*

CLASSIFICATION		Equipment Requirements
VI	SCUBA Air - Confined water	<ul style="list-style-type: none"> <li>Latest South African Diving Regulation and applicable South African Standards.</li> </ul>
V	SCUBA Air - Scientific	<ul style="list-style-type: none"> <li>Latest South African Diving Regulation and applicable South African Standards.</li> </ul>
IV	Commercial SCUBA Air	<ul style="list-style-type: none"> <li>Latest South African Diving Regulation and applicable South African Standards.</li> </ul>
IV NITROX	Commercial SCUBA Nitrox	<ul style="list-style-type: none"> <li>Latest South African Diving Regulation and applicable South African Standards.</li> <li>Marine platforms if used for training shall comply with SAMSA requirements.</li> </ul>
III	Surface Supply Air	<ul style="list-style-type: none"> <li>Latest South African Diving Regulation and applicable South African Standards.</li> <li>Marine platforms if used for training shall comply with SAMSA requirements.</li> </ul>
III NITROX	Surface Supply Nitrox	<ul style="list-style-type: none"> <li>Latest South African Diving Regulation and applicable South African Standards.</li> <li>Marine platforms if used for training shall comply with SAMSA requirements.</li> </ul>
II	Offshore Surface Supply Air	<ul style="list-style-type: none"> <li>Latest South African Diving Regulation and applicable South African Standards.</li> <li>DDC, Divers Umbilicals, Harnesses, Breathing Helmets and Masks , Diver Control Panels, shall comply with IMCA D023 and IMCA D040 where required</li> <li>Wet bell and associated Launch and Recovery systems shall comply with IMCA D023 including the requirements of the main wet bell umbilical.</li> <li>Diving Stages and associated Launch and Recovery systems shall comply with IMCA D023.</li> <li>Marine platforms if used for training shall comply with SAMSA requirements.</li> </ul>

IIM	Offshore Surface Supply Mixed Gas	<ul style="list-style-type: none"> <li>• Latest South African Diving Regulation and applicable South African Standards.</li> <li>• DDC, Divers Umbilicals, Harnesses, Breathing Helmets and Masks , Diver Control Panels, shall comply with IMCA D023 and IMCA D037 where required</li> <li>• Wet bell and associated Launch and Recovery systems shall comply with IMCA D023 and IMCA D037 including the requirements of the main wet bell umbilical.</li> <li>• Diving Stages and associated Launch and Recovery systems shall comply with IMCA D023.</li> <li>• Marine platforms if used for training shall comply with SAMSA requirements.</li> </ul>
I	Saturation Diving	<ul style="list-style-type: none"> <li>• Latest South African Diving Regulation and applicable South African Standards.</li> <li>• All equipment shall meet the Closed Bell IDRF standard</li> <li>• Diving Bell and associated Launch and Recovery systems shall comply with IMCA D024 and IMCA D014 including the requirements of the main bell umbilical.</li> <li>• Control and ancillary systems shall met the requirements of D024 subject to an agreed deviation agreement with the Department – Training system may differ from Operational Systems. Deviations are valid for one year only.</li> <li>• Diving Stages and associated Launch and Recovery systems shall comply with IMCA D023.</li> <li>• Marine platforms if used for training shall comply with SAMSA requirements.</li> </ul>

## 2 Assessment Requirements

### 2.1 Diver Course Selection

All candidates wishing to undertake diver training, must comply with the following course entry assessment requirements.

Table 4: Minimum Entry Criteria for courses

Requirements	All Standards
Attained the age of 18 yrs.	X
Pass a medical examination conducted by a designated medical practitioner. This Certificate must be obtained before training commences.	X
Pass a fitness test to a minimum capacity of $40 \text{ VO}_{2\text{ max}} \text{ mL.Kg}^{-1}.\text{min}^{-1}$	X
Learner divers coming from countries whereby English is not the official language of communication, must pass an internationally accredited English written and verbal literary test and must obtain an average International English Literacy Testing System (IELTS) score of 6.5 or equivalent. The results must be provided to the Department before the learner diver commences training.	X
Learner divers must pass a written Maths exam confirming competence in ability to add, subtract, multiply and divide whole numbers, decimals, and fractions; calculate percentages and transpose and solve simple formulae, e.g., gas laws, in the English language.	X
Pass a basic water competence evaluation, Table 5, prior to commencement of the course.	X
Be willing and able to work as part of a team.	X
Passed the preceding qualification course and met all criteria for the standard.	X

The above assessment requirements shall be summarised in a documented format, evidence of completion, and signed by the Instructor as meeting the requirements of this standard. This assessment shall form part of the body of evidence in the Learners training file.

All restrictions shall be specifically noted and co-signed by the Designated Medical Practitioner, Diving Instructor, Diving Supervisors and Trainee Assistants (Standby Divers, etc.)

### 2.2 Basic Water Competence

Learner Divers attending the course must demonstrate an aptitude for diver training. This may be done by either:

- Holding a recreational or military diving qualification with a minimum of 15 dives, or
- by completing a basic water competence evaluation. The evaluation is to be conducted in confined water of at least 2.5 m deep. Ear barotrauma and equalisation must be explained prior to commencing the evaluation.

Table 5: Basic Water Competence Evaluation

1	25 m underwater swim from a standing start
2	200 m free style (In under 8 minutes)
3	100 m back stroke
4	50 m swim with 5 % of body mass on weight belt
5	60 seconds treading water with hands on head followed immediately by
	30 seconds rest period followed by
	20 second breath hold on the pool floor.

ALTERNATIVELY - substitute items 4 and 5 with 6 as per below:

6	Drown proof for 15 minutes (stay afloat without touching the sides of the pool).
7	Brief dive in a blacked-out mask doing a simple lifeline search (5min)
8	Chamber Dive to 10 meters
9	Briefing and shallow dive using a full-face mask with a small mechanical aptitude task
10	Chamber Dive to 10 meters

## 2.3 Theory - Module A

A record of course attendance must be maintained by the approved diving school. The Learner Diver must prove competence of the topics incorporated into Module A and pass a written examination as defined below.

*Table 6: Evaluation of Theory Assessment*

Section	%
Diving Physics	15
Diving Physiology	10
Diving Trauma and Medical Emergencies	10
Diving Procedures and Underwater Work	5
Decompression Theory and Tables (Prerequisite pass 80 % of this section)	10
Underwater and Diving Emergency Procedures	5
Plant and Equipment and Gas Handling	5
Chambers	5
Diver Communications	5
Environmental Conditions	5
Underwater Hazards and Dangerous Conditions	5
Basic Seamanship and Rope Work	5
Support	5
Management, Planning and Documentation	5
Safety	5
Diving Legislation (Separate exam pass mark 80%)	100
Decompression Tables (100%)	20
First Aid (Separate exam pass mark 80 %)	60
Drowning First Aid including administration of Oxygen (Separate exam pass mark 80%)	20
First Aid Diving (Pass Mark 80%)	100

## 2.4 Practical - Module B

Module B covers the practical training requirements for diver certification. The Learner Diver must prove competence of the topics incorporated into Module B and pass a written and practical examination as defined below.

*Table 7: Evaluation of Practical Diver Training*

Section	%
Practical diving	15
Surface procedures	15
Underwater emergencies	15
Underwater communications	10
Underwater work	15
Plant and equipment	10
Seamanship and Rope Work	10
Chambers	10
Practical (Pass Mark 80%)	100

## 2.5 Minimum Course Times

The following applies to the minimum duration of diving courses. First Aid is considered as an additional time frame.

		VI	V Air	IV Air	III Air	II Air	II Mixed Gas	I
Weeks	Theory	Surface Swimmer SCUBA Air – 8m	Surface Swimmer SCUBA Air – 30m	Commercial SCUBA Air	Surface Supply Air - Inshore	Surface Supply Air Offshore	Surface Supply Mix Gas - Offshore	Saturation Diving
Week 01		Surface Swimmer SCUBA Air	Surface Swimmer SCUBA Air	Commercial SCUBA Air	Commercial SCUBA Air	Commercial SCUBA Air		
Week 02								
Week 03								
Week 04					Surface Supply Air – Inshore	Surface Supply Air – Inshore		
Week 05								
Week 06								
Week 07								
Week 08								
Week 09						Surface Supply Air – Offshore		
Week 10								
Week 11								
Week 12								
Week 13							Surface Supply Mixed Gas - Offshore	
Week 14								
Per IDSA								Saturation Diving

Class VI completed separately shall be a minimum of 3 weeks.

Class V completed separately or in combination with Class VI shall be a minimum of 3 weeks.

Class IV completed separately or in combination with Class VI and V, shall be a minimum of 3 weeks.

Class III completed separately or in combination with Class VI, V, IV shall be a minimum of 8 weeks.

Class II completed separately or in combination with Class VI, V, IV, III shall be a minimum of 12 weeks.

## 2.6 Minimum underwater training bottom diving times.

\* Surface work minutes are not indicated as bottom time but actual training time. Confined water training times are considered from when the diver enters the water and starts breathing on the Diving equipment for the training session. Confined water training times exclude the time for equipment preparation and equipment disassembly.

\* Instructional open water training times are considered from the start of the Diver leaving surface and continuous until diver leaves bottom.

All minutes indicated on the Minimum Bottom timetables are strictly Bottom Time unless specifically marked (\*). All bottom minutes indicated are excluding ascent, in water decompression and Surface Decompression ascent and chamber times. Bottom Time must be record separately from the Total Dive Time in training records.

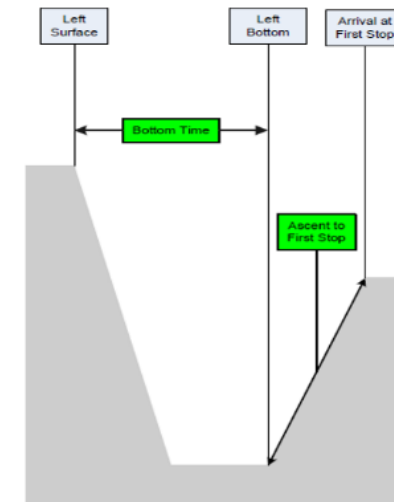
All training is outcome-based, and the Learner Diver is required to develop and master requisite skills, which are evaluated. Therefore, the minimum time is allocated for planning purposes only and only students that are deemed competent can continue with the course.

Times in excess of the minimum requirements at a deeper depth can be used to make up a shortfall of minutes in the shallower range.

Class IV training must be completed before the commencement of any surface-supplied practical training commences.

Class II Mixed Gas Training is in addition to all Class II training Bottom Times and Dives

Class I training will be undertaken in accordance with the current published IDRCF closed bell diver training standard. This standard is reviewed and agreed periodically.





### 2.6.1 Class VI Air – Surface Swimmer SCUBA Air Limited to 08msw

		VI Air	V Air	IV Air	III Air	II Air	II Mixed Gas	I
Depth	Theory	Surface Swimmer SCUBA Air – 08msw	Surface Swimmer SCUBA Air 30msw	Commercial SCUBA Air 30 msw	Surface Supply Air Inshore 30msw	Surface Supply Air Offshore 50msw	Surface Supply Mix Gas Offshore	Saturation Diving
	Total Bottom Time	400 BT Minutes						
00 - 0.5		800 minutes*						
01-08		400 minutes and Min 8 Dives						
01-09								
10-19								
20-29								
30-39								
40-50								
51-55								
56-60								
65 - 70								
100								

### 2.6.2 Class V Air – Surface Swimmer SCUBA Air

		VI Air	V Air	IV Air	III Air	II Air	II Mixed Gas	I
Depth	Theory	Surface Swimmer SCUBA Air – 08msw	Surface Swimmer SCUBA Air 30msw	Commercial SCUBA Air 30 msw	Surface Supply Air Inshore 30msw	Surface Supply Air Offshore 50msw	Surface Supply Mix Gas Offshore	Saturation Diving
	Total Bottom Time		400 BT Minutes					
00 - 0.5			800 minutes*					
01-08			400 minutes and Min 8 Dives					
01-09								
10-19								
20-29								
30-39								
40-50								
51-55								
56-60								
65 - 70								
100								

## 2.6.3 Class IV Air - Commercial SCUBA Air

		VI Air	V Air	IV Air	III Air	II Air	II Mixed Gas	I
Depth	Theory	Surface Swimmer SCUBA Air – 08msw	Surface Swimmer SCUBA Air 30msw	Commercial SCUBA Air 30 msw	Surface Supply Air Inshore 30msw	Surface Supply Air Offshore 50msw	Surface Supply Mix Gas Offshore	Saturation Diving
	Total Bottom Time			900 BT minutes				
00 - 0.5				800 minutes*				
01-08								
01-09				400 minutes and Min 8 Dives 100 minutes using Nitrox and Min 2 of 8 Dives				
10-19				300 minutes and Min 10 Dives 100 of 300 minutes using Nitrox and Min 3 of 10 Dives				
20-29				200 minutes and Min 12 Dives 50 of 200 minutes using Nitrox and Min 3 of 12 Dives 40 of 200 minutes using Nitrox >28m and Min 1 of 12 Dives				
30-39								
40-50								
51-55								
56 60								
65 - 70								
100								

## 2.6.4 Class III Air – Surface Supplied Air Inshore

		VI Air	V Air	IV Air	III Air	II Air	II Mixed Gas	I
Depth	Theory	Surface Swimmer SCUBA Air – 08msw	Surface Swimmer SCUBA Air 30msw	Commercial SCUBA Air 30 msw	Surface Supply Air Inshore 30msw	Surface Supply Air Offshore 50msw	Surface Supply Mix Gas Offshore	Saturation Diving
	Total Bottom Time				800 BT minutes			
00 - 0.5					400 minutes*			
01-08								
01-09					400 minutes and Min 8 Dives in total 150 of 400 minutes using Nitrox and Min 2 of 8 Dives			
10-19					200 minutes and Min 4 Dives 100 of 200 minutes using Nitrox and Min 2 of 4 Dives			
20-29					200 minutes and Min 3 Dives 40 of 200min @ >28m using Nitrox and Min 2 of 3 Dives			
30-39								
40-50								
51-55								
56-60								
65 - 70								
100								

## 2.6.5 Class II Air – Surface Supplied Air Offshore

		VI Air	V Air	IV Air	III Air	II Air	II Mixed Gas	I
Depth	Theory	Surface Swimmer SCUBA Air – 08msw	Surface Swimmer SCUBA Air 30msw	Commercial SCUBA Air 30 msw	Surface Supply Air Inshore 30msw	Surface Supply Air Offshore 50msw	Surface Supply Mix Gas Offshore	Saturation Diving
	Total Bottom Time					1750 BT minutes		
00 - 0.5						400 minutes*		
01-08								
01-09						800 minutes and Min 10 Dives in total 150 minutes using Nitrox and Min 2 of 10 Dives 75 minutes in open water and Min 3 of 10 Dives 180 minutes Bottom time continuous and Min 1 of 10 Dives		
10-19						400 minutes and Min 6 Dives in total 100 minutes using Nitrox and Min 2 of 10 Dives		
20-29						300 minutes and Min 5 Dives Total 40min @ >28m using Nitrox and Min 2 of 5 Dive		
30-39						250 minutes and Min 2 Dives in total		
40-50						150 minutes and Min 6 Dives total (4 Dive 50msw)		
51-55								
56 60								
65 - 70								
100								

## 2.6.6 Class II Mixed Gas – Surface Supplied Mix Gas Offshore

		VI Air	V Air	IV Air	III Air	II Air	II Mixed Gas	I
Depth	Theory	Surface Swimmer SCUBA Air – 08msw	Surface Swimmer SCUBA Air 30msw	Commercial SCUBA Air 30 msw	Surface Supply Air Inshore 30msw	Surface Supply Air Offshore 50msw	Surface Supply Mix Gas Offshore	Saturation Diving
	Total Bottom Time						55 BT minutes	
00 - 0.5							Diver must be a qualified Class II Diver with Nitrox	
01-08								
01-09								
10-19								
20-29								
30-39								
40-50								
51-55							20 minutes and Min 1 Dives Mixed Gas	
56 60							20 minutes and Min 1 Dives Mixed Gas	
65 - 70							15 minutes and Min 1 Dives Mixed Gas	
100								

## 2.6.7 Class I – Saturation Diving

		VI Air	V Air	IV Air	III Air	II Air	II Mixed Gas	I
Depth	Theory	Surface Swimmer SCUBA Air – 08msw	Surface Swimmer SCUBA Air 30msw	Commercial SCUBA Air 30 msw	Surface Supply Air Inshore 30msw	Surface Supply Air Offshore 50msw	Surface Supply Mix Gas Offshore	Saturation Diving
	Total Bottom Time							
00 - 0.5								Training Times shall comply with the International Diving Regulators and Certifiers Forum Closed Bell Diver Training
01-08								
01-09								
10-19								
20-29								
30-39								
40-50								
51-55								
56 60								
65 - 70								
100								

## 2.7 Minimum Chamber Bottom Times.

		VI Air	V Air	IV Air	III Air	II Air	II Mixed Gas	I
Depth	Theory	Surface Swimmer SCUBA Air – 08msw	Surface Swimmer SCUBA Air 30msw	Commercial SCUBA Air 30 msw	Surface Supply Air Inshore 30msw	Surface Supply Air Offshore 50msw	Surface Supply Mix Gas Offshore	Saturation Diving
00m						250 minutes and Min 10 Practical		
10m		10 Minutes Min 1 Dive	10 Minutes Min 1 Dive	20 Minutes Min 2 Dive	20 Minutes Min 2 Dive	Min 3 Dives using SurD O2 <b>simulation</b> technique		
18m						120 Minutes and Min 6 Dive **		
30m						100 Minutes and ***Min 2 Dive using SurD O2 technique*.		
50m						10 Minutes and Min 1 Dive**** 01 Narcosis Experience task		
51 - 55m							10 minutes and Min 1 Dive using SurD O2 technique*	

\* Diver to transfer from the entrance lock to the main lock. The entrance lock must be returned to surface after each transfer. Diver to operate the bilge drain in the chamber and check the O2 BIBS mask function.

\*\* Diver transfers from the entrance lock to the main lock and a seal is taken. The diver is to operate the medical lock and receive a chamber safe item.

\*\*\* Diver to complete surface decompression dives on oxygen (SurD O2). Should be completed separately from the diving tasks to ensure chamber familiarisation.

\*\*\*\* Entrance lock free of occupants. Divers to do basic function tests at 50 metres.

Class II - Total of 10 Hrs logged of chamber practical per student.

All chamber operations and dives are to be logged in the diver's logbook as chamber training operations

All chamber dives internal and external chamber operator operations are to be logged in the diver's logbook as chamber training dives or as Chamber Operator

Special Note: All SurD02 dives shall ensure the forelock of the chamber remains open at all times. Divers undergoing treatment are to do so in the Main lock only. SurD02 dives are to be conducted strictly in accordance with the selected Diving Tables and its specific operating techniques and instructions.



### 3 Module A - Theory of Diving

The Learners must achieve the following minimum competency levels during the course and before commencing any practical sessions.

#### 3.1 History of Diving

Learner Diver must have a basic understanding of the following:

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
History of Diving					C-			
Early Diving Dress					C-			
Standard Diving Dress					C-			
History of Mixed Gas Diving				NR			C-	
Breath-hold Diving					C-			
Basic Skin-Diving Equipment					C			
Offshore Surface Swimmer (IMCA)					C			
The "Aqualung" (Open circuit SCUBA)					C			
Commercial SCUBA Equipment (IMCA)					C			
Re-breathers: Closed circuit SCUBA					C-			
Re-breathers: Semi-closed-circuit SCUBA					C-			
Lightweight Demand and Free-flow Helmets and Band masks					C-			
Decompression Tables and Procedures					C-			
Hyperbaric operations relating to work in compressed air or underwater operations					C-			
Purpose and principles of hyperbaric operations in vocational areas					C-			
Job roles in hyperbaric operations					C-			
History of Saturation Diving				NR				C-
History of Deep Dive Rebreathers for Saturation Bailout.				NR				C-

#### 3.2 Diving Physics

Learner Diver must have a working knowledge of the physics related to diving, including the ability to manipulate formulae and make relevant calculations. The laws governing gases and liquids are important.

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Units of Measurement					C+			
The Atmosphere and Gases					C+			
Temperature					C+			
Pressure					C+			
Force					C+			
Density					C+			
Sound					C+			
Conversions					C+			
General Gas Equation					C+			
Boyle's Law					C+			
Charles' Law					C+			
Henry's Law					C+			

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Dalton's Law of Partial Pressures					C+			
Archimedes Principle and Buoyancy					C+			
The Effects of Temperature					C+			
The Effects of Light								
• Refraction of light					C+			
• Reflection of light					C+			
• Absorption of light					C+			
• Light compensation equipment					C+			
The Effects of Viscosity					C+			
The Effects of Humidity					C+			
Equivalent Air Depth		NR				C+		
Equivalent Nitrogen Depth		NR				C+		
Maximum Operating Depth		NR				C+		
Oxygen Fractions		NR				C+		
Formulae and Calculations:								
Depth, Pressure and Volumes					C+			
Gas Consumption					C+			
Temperature					C+			
Partial Pressures					C+			
Buoyancy					C+			

### 3.3 Diving Physiology

Learner Diver must have a sound understanding of the principles of human physics and the effects of the diving environment. The following topics will be covered:

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Cell Function					C			
Muscular System					C			
Skeletal System					C			
Respiratory System					C+			
Circulatory System					C+			
The Blood					C+			
The Heart					C+			
The Nervous system					C+			
The Ear, Nose, Throat and Sinuses					C+			
The Senses:								
• Hearing					C			
• Smell					C			
• Taste					C			
• Touch					C			
• Vision and Sight					C			
Introduction to Barotrauma					C+			
The Psychological Effect of Diving					C			
Mammalian Diving Reflex					C			
Immersion Response of Humans					C			
Patent Foramen Ovale					C			

### 3.4 First Aid

Learner Diver must be in possession of a first aid certificate presented by an approved First Aid Training Organisation. The course must consist of the following basic subjects:

	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
General Principles of First Aid	C+							
Safety	C+							
Primary Assessment	C+							
Airway	C+							
Breathing	C+							
Circulation	C+							
Bleeding	C+							
Fractures	C+							
Strains and Sprains	C+							
Shock	C+							
Electrical Shock	C+							
Burns	C+							
Asphyxia and Pulmonary Oedema	C+							
Respiratory and Cardiac Arrest	C+							
Convulsions (CNS Oxygen Toxicity and Epilepsy)	C+							
Resuscitation (AR and CPR)	C+							
Recovery Position	C+							
Airway Management	C+							
Spinal Injury	C+							
First Aid Equipment in accord. with OHS Act 85, 1993.	C+							
Casualty Monitoring	C+							
Casualty Handling and Transport	C+							
Reporting of Injuries and Accidents	C+							
Events Leading to the Incident	NR					C+		
Secondary Assessment	NR					C+		
The Head-to-Toe-Survey	NR					C+		
Vital Signs	NR					C+		
Life Threatening Conditions	NR					C+		
Airway Obstruction	NR					C+		
Hypoxia and Anoxia	NR					C+		
Interruption of heart-lung Function	NR					C+		
Airway Obstruction	NR					C+		
Recognition of Choking	NR					C+		
Classification of Choking	NR					C+		
Partial & Complete Airway Obstruction	NR					C+		
Management & Treatment of Choking	NR					C+		
CPR in adults and Children/Infants	NR					C+		
Oxygen Therapy and Breathing Aids	NR					C+		

	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Hypoxemia			NR				C+	
Shock and Bleeding			NR				C+	
Shock			NR				C+	
Bleeding			NR				C+	
Bandages and Dressings			NR				C+	
Soft Tissue Injuries			NR				C+	
Specialised Wounds			NR				C+	
Penetrating Chest Wounds			NR				C+	
Drowning and Near-drowning			NR				C+	
Heat Illnesses			NR				C+	
Hypothermia			NR				C+	
Respiratory Disorders			NR				C+	
Cardiac Disorders			NR				C+	
Neurological Disorders			NR				C+	
Diabetes			NR				C+	
Allergies			NR				C+	
History and Records			NR				C+	

### 3.5 Diving Trauma and Medical Emergencies

Learner Diver must, in addition to basic first aid skills, possess the ability to attend to diving specific medical emergencies.

	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Decompression Illness								
Arterial Gas Embolism					C+			
Decompression Sickness					C+			
Barotrauma:								
Pulmonary Barotrauma of Ascent					C+			
Pneumothorax					C+			
Mediastinal and Interstitial Emphysema					C+			
Aural Barotrauma					C+			
Sinus Squeeze					C+			
Dental Barotrauma (Aerodontalgia)				C				C+
Mask and Helmet Squeeze				C				C+
Dysbaric Osteonecrosis				C				C+
High Pressure Nervous Syndrome (HPNS)				NR				C+
Compression Arthralgia				NR				C+
Gas Toxicity:								
Oxygen								
Acute Oxygen Toxicity	C-	C+	C-		C+			
Chronic Oxygen Toxicity	C-	C+	C-		C+			

	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I						
Carbon Monoxide	C-	C+	C-	C+										
Carbon Dioxide	C-	C+	C-	C+										
Nitrogen	C-	C+	C-	C+										
Hydrogen Sulphide	C	C+	C	C+										
Anoxia and Hypoxia	C	C+	C	C+										
Hypercapnia	C	C+	C	C+										
Environmental Emergencies														
Drowning:														
Near Drowning									C+					
Secondary Drowning	C+													
Post-Immersion Syndrome	C+													
Hypothermia:														
Mild Hypothermia									C+					
Moderate Hypothermia									C+					
Severe Hypothermia	C+													
Hyperthermia														
Heat Stroke									C+					
Heat Exhaustion									C+					
Shock														
Anaphylactic and Hypovolemic									C					C+
Bleeding and Control of Bleeding									C					C+
Fractures and Dislocations	C					C+								
Trauma and Trauma Management in the Marine/Underwater Environment														
Shark Encounters									C					C+
Other Marine Life Hazards									C					C+
Water Jet Injuries	C					C+								
Blast Injuries	C					C+								
Electrocution	C					C+								
Toxic Waste and Contamination	C					C+								
Hydrocarbons	C					C+								
Cleaning Fluids	C					C+								
On Site Trauma Management	C					C+								
Casualty Care, Monitoring and Transportation	C					C+								
Chest Compression Devices	NR							C+						
Reporting of Injuries	C					C+								
• Systematic assessment of injured diver	C+													
• Identify situations needing timely recompression treatment	C+													
• Assessing skill required for assessment of injured person and how to obtain the assistance	C+													
• Prescriptions, Medication and Diving	C					C+								

	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
100 % Oxygen Therapy in Diving Casualties								
Non-Spontaneous Breathing Casualty	C+							
Spontaneous Breathing Casualty	C+							
Oxygen Administration Equipment Familiarisation	C+							
Risks and control measures using a hyperbaric chamber	C+							
First Aid Equipment Requirements								
OHS Act No 85 of 1993	C							
South African Maritime Safety Authority	C							
Saturation First Aid Equipment Requirements	NR					C+		

### 3.6 Diving Procedures

Learner Diver must have a basic understanding of the principle and requirements of conducting risk assessments, hazard, and dive planning:

	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
SCUBA DIVING								
Open Circuit	C+							
Closed Circuit	C							
Semi-Closed Circuit	C							
Commercial SCUBA								
• Equipment Configuration including Full face mask; bailout cylinder (2 <sup>nd</sup> cylinder) switching block; lifeline and voice communications.	NR	C+						
• Equipment Redundancy	NR	C+						
• Actions in event of underwater emergency when using Commercial SCUBA	NR	C+						
• IMCA Commercial SCUBA Information note including limitations of SCUBA when used as a bailout on SSDE	NR	C+						
Nitrox SCUBA								
• Equipment Configuration	NR		C+					
• Equipment Redundancy	NR		C+					
Personal Diving Equipment	C+							
Buoyancy and Buoyancy Compensation								
• Equipment Testing Requirements	C							
• Equipment Repair and Maintenance	C							
Minimum Personnel Requirements	C+							
Diving Team Responsibilities								
• Supervisor	C+							
• Divers	C+							
• Standby Divers	C+							
Air and Gas Supplies	C+							
Minimum Gas Requirements	C+							

	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Oxygen Tracking	NR					C+		
Gas switches	NR					C+		
<b>SURFACE SUPPLIED DIVING</b>								
Air and Mixed Gas Diving								
• Personal Diving Equipment	NR			C+				
• SCUBA Replacement	NR			C+				
• Diver's Umbilical	NR			C+				
• Wet and Open Bells	NR			C+				
• Diving Masks and Helmets	NR			C+				
• Diving Suits incl. Hot water Suits	NR			C+				
Identify and describe combinations of SDDE for different operations and task	NR			C+				
Equipment Testing Requirements	NR			C+				
Equipment Repair and Maintenance	NR			C+				
Identify and describe operating principles of SDDE	NR			C+				
Identify and describe failure modes of SDDE	NR			C+				
Identify and describe redundancies of SDDE	NR			C+				
Minimum Personnel Requirements								
Minimum personnel requirements for an emergency evacuation	C+							
• Risk assesses the team members needed to recover a diver, lifting from the water.	C+							
• Principal of standby diver being free of any residual gas to commit to rescuing a diver	C+							
• Principal of the Diver Medical technician being free of residual gas to commit to entering a chamber with injured diver	C+							
Diving Team Responsibilities								
• Supervisor	NR			C+				
• Lead Diver	NR			C+				
• Divers	NR			C+				
• Standby Divers	NR			C+				
• Tender	NR			C+				
• Diver Medical Technician	NR			C+				
• Dive Technician	NR			C+				
• Chamber Operator	NR			C+				
• Skipper (If Applicable)	NR			C+				
Air and Gas Supplies								
• Primary Supply	NR			C+				
• Independent Primary Supple	NR			C+				
• Shared Primary Supply	NR			C+				
• Secondary Supply	NR			C+				
• Independent Secondary Supply	NR			C+				
• Shared Secondary Supply	NR			C+				
• Emergency Bailout Supply	NR			C+				
• Block and Bleed Function								
Minimum Gas Requirements	NR			C+				

	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
DP OPERATIONS								
General DP Operations	NR					C+		
Diving from DP Vessels	NR					C+		
DPO Tasks	NR					C+		
DP Alert Status	NR					C+		
Golden Gate Principle	NR					C+		
Umbilical management on DP	NR					C+		
SATURATION DIVING								
Saturation Diving Principals	NR					C+		
Saturation Systems								
• Modular	NR					C+		
• 4 Point Mooring	NR					C+		
• DSV-based	NR					C+		
Life Support								
• Environmental Control	NR					C+		
• Reclaim Systems	NR					C+		
• Heating Systems	NR					C+		
Diving Bells	NR					C+		
• Bell Equipment	NR					C+		
• Bell Emergency Equipment	NR					C+		
Bell Handling Systems	NR					C+		
Umbilicals								
• Main Bell	NR					C+		
• Excursion	NR					C+		
Personal Diving Equipment								
• Equipment Testing Requirements	NR					C+		
• Equipment Repair and Maintenance	NR					C+		
• Deepwater Bailout Rebreathers	NR					C+		
• Diving Suit Hot water Care	NR					C+		
Transfer Under Pressure	NR					C+		
Gas Supplies and Saturation Consumables	NR					C+		
Committing Divers to Saturation and Pressurisation	NR					C+		
Split Level Saturation Diving	NR					C+		
Minimum Gas Requirements	NR					C+		
Minimum Personnel Requirements	NR					C+		
Safe Oxygen limits in Saturation	NR					C+		
Safe CO2 limits in Saturation	NR					C+		
Diving Team Responsibilities								
• Offshore Project Manager								
• Superintendent	NR					C+		
• Diving Bell Supervisors	NR					C+		
• Life Support Supervisors	NR					C+		
• Life Support Technicians	NR					C+		
• Dive System Technicians	NR					C+		
• Gas Man	NR					C+		



	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
• Saturation Divers	NR							C+
• Standby Saturation Divers	NR							C+

### 3.7 Underwater Work

Learner Diver must understand and have the requisite level of competence in these aspects of the work:

	VI/V	IV	IV NITRO X	III	III NITROX	II	II Mix Gas	I
Housekeeping	C+							
Winches and Tuggers	C+							
Wire Ropes and Slings	C+							
Hand Tools	C+							
Power Tools	C-			C				
Oxy Arc Cutting	C-			C				
HP Water jetting	C-			C				
LP Abrasive Cleaning	C-			C				
Wet Welding	C-			C				
Lifting Loads underwater								
• Equipment used - Types of lifting devices	C-			C+				
• Positive Buoyancy concept in diving	C-			C+				
• Negative buoyancy concept in diving	C-			C+				
• Buoyancy compensators	C-			C+				
• Saltwater buoyancy considerations	C-			C+				
• Fresh water buoyancy consideration	C-			C+				
• Safe procedures	C-			C+				
• Review 5 deadly subsea incidents	C-			C+				
• What is a DMA and what is not	C-			C+				
Underwater Inspection								
• Introduction to Underwater Inspection	C			C+				
• Inspection Equipment and Tools	C			C+				
• Measurements and Measuring Tools	C			C+				
• Visual Inspection	C			C+				
• Video Surveys	C			C+				
• Still Photography	C			C+				
Other Underwater NDT Techniques								
• Ultrasonic testing technique	C			C+				
• Cathodic Protection technique	C			C+				
• Magnetic particle testing technique	C			C+				
• Data Recording and Reporting	C			C+				
• Salvage								
• Retraction of stranded vessel technique	C			C+				
• Raising a sunken ship using patching and blowing	C			C+				
• Dewatering using pumps	C			C+				
• Par buckling	C			C+				
• Heavy lifts	C			C+				
• Combination lifts	C			C+				
• Hot tapping for oil removal	C			C+				
• Hazards during salvage operations	C			C+				
Pipe laying								
• Methods of pipelaying	C			C+				

	VI/V	IV	IV NITRO X	III	III NITROX	II	II Mix Gas	I
• Stinger checks		C				C+		
• Pipe lay subsea inspections		C				C+		
• Risks working around pipe lay works		C				C+		

### 3.8 Decompression Theory and Tables

Learner Diver must understand and have the requisite level of competence in decompression theory.

	VI/V	IV	IV NITRO X	III	III NITROX	II	II Mix Gas	I
Identify and Interpret routine mathematical information								
• Select and interpret mathematical information that is embedded in routine workplace tasks and texts					C			
• Interpret and comprehend whole numbers and routine or familiar fractions, decimals, and percentages.					C			
Undertake routing mathematical processes								
• Perform calculations which involve a number of steps					C			
• Calculate with whole numbers and routine or familiar fractions, decimals, and percentages					C			
• Convert between equivalent forms of fractions, decimals, and percentages					C			
• Apply order of operations to solve multiple step calculations					C			
• Apply problem solving strategies					C			
Check and communicate mathematical results								
• Make estimations to check reasonableness of problem-solving process, outcome and its appropriateness to the context and task					C			
• Use formal and informal mathematical language and symbolism to communicate the result of the task					C			
Basic Decompression Theory					C+			
Principles of Decompression					C+			
Haldane's Rationale and Later Modifications					C+			
Gas spaces in the human body					C+			
Tissue Groups and Half Times					C+			
Gas Gradients					C+			
Limited and Unlimited Tissue and Gas Diffusion					C+			
Dissolved and Free Gas Models					C+			
Decompression Procedures					C+			
Influencing/Pre-disposing Factors to Decompression Sickness					C+			
Practical Application of Different Decompression Tables					C+			

	VI/V	IV	IV NITRO X	III	III NITROX	II	II Mix Gas	I
Dive profiles: Single, Multi-level, Multi-day	C+							
NITROX Tables	NR		C+					
Surface Mixed Gas Tables	NR						C+	
Limits of Decompression Tables	C+							
Altitude Diving: Correction, Calculations and Tables	C+							
Diver Monitoring and Computers	C			C+				
Omitted Decompression Procedures	C+							
Emergency 100% Oxygen Procedures	C+							
Saturation decompression Procedures	NR							C+
Emergency Saturation Decompression	NR							C+
Flying After Diving	C+							
Procedures for limiting altitude exposure after diving	C+							
Factors effecting heat loss under water and effect on divers	C+							
Describe and use the above terms with peers in oral discussions	C+							
Inert gas narcosis and related safety precautions	C+							

### 3.9 Underwater and Diving Emergency Procedures

Learner Diver must understand the following

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Underwater and Diving Emergencies								
Lost Diver	C+							
Trapped or Fouled Diver	C+							
Loss of Communications	C+							
Blow-up and Emergency Ascent	C+							
Unconscious Diver	C+							
Drowning	C+							
Unconscious Diver	C+							
Trauma in the Water	C+							
Loss of Gas/Air Supply	C+							
Convulsions	C+							
Decompression Accident	C+							
Over-exertion	C+							
Loss of Hot water	NR			C+				
Lost Bell	NR							C+

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Contaminated or Unbreathable Atmosphere	NR			C				
Environmental Control Failure	NR			C				
Loss of pressure in Chamber	C							
Fires: Internal and External	C			C+				
DP Run-off	NR					C+		
Hyperbaric Evacuation	NR					C+		
Decompression Incident while flying after diving - Process	NR			C+				

### 3.10 Plant and Equipment

Learner Diver must have basic theoretical understanding of the design and operating principles of the following equipment:

Showing equipment:

Subject	VI/V	IV	III NITROX	III	III NITROX	II	II Mix Gas	I
HP Compressors	C+							
LP Compressors	C+							
Hot water Systems	NR			C				
Reclaim Systems	NR							C
HP Cylinders	C+							
Pneumatic Tools	NR			C				
Dredging and Airlifting Equipment	NR			C				
Hydraulic Power packs and tools	NR			C				
Winches, Cranes and Lifting Equipment	C-			C		C+		
Gas Transfer Pumps (6:1)	NR					C		
Identify Hazards and Risks working with Plant and Equipment	C						C+	
Review Safe methods of work which eliminate these risks.	C						C+	
Analysers - Operation and calibration	NR		C+					

### 3.11 Gas Handling

Learner Diver must understand the following:

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Gas Storage	C							
Inspection and Testing of HP Cylinders	C							
Handling of HP Cylinders and Bulk Gas Storage Assets	C-		C		C+			
Oxygen								
• Hazards of High-Pressure Oxygen	C+							
• Oxygen Cleaning and Compatibility	C+							
Inert Gases								

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
• Hazards of Inert Gases	C			C+				
Gas Analysis								
• Introduction to Gas Analysis	C+							
• Oxygen Analysis	C+							
• Carbon Dioxide Analysis	C+							
• Analysers and Analysis Techniques	C+							
• Air and Gas Purity	C+							
• Gas Blending	NR		C+					
• Calibration methods	NR		C+					
Gas Recovery Systems	NR							C+
Gas Management and Logistics	NR							C+

### 3.12 Chambers

Learner Diver must understand the following:

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Introduction to Compression Chambers	C-	C+						
Types of Chambers (Mono-place, Multi-place, Evacuation)								
• Layout	C-	C				C+		
• Orientation	C-	C				C+		
• Limitations of Types of Chambers	C-	C				C+		
Fire Hazards, Prevention and Control								
• Inside a Chamber	C-	C				C+		
• In Saturation or Chamber Control	C-	C				C+		
BIB's and BIB's overboard Dumps	C-	C				C+		
Chamber Connections	C-	C				C+		
Pressurisation Valves	C-	C				C+		
Exhaust Valves	C-	C				C+		
Bilge Drain	C-	C				C+		
Hygiene and cleaning	C-	C				C+		
Pressure Relief Valves	C-	C				C+		
Depth Gauges	C-	C				C+		
Chamber Atmosphere Analysis	C-	C				C+		
Transfer Under Pressure (TUP)	C-	C				C+		
Medical Locks	C-	C				C+		
Equipment Locks	NR	C-				C		C+
Chamber Viewports	NR	C-				C		C+
Chamber Testing and PVHO Requirements	C-	C				C+		
General Procedures for Air Chambers								
• Safety Procedures	C-	C				C+		
• Pre-dive Checks	C-	C				C+		
• Post-dive Checks	C-	C				C+		
Gas Supplies for Air Chambers	C-	C				C+		
Saturation Chambers								

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Sump Drains and Toilet Discharges				NR				C+
Environmental Control				NR				C+
Hygiene and cleaning				NR				C+
• Daily Routines				NR				C+
• Ear Infections				NR				C+
Hyperbaric Evacuation				NR				C+

### 3.13 Diver Communications

Learner Diver must understand and be competent in the following:

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Introduction to Diver Communications					C+			
Diver Communications								
Hand Signals					C+			
Light Signals					C+			
Line Signals					C+			
Hard-wire Communications					C+			
Though-water Communications					C+			
Emergency Diver Communications – Sound and deployment buoy.					C+			
Hand Signals and Communications on Deck					C+			

### 3.14 Environmental Conditions

Learner Diver must understand the following:

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Weather Systems		C				C+		
Local Weather								
Forecasts, Synoptic Charts and Reports		C				C+		
Oceanographic Conditions		C				C+		
Sea State		C				C+		
Tides and Currents		C				C+		
Underwater Visibility		C				C+		
Surface Visibility		C				C+		
Atmospheric and Water Temperature		C				C+		
Underwater Acoustics		C-				C+		

### 3.15 Underwater Hazards and Dangerous Conditions

Learner Diver must be able to identify and understand the risks and hazards associated with diving. These include

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Diving in Currents					C+			
Sea State and Surf					C+			
Live Boating					C+			
Anchor Dragging and Mooring Lines Parting					C+			
Diving in Shipping Lines					C+			
Diving in Confined Spaces					C+			
Diving in Dams and Reservoirs					C+			
Impressed Current Cathodic Protection Systems					C+			
Subsea Electrocution					C+			
Ship's Propellers and Thrusters					C+			
Underwater Sonar, Acoustic Transmissions and Blasts					C+			
Diving in Delta Pressure Conditions								
• Docks					C+			
• Locks					C+			
• Sluices					C+			
• Culverts					C+			
• Gates					C+			
Ship's Main Inlets					C+			
Intakes and Outfalls					C+			
Diving from Jetties and Piers					C+			
Diving on Offshore Structures and Installations			NR				C+	
Identify and apply applicable legislation and guidance for offshore diving operations								
• Identify context of diving operations including typical offshore structures and work tasks			NR				C+	
• Identify typical processes and procedures relating to offshore petroleum diving			NR				C+	
• Identify legislation and industry standards and guidelines applying to offshore operations			NR				C+	
• Outline qualification requirements to work as an offshore diver or supervisor			NR				C+	
• Identify typical organizational policies and procedures required to comply with relevant legislation			NR				C+	
• Identify a variety of equipment configurations used in offshore diving			NR				C+	
• operations and recognize the key features of these			NR				C+	
Apply knowledge of principles and general characteristics of specialist equipment associated with diving at depths associated with offshore diving								

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
• Recognize key features of typical breathing apparatus and equipment and associated gas requirements for various depths	NR					C+		
• Identify additional equipment and process that may be used in support of a diving operation and recognize key features and hazards associated with these	NR					C+		
• Identify hazards inherent to the offshore environment and outline risk control measure for diving operations	NR					C+		
• Identify the hazards associated with hot water suits and associated equipment and outline risk control measures	NR					C+		
Identify in broad terms the hazards and risk controls associated with offshore diving and equipment								
• Identify in broad terms the hazards of diving with bell, wet bell or stage equipment and outline risk control measures	NR					C+		
• Identify the special hazards associated with diving to depths greater than 30m and outline risk control measures	NR					C+		
• Identify broad terms the hazards of breathing gas mixtures other than air and outline risk control measures	NR					C+		
• Outline the procedural risk controls in a diving operation associated with communication, teamwork, the diving safety	NR					C+		
• management system and the diving project plan	NR					C+		
• Identify how a vessel maintains its position using thrusters and navigational reference data, controlled by a computer system	NR					C+		
Identify the hazards and safety precautions for diving from a dynamically positioned vessel								
• Identify the hazards that can affect the safety of diving operations from a dynamically positioned vessel	NR					C+		
• Identify precautions to properly control the risks of diving from a dynamically positioned vessel	NR					C+		
• Recognize chain of command necessary to control the risks of diving from a dynamically positioned vessel	NR					C+		
Fish Traps, Trawls , Nets and Cages	C+							
Diving in Cold Water	C+							
Diving in Zero Visibility	C+							
Diving at Night	C+							
Diving in Remote Locations	C+							
Risks of Deep Diving	C+							
Diving in Polluted and Toxic Water								
• Requirements for identification of contaminants	C+							
• Requirements for equipment compliance and upgrades for identified contaminants	C+							
• Requirements for decontamination compliance for identified contaminants	C+							
• Equipment checks for contaminated waters	C+							



Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
• Emergency procedures to include for diving in contaminants	C+							
Diving in High/Low Density Fluids	C+							

### 3.16 Basic Seamanship

Learner Diver must have a theoretical understanding of the following topics

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Diving from Small Boats	C							
Small Boat Safety, Emergency, and “Mayday” Calls	C			C+				
Flags, Lights, Buoys, Audible Warnings and Shapes	C			C+				
Boat Stability	C			C+				
Inboard and Outboard Motors	C+							
Radio Procedures	C							
Anchors								
• Types of Anchors	C			C+				
Fire	C			C+				
Capsizing	C+			C+				
Navigation								
• Compasses	C							
• GPS	C							
• Echo Sounders	C							
- Estimating Distance	C							
South African Maritime Safety Authority								
• Safety Equipment Requirements	C			C+				
• Distress Signals	C			C+				
• First Aid Kit Requirements	C							
Rope work								
• Types of Ropes - Natural vs fibre	C+							
• Types of Knots and their strengths and weaknesses	C+							
• Splicing and Whipping	C							
Wire rope - characteristics and requirements	C			C+				
Chain - characteristics and requirements	C			C+				
Mechanical Advantage Calculations and principles								
• Rope falls	C	C+						
• Multiblock tackles	C	C+						
• Multi part line rigs	C	C+						
• Chain falls	C	C+						
• Chain come-a-longs	C	C+						
• Wire grips (turfors)	C	C+						
• Turnbuckles	C	C+						
• Air tuggers	C	C+						
• Hydraulic tuggers	C	C+						

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
• Wedges, inclines and prybars	C	C+						
Rope Safety								
• Rope Safety Principles	C+							
• Dangers, Forces and Stresses of rope	C+							
• WWL Safe Working Loads (SWL) of rope and rigging.	C+							

### 3.17 Support

Learner Diver must understand the following topics

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Operational, Logistics and Medical Support	C+							
Vessels								
Small Boats	C+							
Supply Boats	C							
Air Range Dive Support Vessels	NR			C+				
Monohull and Multi-hull Dive Support Vessels	NR			C+				
Dynamically Positioned DSV's								
Introduction to DP DSV's	NR					C+		
DP Systems	NR					C+		
DP Power Systems- Power Percentage	NR					C+		
DP Control Systems	NR					C+		
DP Positioning Systems	NR					C+		
HPR's	NR					C+		
DGPS	NR					C+		
Environmental and Vessel Sensors	NR					C+		
Vessel Moves	NR					C+		
DP Alarms	NR					C+		
DP Vessels and Umbilical Control	NR					C+		
Anchor Patterns and Subsea Completions	NR					C+		
ROV Support	NR					C+		

### 3.18 Documentation

Learner Diver must understand the following topics

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Documentation Required on Site								
Diving Operational Logs	C+							
Personal Documentation and Logbooks	C+							
Chamber Logs	C+							
Saturation Logs	NR							C+
Maintenance Logs	C			C+				

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I					
Operational Reporting	C			C+									
Inspection Reporting	C					C+							
Checklists													
• Equipment checks list prior deployment to site													
○ inspect equipment,									C+				
○ signs of damage deterioration,									C+				
○ test for operation									C+				
• Equipment checks list arrival to site													
○ inspect equipment									C+				
○ signs of damage deterioration									C+				
• Equipment check list pre dive													
○ communications equipment adequate									C+				
○ assembled and tested.									C+				
• Pre-Dive - follow standard pre dive procedure verify readiness of equipment.									C+				
• Report process for failed equipment.													
○ Communication method and forms									C+				
○ Marking of defective equipment									C+				
Certification									C				
Accident and Incident Reporting	C+												
STOP Cards	C+												

### 3.19 Management and Planning

Learner Diver must understand the following topics

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Job Description	C+							
Duties and Responsibilities	C+							
Training, Experience, Competence and Team Selection	C			C+				
Understanding the responsibilities and carry out the duties of a:								
• Diver's line tender	A							
• Surface Standby Diver	A							
• In-water Standby Diver	A							
Risk Assessments & Hazard Identification	C+							
Job safety Analysis	C+							
Hazard Ratings	C+							
Diving Planning and Task Assignments.								
Review process of:								
• preparing a dive plan and checklist.	C+							
• identifying all essential items needed for a dive based on regulations and the job scope	C+							
• selecting the correct tools to be used for a task	C+							
• conducting a risk assessment for the dive plan	C+							
• recording and logging a dive in accordance with the dive plan	C+							

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
• Act as supervisor dive recorder and complete a dive log continuation sheet					C+			
Safety Meetings and Toolbox Talks					C+			
Permit to Work Systems					C+			
Emergency Evacuation Procedure					C+			
Operational Management					C+			
Team Skills					C+			
• Communication styles appropriate for the situations at diving site					C+			
• Strategies for ensuring communication messages are conveyed and understood					C+			
• Treating colleagues with respect, gender; race, culture, and ability.					C+			
• Meeting time commitments in team dynamics					C+			
• Asking for help when difficulties arise					C+			
• How to aid colleagues in a constructive manner					C+			
• Collaboration techniques with meetings, planning and problem solving					C+			
• How to keep team members informed on current activities					C+			
• How to resolve interpersonal conflict in a respectful manner					C+			
• Discuss different communication styles and which styles may be appropriate in a variety of situations					C+			
• How to receive and act on instructions					C+			
• How to ask effective questions to gather appropriate information and assess risk					C+			
• How to plan and organise daily work routines					C+			
• How to prioritise and complete tasks effectively					C+			

### 3.20 Safety

Learner Diver must understand the following topics

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Identify typical hazards in hyperbaric operations					C+			
Identify the control measures in place to control the identified risk					C+			
How to carry out prestart system and equipment checks according to the workplace procedure					C+			
Identify Safe work methods and application in hyperbaric operations					C+			
How to implement Safe work methods and application in hyperbaric operations					C+			

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Actions to maintain safe work methods in hyperbaric operation and the workplace	C+							
Relevant industry best practise to identified risks in hyperbaric operations	C+							
Approaches to Safety								
Personal Protective Equipment	C+							
Risk Assessment and JSA	C+							
Toolbox talk								
STOP Cards								
Lifting Loads	C+							
Emergency and Safety Drills	C+							
Appointed First Aider and Safety Representative	C+							
Incident and Accident Reporting	C+							

### 3.21 Diving Legislation

Learner Diver must have a basic understand the following topics

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
Conform to statutory requirements for occupational health and safety in diving operations								
• Identify the main duties of the employer and employee under relevant state and territory health and safety regulations	C-	C						
• Identify any requirements of, and duties imposed by the relevant state and territory occupational health and safety regulations in regard to diving	C-	C						
• Act in accordance OHS requirements in the workplace and at the dive site	C-	C						
• Identify the main purpose of other relevant legislation and regulations	C-	C						
Conform to general requirements of Standards and codes of practice								
• Identify the relevant Standards and Codes of practice applicable to diving operations and training of divers	C-	C						
• Identify the requirements for testing and examination applicable to diving plant and equipment	C-	C						
• Demonstrate compliance with the general requirements of the relevant Standards and Codes of practice when performing diving work relevant to own vocational area	C-	C						
• Maintain own health and safety and that of others in team, or others in the vicinity of the work site	C-	C						
Maintain health and safety of individual and others								

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
• Cooperate with the employer and supervisor in the following defined occupational health and safety procedures	C-	C						
• Observe basic regulatory requirements	C-	C						
• Identify and discuss hazards other than those directly relating to diving affecting individuals of a dive team	C-	C						
Undertake site and task specific risk assessment and select appropriate risk control measures								
• Identify site and task-specific hazards	C-	C						
• Analyse and evaluate risk, according to relevant regulations, Standards, policies, and procedures	C-	C						
• Select appropriate risk control measures, according to relevant regulations, standards, policies, and procedures	C-	C						
Work effectively in the occupational diving industry								
• Apply knowledge of underwater work and associated industries to own and related job roles	C-	C						
• Identify available qualifications for the occupational diver and relate to own training and career path	C-	C						
• Identify and describe the roles of industry and government bodies associated with diving	C-	C						
Read and interpret conditions of certification and renewal requirements								
• Recognize risk factors related to diving conditions and relate to task, depth and environment limitations imposed on relevant diving certification	C-	C						
• Recognize task and teamwork focus of occupational diving and apply risk management principles and duty of care concepts to task methods, team roles and equipment configuration	C-	C						
• Identify requirements for occupational diving certification for own or team roles and relate to relevant diving standards and codes of practice	C-	C						
• Recognize personal limitations and risk factors related to certification level and workplace experience of self and other dive team members	C-	C						
• Ensure conditions of certification are met	C-	C						
• Undertake renewal requirements in a timely manner to ensure licence or certification remains current	C-	C						
• Access current information relating to workplace experience requirements for diving certification or related support roles	C-	C						
Identify professional development options through workplace experience								
• Communicate with appropriate personnel within own organization and with training organization, regulatory, industry and/or certification bodies to clarify workplace experience requirements or recommendations	C-	C						
• Where workplace experience is required or recommended for upgrade options, identify	C-	C						

Subject	VI/V	IV	IV NITROX	III	III NITROX	II	II Mix Gas	I
suitable workplace, and discuss appropriate workplace tasks for professional development with relevant personnel								
Keep relevant records to demonstrate workplace								
<ul style="list-style-type: none"><li>Collect documentary evidence of performance of relevant workplace tasks complying with relevant confidentiality or authorization requirements</li></ul>	C-	C						
<ul style="list-style-type: none"><li>Fill in logbook, workbook, or competence record accurately and legibly with details of relevant workplace activity with company details</li></ul>	C-	C						
Occupational Health and Safety Act 85, 1993	C-	C						
Occupational Health and Safety Act 85, 1993 Diving Regulations	C							
Mine, Health and Safety Act 29, 1996	C-	C						
Compensation for Occupational Injuries and Diseases Act, 1993	C							
IMCA, SEL, TCPC and Divisional Guidance documents, Information notes and safety Flashes	NR			C				

## 4 Module B - Practical Diver Training

### 4.1 Practical Diving

#### 4.1.1 Surface Swimmer Equipment [PDT01]

Learner Diver must have a basic understanding of the following

Subject
Surface Swimmer safety and operating procedures
• Surface Swimmer equipment competency - Suit up and ready for dive
• Water Entry Familiarisation - Stride, Back Roll, walk, Seated, Height (Ladder 3m)
• Water Exit Familiarisation - Lift in; Submerged Step; Ladder
• Finning Familiarisation - bicycle kick; dolphin kick; back kick; frog kick
• Half Mask Familiarisation - Fit & Operation; displacement clear; 50m length swim flooded mask; mask removal
• Snorkel Familiarisation - Fit and Operation; breathing style; displacement clear; blast clear; 50m length swim flooded snorkel only;
• Weight Belt Familiarisation - fit and operation; removal; hand up and retrieve
• Wetsuit Familiarisation - fit and operation; booties / gloves / hood; removal
• Hard hat protector (Canoe helmet) and life jacket familiarisation - fit and operation; hardhat use, lifejacket use.
• Tethered Surface lines - fit and operation; use of a safety harness
• Life Jacket use and setup for inwater use

#### 4.1.2 Surface Swimmer Procedures [PDT02]

Subject
Demonstrate appropriate surface swimming skills
• Swim 300 metres freestyle
• Swim 100 metres backstroke
• Swim 25 metres underwater
• Drown proofing for 15 minutes. Combination of dead man's float, bobbing, floating, and treading water
• Tow a person of equal size for 20 metres
• 20 Second breath hold with head under water (After Adequate Rest)
• Recover half kilogram object from 2 - 3 metres of water
• 50m length swim flooded mask
• 50m length swim flooded snorkel only
• Offshore Surface Swimmer competency Dive - Staying Vertical and working
• Offshore Surface Swimmer competency Dive - Working astride a platform.
• Offshore Surface Swimmer diving emergency drills - All drills to be completed to a competent level on the surface of the water.
• Training on Offshore Rules where Diver is not allowed to immerse underwater during Offshore Surface Swimming.

#### 4.1.3 Safety Critical Underwater Skills [PDT03]

Subject
Demonstrate appropriate safety-critical underwater skills (First complete on land then underwater)
• Change over to reserve air supply when required and notify surface
• Perform Gas Flush
• Simulation of a VOMIT and clearing of debris
• Simulation of a flooded helmet and clearing water.
• Manage lifeline/umbilical underwater to manage entanglement and facilitate line signals



Subject
<ul style="list-style-type: none"> <li>Follow lifeline / umbilical appropriately when surfacing</li> </ul>
<ul style="list-style-type: none"> <li>Choose and adopt appropriate method of entry to and exit from the water for different situations</li> </ul>
<ul style="list-style-type: none"> <li>Utilize appropriate operational techniques to adapt to prevailing and varied underwater conditions</li> </ul>
<ul style="list-style-type: none"> <li>Insertion of a Pneumo hose through neck seal.</li> </ul>

#### 4.1.4 SCUBA Equipment Procedures [PDT04]

Learner Diver must have a basic understanding of the following

Subject
SCUBA safety and operating procedures
<ul style="list-style-type: none"> <li>SCUBA equipment competency - Assembly unit</li> </ul>
<ul style="list-style-type: none"> <li>SCUBA equipment competency - Suit up and ready for dive</li> </ul>
<ul style="list-style-type: none"> <li>Water Entry Familiarisation - Stride, Back Roll, walk, Seated, Height (Ladder 3m)</li> </ul>
<ul style="list-style-type: none"> <li>Water Exit Familiarisation - Lift in; Submerged Step; Ladder</li> </ul>
<ul style="list-style-type: none"> <li>Finning Familiarisation - bicycle kick; dolphin kick; back kick; frog kick</li> </ul>
<ul style="list-style-type: none"> <li>Half Mask Familiarisation - Fit &amp; Operation; displacement clear; 50m length swim flooded mask; mask removal</li> </ul>
<ul style="list-style-type: none"> <li>Full Mask - Fit &amp; Operation; breathing style; removal; arm sweep recovery; inverted recovery; clearing.</li> </ul>
<ul style="list-style-type: none"> <li>Snorkel Familiarisation - Fit and Operation; breathing style; displacement clear; blast clear; 50m length swim flooded snorkel only;</li> </ul>
<ul style="list-style-type: none"> <li>Weight Belt Familiarisation - fit and operation; removal; hand up and retrieve</li> </ul>
<ul style="list-style-type: none"> <li>Buoyancy Compensator Device - fit &amp; operation; neutral buoyancy; buoyancy control within 2kg; inflator malfunction; removal.</li> </ul>
<ul style="list-style-type: none"> <li>Dry suit - fit and operation; undergarments; inflation &amp; buoyancy control; inflation gas; deflation and ascent; dumping in emergency; inversion and rolls; removal</li> </ul>

#### 4.1.5 SCUBA Procedures [PDT05]

Learner Diver must have a basic understanding of the following

Subject
Diving safely and competently on-air using SCUBA.
<ul style="list-style-type: none"> <li>Commercial SCUBA competency Dive - Ascent Control</li> </ul>
<ul style="list-style-type: none"> <li>Commercial SCUBA competency Dive - Descent Control (Feet First)</li> </ul>
<ul style="list-style-type: none"> <li>Use correct breathing techniques for the duration of the dive</li> </ul>
<ul style="list-style-type: none"> <li>Use correct techniques and rates for descent and ascent</li> </ul>
<ul style="list-style-type: none"> <li>Use correct emergency drills, procedures, and methods in exercise conditions</li> </ul>
<ul style="list-style-type: none"> <li>Demonstrate continued diving competency when undertaking underwater work tasks</li> </ul>
<ul style="list-style-type: none"> <li>Satisfactorily complete schedule of dives according to requirements</li> </ul>
<ul style="list-style-type: none"> <li>Monitor and observe pre-determined dive criteria (duration, depth, rate of ascent)</li> </ul>

#### 4.1.6 Commercial SCUBA Equipment [PDT06]

Subject
Commercial SCUBA safety and operating procedures
<ul style="list-style-type: none"> <li>Commercial SCUBA equipment competency - Assembly unit</li> </ul>
<ul style="list-style-type: none"> <li>Commercial SCUBA equipment competency - Suit up and ready for dive</li> </ul>
<ul style="list-style-type: none"> <li>Operate reserve air system including confirmation that main air or reserve air is in use during diving.</li> </ul>
<ul style="list-style-type: none"> <li>Water Entry Familiarisation - Stride, Back Roll, walk, Seated, Height (Ladder 3m)</li> </ul>
<ul style="list-style-type: none"> <li>Water Exit Familiarisation - Lift in; Submerged Step; Ladder</li> </ul>
<ul style="list-style-type: none"> <li>Finning Familiarisation - bicycle kick; dolphin kick; back kick; frog kick</li> </ul>
<ul style="list-style-type: none"> <li>Half Mask Familiarisation - Fit &amp; Operation; displacement clear; 50m length swim flooded mask; mask removal</li> </ul>
<ul style="list-style-type: none"> <li>Full Mask - Fit &amp; Operation; breathing style; removal; arm sweep recovery; inverted recovery; clearing.</li> </ul>
<ul style="list-style-type: none"> <li>Snorkel Familiarisation - Fit and Operation; breathing style; displacement clear; blast clear; 50m length swim flooded snorkel only;</li> </ul>

Subject
<ul style="list-style-type: none"> <li>• Weight Belt Familiarisation - fit and operation; removal; hand up and retrieve</li> </ul>
<ul style="list-style-type: none"> <li>• Buoyancy Compensator Device - fit &amp; operation; neutral buoyancy; buoyancy control within 2kg; inflator malfunction; removal.</li> </ul>
<ul style="list-style-type: none"> <li>• Dry suit - fit and operation; undergarments; inflation &amp; buoyancy control; inflation gas; deflation and ascent; dumping in emergency; inversion and rolls; removal</li> </ul>

#### 4.1.7 Commercial SCUBA Procedures [PDT07]

Subject
Diving in open water safely and competently on-air using Commercial SCUBA
<ul style="list-style-type: none"> <li>• Commercial SCUBA competency Dive - Ascent Control</li> </ul>
<ul style="list-style-type: none"> <li>• Commercial SCUBA competency Dive - Descent Control (Feet First)</li> </ul>
<ul style="list-style-type: none"> <li>• Use correct breathing techniques for the duration of the dive</li> </ul>
<ul style="list-style-type: none"> <li>• Use correct techniques and rates for descent and ascent</li> </ul>
<ul style="list-style-type: none"> <li>• Use correct emergency drills, procedures, and methods in exercise conditions</li> </ul>
<ul style="list-style-type: none"> <li>• Demonstrate continued diving competency when undertaking underwater work tasks</li> </ul>
<ul style="list-style-type: none"> <li>• Satisfactorily complete schedule of dives according to requirements</li> </ul>
<ul style="list-style-type: none"> <li>• Monitor and observe pre-determined dive criteria (duration, depth, rate of ascent)</li> </ul>
<ul style="list-style-type: none"> <li>• Buoyancy control tasks (Negative buoyancy, 4kg),</li> </ul>
<ul style="list-style-type: none"> <li>• Buoyancy control tasks (Neutral buoyancy)</li> </ul>
<ul style="list-style-type: none"> <li>• Ascent to Surface on Emergency supply</li> </ul>
<ul style="list-style-type: none"> <li>• Full-face mask dives</li> </ul>
<ul style="list-style-type: none"> <li>• Buoyancy compensator dives</li> </ul>
<ul style="list-style-type: none"> <li>• Current or surge dives</li> </ul>
<ul style="list-style-type: none"> <li>• "Buddy line" dives</li> </ul>
<ul style="list-style-type: none"> <li>• Surface marker dives</li> </ul>

#### 4.1.8 Surface Supplied Diving Equipment [PDT08]

Subject
Understanding Surface Supplied safety and operating procedures
<ul style="list-style-type: none"> <li>• SDDE competency - Assembly unit</li> </ul>
<ul style="list-style-type: none"> <li>• SDDE competency - Suit up and ready for dive</li> </ul>
<ul style="list-style-type: none"> <li>• SDDE competency – on Land use and orientation with umbilical</li> </ul>
<ul style="list-style-type: none"> <li>• Water Entry Familiarisation - Stride, Back Roll, walk, Seated, Height (Ladder 3m) – Umbilical management to be considered at all times.</li> </ul>
<ul style="list-style-type: none"> <li>• Water Exit Familiarisation - Lift in; Submerged Step; Ladder. Umbilical management to be considered at all times.</li> </ul>
<ul style="list-style-type: none"> <li>• Helmet Mask - Fit &amp; Operation; breathing style; removal; clearing; defogging; operation of Emergency bailout valve</li> </ul>
<ul style="list-style-type: none"> <li>• Free flow helmet - Fit &amp; Operation; breathing style; removal; clearing; defogging; operation of Emergency bailout valve</li> </ul>
<ul style="list-style-type: none"> <li>• Band Mask - Fit &amp; Operation; breathing style; removal; clearing; defogging; operation of Emergency bailout valve</li> </ul>
<ul style="list-style-type: none"> <li>• Use of Pneumofathometer; Emergency use</li> </ul>
<ul style="list-style-type: none"> <li>• Weight Belt/Pockets Familiarisation - fit and operation; removal; hand up and retrieve</li> </ul>
Dive in shallow water using surface-supplied diving equipment * Bottom time for dive should be 60 minutes.
<ul style="list-style-type: none"> <li>• Shallow water orientation dive – umbilical signals</li> </ul>
<ul style="list-style-type: none"> <li>• Shallow orientation dive – voice direction underwater e.g., Face umbilical move 20 metres left etc.</li> </ul>
<ul style="list-style-type: none"> <li>• Shallow orientation dive – standby/buddy pneumofathometer emergency breathing.</li> </ul>
<ul style="list-style-type: none"> <li>• Dry suit - fit and operation; undergarments; inflation &amp; buoyancy control; inflation gas; deflation and ascent; dumping in emergency; inversion and rolls; removal</li> </ul>

#### 4.1.9 Surface Supplied Diving Procedures [PDT09]

Subject
• Dive in open water using surface-supplied diving equipment
• Choose and adopt appropriate method of entry to and exit from the water for different situations
• Use correct breathing techniques for the duration of the dive
• Use correct techniques and rates for descent
• Use correct techniques and rates for ascent
• Use correct emergency drills, procedures, and methods in exercise conditions
• Demonstrate continued diving competency when undertaking underwater work tasks
• Monitor and observe pre-determined dive criteria (duration, depth, rate of ascent)
• Utilize appropriate operational techniques to adapt to prevailing and varied underwater conditions
• Use a range of buoyancy control techniques and equipment to achieve appropriate buoyancy in a range of diving situations
• Use correct umbilical management techniques ensuring awareness of umbilical at all times
• Hot water Suit Diving
• Free flow helmet – use correct techniques for free flow helmet

#### 4.1.10 In Water Standby Diver in Surface Supplied Diving [PDT10]

Subject
• SDDE competency - Assembly of Standby Diver Equipment
• Execute a Dive providing working diver umbilical management considered the standby diver's umbilical control.
• Execute a rescue dive from a position of an in-water standby position.

#### 4.1.11 In Water Decompression Procedures [PDT11]

Subject
In Water decompression procedures,
• Describe the use of a decompression chamber in support of decompression procedures and use correctly in a simulated drill
• Follow commands from the surface to ascend to the next stop or the surface promptly and accurately
• Use procedures for lazy-shot and fixed shot rope correctly
• Deploy and Submersible Marker Buoy (Neutral and Negative deployment)
• Decompression dives (3m)*
• Decompression dives (6m, 3m)*
• Decompression dives (9m, 6m, 3m)*
• Decompression on floating buoy / Shot line
• Decompression on fixed subsea structure
• Practise an extended decompression stay
• Practise a missed decompression stop
• Practise actions taken if ascent is too fast.

\* Decompression dives do not have to be full extent bottom times, the stops at stages can be completed as part of a no decompression dive time.

#### 4.1.12 Surface Decompression Procedures SurDO2 [PDT12]

Subject
Use decompression procedures
• Follow commands from the surface to ascend to the next stop or the surface promptly and accurately
• Exit the water using a stage and present for undressing
• Access the chamber in a controlled manner
• Assess body, suit, and feet for contaminations before accessing chamber – oils, grease.

Subject
<ul style="list-style-type: none"> <li>• Execute full Decompression using Oxygen as per SURDO2 tables</li> </ul>

#### 4.1.13 Stage Diving Equipment Operations [PDT13]

Subject
Check and prepare equipment for a stage diving operation
<ul style="list-style-type: none"> <li>• Inspect all equipment carefully for signs of deterioration, damage or corrosion and test for proper operation where required, prior to deployment to the dive site</li> <li>• At the dive site confirm all equipment is still free from damage</li> <li>• At the dive site check that all communications equipment is adequate for the planned diving operation and is assembled and tested in accordance with authorized procedures</li> <li>• At the dive site follow standard pre-dive procedures and verify readiness of equipment personally</li> <li>• Report equipment which does not conform to requirements promptly to the supervisor</li> <li>• Mark failed equipment accordingly and remove from service</li> <li>• Diving Stage Lockout - Enter and leave water from a stage deployed from a dedicated lifting device. Surface supplied Umbilicals</li> <li>• Practise Diving Stage Lost gas</li> <li>• Practise Diving Stage Abandonment</li> </ul>
Dive in open water using a stage
<ul style="list-style-type: none"> <li>• All Chamber Dives to be completed before in water training commences</li> <li>• Choose appropriate operating procedures for different situations</li> <li>• Use correct emergency drills, procedures, and methods in exercise conditions</li> <li>• SDDE diving emergency drills - All drills</li> </ul>

#### 4.1.14 Wet bell Diving Equipment Operations [PDT14]

Subject
Check and prepare equipment for a wet bell diving operation
<ul style="list-style-type: none"> <li>• Inspect all equipment carefully for signs of deterioration, damage or corrosion and test for proper operation where required, prior to deployment to the dive site</li> <li>• At the dive site confirm all equipment is still free from damage. Mark failed equipment accordingly and remove from service</li> <li>• Report equipment which does not conform to requirements promptly to the supervisor</li> <li>• At the dive site check that all communications equipment is adequate for the planned diving operation and is assembled and tested in accordance with authorized procedures</li> <li>• At the dive site follow standard pre-dive procedures and verify readiness of equipment personally</li> <li>• Diving Wet bell Lockout - Enter and leave water from a wet bell deployed from a dedicated lifting device.</li> <li>• Practise Wet bell Lost gas</li> <li>• Practise Wet bell Abandonment</li> </ul>
Dive in open water using a wet bell
<ul style="list-style-type: none"> <li>• All Chamber Dives to be completed before in water training commences</li> <li>• Choose appropriate operating procedures for different situations</li> <li>• Use correct emergency drills, procedures, and methods in exercise conditions</li> <li>• SDDE diving emergency drills - All drills</li> <li>• Use of a hotwater suit is a requirement for all Heliox gas Dives</li> </ul>

#### 4.1.15 Standby Diver Deployment Stage and Wet bell Operations [PDT15]

Subject
Dive in open water using a wet bell – 2 divers in wet bell; Diving stage setup alongside wet bell as the 2 <sup>nd</sup> means of recovery.
<ul style="list-style-type: none"><li>• Proceed with a standard wet bell practical</li><li>• Conduct a standby diver rescue operations of a wet bell diver using the Stage to launch the standby diver</li><li>• Show umbilical management and correct entry and exit of the wet bell and stage without umbilical entanglement.</li></ul>

#### 4.1.16 In Water Umbilical Tender Diver in Stage Diving Operations [PDT16]

Subject
<ul style="list-style-type: none"><li>• Execute a Dive providing working diver umbilical management considered the standby diver's umbilical control.</li><li>• Execute a rescue dive from a position of an in-water standby position.</li></ul>

#### 4.1.17 In Water Umbilical Tender Diver in Wet bell Diving Operations [PDT17]

Subject
<ul style="list-style-type: none"><li>• Execute a Dive providing working diver umbilical management considered the standby diver's umbilical control.</li><li>• Execute a rescue dive from a position of an in-water standby position.</li></ul>

#### 4.1.18 Surface Standby Diver in Stage Diving Operations [PDT18]

Subject
<ul style="list-style-type: none"><li>• Execute a Dive providing working diver umbilical management considered the standby diver's umbilical control.</li><li>• Execute a rescue dive from a position of an in-water standby position.</li></ul>

#### 4.1.19 Surface Standby Diver in Wet bell Diving Operations [PDT19]

Subject
<ul style="list-style-type: none"><li>• Execute a Dive providing working diver umbilical management considered the standby diver's umbilical control.</li><li>• Execute a rescue dive from a position of an in-water standby position.</li></ul>

## 4.2 Surface Procedures Practical

Learner Diver must have a basic understanding of the following

### 4.2.1 Assisting Diver to dress [SPP01]

Subject
Assisting a Learner Diver to dress and undress in his personal diving equipment.
Understanding the correct protective equipment to wear for the task
<ul style="list-style-type: none"><li>• Follow correct sequence of dressing to ensure safety of personnel in an emergency</li><li>• Check suit to ensure no damage and all seals and connections are secure</li><li>• Fit and secure breathing apparatus and all items of equipment in correct place</li><li>• Complete one failed equipment reports and communicate and mark equipment competently</li><li>• Monitor dressing of diver against procedure steps - show compliance</li><li>• Report to supervisor on correct dressing of diver</li></ul>

### 4.2.2 Pre-Dive Equipment checks [SPP02]

Subject
Carrying out:
Pre-dive equipment checks
Correct diver checks for this mask
Check Backup Gas
Voice Communication check
Correct position and use of pneumofathometer
Confirm Gas bailout block activation
Confirm Pressure in Bailout Cylinder

### 4.2.3 Surface Standby Diver in Diving Practical [SPP03]

Subject
Prepare worksite as Standby Diver
<ul style="list-style-type: none"><li>• Identify and describe appropriate emergency/rescue procedures according to the equipment used.</li><li>• Dress in the appropriate state of readiness, according to the dive site and environmental conditions</li><li>• Identify protection from the elements, shade, suitable standby chair with bailout cylinder provisions.</li><li>• Review the working area and ensure all obstacles are cleared, and clear entry to the water is assessed and reported on.</li><li>• Communicate with Supervisor when in the standby position.</li><li>• Maintain awareness, through listening on the communication system, of all aspects of the dive operation in order to be aware of the exact status of the diver(s)</li><li>• Prepare and pack the standby diver ready bag.</li></ul>
Act as Standby Diver
Standby Diver procedure - Rescue of unconscious diver
Standby Diver procedures - Distressed diver on the surface
Standby Diver procedures - Distressed diver underwater
Standby Diver procedures - Trapped diver
Standby Diver procedures - Pneumofathometer hose to diver breathing
Standby Diver procedures - Umbilical change-out underwater

### 4.2.4 Tender in Surface Swimmer and COMMERCIAL SCUBA Practical. [SPP04]

Subject
Act as diver's attendant in a Surface Swimmer / Commercial SCUBA diving operation

Subject
<ul style="list-style-type: none"> <li>• Manage the diver's safety line so as to monitor the diver, assist in controlling the diver and minimize the risk of entanglement</li> </ul>
<ul style="list-style-type: none"> <li>• Report diver's condition and progress promptly and accurately to the supervisor</li> </ul>
<ul style="list-style-type: none"> <li>• When appropriate, use line signals to communicate with the diver. Promptly pass on all messages from diver to supervisor</li> </ul>
<ul style="list-style-type: none"> <li>• Demonstrate the correct use of underwater communications systems and diver intercom systems, using appropriate voice procedures to ensure that there can be ambiguity about the message and its meaning</li> </ul>

#### 4.2.5 Tender in Surface Supplied Diving Operations [SPP05]

Subject
Act as diver's attendant in a surface-supplied diving operation
<ul style="list-style-type: none"> <li>• Manage the diver's umbilical so as to monitor the diver, assist in controlling the diver and minimize the risk of entanglement</li> </ul>
<ul style="list-style-type: none"> <li>• Report diver's condition and progress promptly and accurately to the supervisor</li> </ul>
<ul style="list-style-type: none"> <li>• When appropriate, use line signals to communicate with the diver. Promptly pass on all messages from diver to supervisor</li> </ul>
<ul style="list-style-type: none"> <li>• Demonstrate the correct use of underwater communications systems and diver intercom systems, using appropriate voice procedures to ensure that there can be ambiguity about the message and its meaning</li> </ul>

#### 4.2.6 Tender in Surface Decompression Procedures [SPP06]

Subject
Act as diver's attendant during surface decompression procedures
<ul style="list-style-type: none"> <li>• Follow instructions from the supervisor promptly and accurately</li> </ul>
<ul style="list-style-type: none"> <li>• Prepare the worksite for a surface decompression including cleanliness, inspection for trip hazards, grease contamination.</li> </ul>
<ul style="list-style-type: none"> <li>• Management of umbilical during diver recovery</li> </ul>
<ul style="list-style-type: none"> <li>• Keep supervisor informed of diver's condition</li> </ul>
<ul style="list-style-type: none"> <li>• Undress the diver at an appropriate speed for surface decompression</li> </ul>

#### 4.2.7 Chamber Attendant in Surface Decompression Procedures [SPP07]

Subject
Act as Chamber attendant during surface decompression procedures
<ul style="list-style-type: none"> <li>• Follow instructions from the supervisor promptly and accurately</li> </ul>
<ul style="list-style-type: none"> <li>• Prepare the chamber for a surface decompression including cleanliness, inspection for trip hazards, grease contamination.</li> </ul>
<ul style="list-style-type: none"> <li>• Keep supervisor informed of diver's condition</li> </ul>
<ul style="list-style-type: none"> <li>• Recognise typical DCI symptoms</li> </ul>

#### 4.2.8 Chamber Operator in Surface Decompression Procedures [SPP08]

Subject
Act as Chamber Operator during surface decompression procedures
<ul style="list-style-type: none"> <li>• Follow instructions from the supervisor promptly and accurately</li> </ul>
<ul style="list-style-type: none"> <li>• Prepare the chamber for a surface decompression including system online and verification of all gases being online.</li> </ul>
<ul style="list-style-type: none"> <li>• Keep supervisor informed of Chamber condition</li> </ul>
<ul style="list-style-type: none"> <li>• Log all operations during the Surface Decompression</li> </ul>
<ul style="list-style-type: none"> <li>• Maintain</li> </ul>

#### 4.2.9 Tender in Stage / Wet bell Diving Operations [SPP09]

Subject
Act as a Surface Tender in Stage / Wet bell Diving operations
<ul style="list-style-type: none"><li>• Follow instructions from the supervisor promptly and accurately</li><li>• Prepare the stage / wet bell for operation including system online and verification of all hydraulics and winches being online.</li><li>• Manage the umbilicals from the A-frame</li><li>• Measure the length of wire and depth of the stage using two means</li><li>• Inspect the rigging and wire rope for damage during lowering and recovery.</li><li>• Working over water – Consider and review all risks working over water and provide feedback to instructor and risk measures. Harness, Life Jacket, Hard hat.</li></ul>

#### 4.2.10 Assisting Diver to undress [SPP10]

Subject
Assist another diver to undress correctly upon completion of diving operation
<ul style="list-style-type: none"><li>• As an attendant, assist in undressing a diver, ensuring equipment is removed correctly and safely</li><li>• Report to the supervisor that the diver has undressed correctly</li><li>• Report failed or damaged equipment to the supervisor, mark accordingly and remove from service</li><li>• Ensure team safety during post-dive period</li><li>• Monitor immediate post-dive health of all members of team who dived.</li></ul>

#### 4.2.11 Post-Dive Equipment Checks [SPP11]

Subject
Carry out post-dive equipment checks
<ul style="list-style-type: none"><li>• Follow correct sequence of undressing to ensure safety</li><li>• Inspect all equipment carefully on completion of dive</li><li>• Report any deterioration, damaged or failed equipment to the supervisor, mark accordingly and remove from service</li><li>• Report any missing equipment to the supervisor</li><li>• Gauge bailout pressure and report to supervisor</li></ul>
Cleaning equipment
<ul style="list-style-type: none"><li>• Wash all equipment used in dive in fresh water to remove contamination and disinfect as appropriate</li><li>• Dry equipment and prepare it for next use</li><li>• Proper technique to disassemble helmet from umbilical – Use of correct spanners and ensuring no stress is induced on side block.</li></ul>
Ensure proper care and storage of equipment
<ul style="list-style-type: none"><li>• Detail proper care and storage procedures for equipment</li><li>• Identify any hazards associated with inappropriate storage of equipment and explain appropriate safety precautions</li><li>• Store equipment in accordance with safety requirements and according to manufacture requirements</li></ul>
Inspection and maintenance personal diving equipment and reporting defects according to operating procedures.
Carry out post-dive equipment checks including decontamination and cleaning
<ul style="list-style-type: none"><li>• Report any deterioration, damaged or failed equipment to the supervisor, mark accordingly and remove from service</li><li>• Report any missing equipment to the supervisor, on completion of dive</li><li>• Wash all equipment used in dive in fresh water to remove contamination and disinfect as appropriate</li><li>• Dry all equipment and ensure appropriate action is taken to prepare it for next use</li><li>• Mark any equipment that has been damaged accordingly and remove from service</li></ul>
Undress correctly upon completion of diving operation
<ul style="list-style-type: none"><li>• Remove breathing apparatus and other items of equipment correctly and store safely to prevent damage</li></ul>



Subject
<ul style="list-style-type: none"> <li>• Remove suit in correct sequence to ensure suit is not damaged</li> <li>• Report failed or damaged equipment to the supervisor, mark accordingly and remove from service</li> </ul>

#### 4.2.12 Surface Supply Panel - Setup and Operate with Divers in Water [SPP12]

Subject
Surface Supply Panel
Inspect panel and confirm meets South African Regulations.
Inspect panel and associated supplies and confirm it meets the requirements of the IMCA Design Document requirements.
Connect main and reserve air supplies to the surface panel and check pressures.
Confirm the diver panel is setup as per National regulations
Confirm the diver panel is setup as per contractor manual.
Conduct umbilical checks to ensure conformity to diver, gas, and flow on main and reserve panel gas supply.
Post Dive Procedures
Report equipment to supervisor that does not conform to contract manual requirements
Operate surface supply panel with divers in water
<ul style="list-style-type: none"> <li>• Regulate air supply as required by depth and work rate to ensure optimum safety of diver</li> <li>• Monitor progress and regularly report to the supervisor to ensure operational and safety requirements are being met</li> <li>• Undertake critical changes affecting the diver only under the direction of the supervisor</li> <li>• Wet bell Diving Operations Participation</li> </ul>

#### 4.2.13 Operate Surface Panel for Stage or Wet bell divers. [SPP 13]

Subject
Operate stage or wet bell diver supply panel
<ul style="list-style-type: none"> <li>• Regulate air supply as requirement by depth and work rate to ensure optimal safety of diver</li> <li>• Monitor progress and report regularly to the supervisor to ensure operational and safety requirements are being met</li> <li>• Undertake critical changes affecting the stage or wet bell and diver (switch to reserve supply, taking “off air”) only with the permission of, or as commanded by, the supervisor</li> <li>• Inspect all equipment carefully on completion of dive</li> </ul>

#### 4.2.14 Operate deployment and recovery systems for Stage or Wet bell [SPP14]

Operate stage or wet bell diver deployment and recovery systems
<ul style="list-style-type: none"> <li>• Setup deployment system with all power systems ready for deployment</li> <li>• Practise on primary deployment system – Main power</li> <li>• Switch to secondary - emergency power deployment system and practise deployment and recovery.</li> <li>• Recover unmanned stage / wet bell in primary and second mode. Instructor to simulate failures.</li> <li>• Visual inspect Launch and recovery for structural integrity and ready to launch</li> <li>• Visually inspect and recognise: Wire damage; incorrect rigging; incorrect wire terminations;</li> <li>• Operate LARS using communications system and report regularly to the supervisor to ensure operational and safety requirements are being met. Use two methods of communication – Hard wire headset and Radio</li> <li>• Operate the LARS unit using a BA set to simulate a SMOKE environment.</li> <li>• Inspect all equipment on the Stage, Wet bell, LARS A-frame and winches carefully on completion of dive.</li> </ul>

#### 4.2.15 Diving from a Small Boat [SPP15]

Subject
Complete practical dives from a small boat
<ul style="list-style-type: none"><li>• Practise preparing a small boat for diving operations – Equipment layout, supervisors position, shading, emergency recovery.</li></ul>
<ul style="list-style-type: none"><li>• Practise diver water entry from a small boat</li></ul>
<ul style="list-style-type: none"><li>• Practise divers exit from a small boat</li></ul>
<ul style="list-style-type: none"><li>• Unconscious divers exit from a small boat.</li></ul>
<ul style="list-style-type: none"><li>• Hazard review working from a small boat – identification of all hazards and their mitigation requirements</li></ul>

### 4.3 Underwater Emergencies Practical

Team training drills should include the simulated rescue of an unconscious Trainee Diver.

#### 4.3.1 Emergency as a Surface Swimmer [UEP01]

Subject
SWIMMER Act in Self-Rescue Emergency
<ul style="list-style-type: none"><li>• Identify and explain the danger and limitations of releasing weight</li></ul>
<ul style="list-style-type: none"><li>• Successfully shed weights</li></ul>
<ul style="list-style-type: none"><li>• Identify and describe emergency situations where it may be appropriate to release weights</li></ul>
<ul style="list-style-type: none"><li>• Identify and explain the danger and limitations of cutting Safety line</li></ul>
<ul style="list-style-type: none"><li>• Identify and describe emergency situations where it may be appropriate to cut the Safety line</li></ul>
Manage Diving Medical Emergencies appropriately with correctly specified equipment

#### 4.3.2 Emergency Drills Diving [UEP02]

Subject
Diver Emergency - Must be able to carry out the correct remedial action in the event of:
<ul style="list-style-type: none"><li>• Loss of breathing air supply</li></ul>
<ul style="list-style-type: none"><li>• Loss of communications</li></ul>
<ul style="list-style-type: none"><li>• Fouled or Entrapped Diver</li></ul>
<ul style="list-style-type: none"><li>• Diver Injury in Water</li></ul>
<ul style="list-style-type: none"><li>• Uncontrolled Ascent</li></ul>
<ul style="list-style-type: none"><li>• Unconscious Diver</li></ul>
<ul style="list-style-type: none"><li>• Surface Injury</li></ul>
<ul style="list-style-type: none"><li>• Foul Air Supply</li></ul>
<ul style="list-style-type: none"><li>• Fouled / Snagged Umbilical</li></ul>
<ul style="list-style-type: none"><li>• Severed Umbilical (Complete)</li></ul>

#### 4.3.3 Emergency Drills Launch and Recovery[UEP03]

Subject
<ul style="list-style-type: none"><li>• Loss of Hot water: Burst/Damaged Hot water hose</li></ul>
<ul style="list-style-type: none"><li>• Dynamic Positioning Alarm</li></ul>
<ul style="list-style-type: none"><li>• Parted LARS Main Wire</li></ul>
<ul style="list-style-type: none"><li>• Maximum Bottom Time exceeded on a depth specific Nitrox Gas Mix</li></ul>
<ul style="list-style-type: none"><li>• Power Failure</li></ul>

#### 4.3.4 Emergency Drills Chamber [UEP04]

Subject
Chamber Emergency - Must be able to carry out the correct remedial action in the event of:
• Fire in Chamber
• Loss of Chamber Ambient Pressure
• Loss of Decompression Gas (Oxygen)
• Oxygen Leak in Chamber
• Diver adverse reaction to Oxygen Breathing
Hyperbaric Evacuation - Must be able to carry out the correct remedial action in the event of:
• Intervention of a chamber treatment with vessel sinking. Medical Oxygen treatment and evacuation to shore DDC.
Decompression Illness - Must be able to carry out the correct remedial action in the event of:
• Decompression Illness (Post Dive)
• Decompression illness (in flight)
• Arterial Gas Embolism

#### 4.3.5 Underwater Emergency as a Diver - Self-Rescue [UEP05]

Subject
<b>DIVER</b>
Act in self-rescue emergency
• Identify and explain the danger and limitations of releasing weight
• Successfully shed weights
• Identify and describe emergency situations where it may be appropriate to release weights
• Identify and explain the danger of using the buoyancy compensator
• Successfully use the buoyancy compensator and shed weights
• Identify and explain the danger and limitations of cutting umbilicals
• Identify and describe emergency situations where it may be appropriate to cut the umbilical
• SDDE Competency Dive – Emergency swimming ascent Control
• SDDE Competency Dive – Emergency swimming ascent with buoyant ascent Control
Must understand the necessary remedial action(s), their limitations, and any resulting dangers, as a result of a severed or trapped lifeline
• Free ascent
• Self-rescue
Manage Diving Medical Emergencies appropriately with correctly specified equipment

#### 4.3.6 Underwater Emergency as a Surface Standby Diver [UEP06]

Subject
Prepare worksite as Standby Diver
• Identify and describe appropriate emergency/rescue procedures according to the equipment used.
• Dress in the appropriate state of readiness, according to the dive site and environmental conditions
• Identify protection from the elements, shade, suitable standby chair with bailout cylinder provisions.
• Review the working area and ensure all obstacles, umbilical snags and clear entry to the water is assessed and reported on.
• Communicate with Supervisor when in the standby position.
• Maintain awareness, through listening on the communication system, of all aspects of the dive operation in order to be aware of the exact status of the diver(s)
• Prepare and pack the standby diver ready bag.
Perform a Rescue as a surface standby diver
• Follow commands from the supervisor to effect diver recovery
• Enter the water promptly as authorized by the Supervisor

Subject
• Maintain communication with surface throughout the rescue procedure to ensure surface team is prepared for any necessary action
• Follow a Surface marker buoy to the distressed diver
• Standby Diver procedure - Rescue of unconscious diver
• Standby Diver procedures - Distressed diver on the surface
• Standby Diver procedures - Distressed diver underwater on the bottom
• Standby Diver procedures - Trapped diver
• Standby Diver procedures - Pneumofathometer hose to diver breathing
• Standby Diver procedures - Umbilical change-out underwater
• Simulation of a Diver panicking and trying to ascend. Show ability to control and recover diver. [Distressed diver must be an instructor]
• Standby/Buddy pneumofathometer emergency breathing

#### 4.3.7 Underwater Emergency as Surface Standby Diver using a stage [UEP07]

Subject
Act as surface standby diver during stage or wet bell diving operations
• Maintain state of readiness according to equipment and type of conditions to ensure prompt action in the event of an emergency
• Follow commands from the supervisor promptly and strictly to effect diver recovery
• Maintain awareness of all aspects of the dive operation in order to be aware of the exact status of the diver(s)
• Deploy and recover stage or wet bell according to appropriate procedures
• Complete a Surface standby rescue; Divers Stage to take the standby diver down and rescue the working divers in the Wet bell.

#### 4.3.8 Underwater Emergency as Surface Standby Diver using a wet bell [UEP08]

Subject
Act as surface standby diver during stage or wet bell diving operations
• Maintain state of readiness according to equipment and type of conditions to ensure prompt action in the event of an emergency
• Follow commands from the supervisor promptly and strictly to effect diver recovery
• Maintain awareness of all aspects of the dive operation in order to be aware of the exact status of the diver(s)
• Deploy and recover stage or wet bell according to appropriate procedures
• Complete a Surface standby rescue; Divers Stage to take the standby diver down and rescue the working divers in the Wet bell.

#### 4.3.9 Underwater Emergency as In Water Standby Diver [UEP09]

Subject
Act as an in-water (tethered) standby diver.
Maintain communication with surface throughout the rescue procedure to ensure surface team is prepared for any necessary action
Carry out rescue / emergency procedures according to the equipment, environment, and the emergency situation.
Reach his tethered diver in an emergency
Perform a:
• Bottom Rescue as per protocol
• Surface Rescue as per protocol
• Rescue using surface Marker buoy
• Recover the distressed diver to the diving control point
• Manage diving medical emergencies appropriately

#### 4.3.10 Underwater Emergency from Stage to Wet bell [UEP09]

Subject
Act in an emergency to recover dive partner, as a diver from the stage or wet bell
<ul style="list-style-type: none"><li>• Describe appropriate emergency/rescue procedures according to the equipment used</li><li>• Follow appropriate emergency/rescue procedures according to the equipment used</li><li>• Maintain communication with surface throughout the rescue procedure to ensure surface team is prepared for any necessary action</li><li>• Conform to appropriate emergency/rescue procedures according to the equipment used</li></ul>

#### 4.3.11 Emergency as a Surface Team member [UEP10]

Subject
SURFACE TEAM
<ul style="list-style-type: none"><li>• Assist in recovery of unconscious or injured diver from surface onto dry land, deck, or dive platform to ensure no further injury is sustained to diver. Body harness use.</li><li>• Operation without crotch straps to demonstrate importance.</li><li>• Administer appropriate assistance as directed by the supervisor</li><li>• Control ascent by adjusting buoyance in particular emergency situations</li></ul>

#### 4.3.12 First Aid and Diving Medical Emergencies [UEP11]

Subject
Understanding Diving safety , first aid and diving medical emergencies.
Basic first aid
Diving Medical Emergencies
Resuscitation
Assessment - primary survey
100% oxygen administration to non-spontaneous breathing casualty
100% oxygen administration to spontaneous breathing casualty
Equipment familiarisation - supervisor first aid kit
Equipment familiarisation - oxygen administration kit

### 4.4 Underwater Communications Practical

Learner Diver must display practical competence and have a thorough knowledge of the commonly used signals.

#### 4.4.1 Effective Diver Communication [UCP01]

Subject
Establish and maintain effective communication
<ul style="list-style-type: none"><li>• Demonstrate diver-to-diver hand signals and use appropriately during diving operations</li><li>• Rope Signals - As a diver, receive and respond appropriately to line signals from the surface</li><li>• Voice Communication - Using hard wire communications provide clear communications, volume and recognisable instructions and responses providing clear status of dive comfort, equipment status, etc.</li><li>• Voice Communication - Using Through-water Communications communications provide clear communications, volume and recognisable instructions and responses providing clear status of dive comfort, equipment status, etc.</li><li>• Demonstrate diver-to-Supervisor hand signals using helmet mount camera. Simulate loss of hard wire communications.</li></ul>

#### 4.4.2 Effective Tender Communication [UCP02]

Subject
<ul style="list-style-type: none"><li>• As an attendant, send and receive line signals and show effective of the diver during underwater deployment</li><li>• As an attendant, confirm a non-responding Diver and raise an alert with the Supervisor</li><li>• Demonstrate appropriate hand signals given to indicate diver is well upon returning to surface</li><li>• Itemize the limitations of underwater communications systems and diver intercom systems</li><li>•</li></ul>

#### 4.4.3 Effective Standby Diver Communications [UCP03]

Subject
Establish and maintain effective communication
<ul style="list-style-type: none"><li>• Demonstrate diver-to-diver hand signals and use appropriately during diving operations</li><li>• Rope Signals - As a diver, receive and respond appropriately to line signals from the surface during a rescue dive.</li><li>• Voice Communication - Using hard wire communications provide clear communications, volume and recognisable instructions and responses providing clear status of rescue attempt, diver comfort, equipment status, etc.</li></ul>

#### 4.4.4 Effective Helium Unscrambler Communications [UCP04]

Subject
Establish and maintain effective communication
<ul style="list-style-type: none"><li>• Voice Communication - Using hard wire communications provide clear communications, volume and recognisable instructions and responses providing clear status of rescue attempt, diver comfort, equipment status, etc.</li></ul>

### 4.5 Underwater Work Practical

Learner Diver must understand and safely operate the following:

#### 4.5.1 Use of Lines [UWP01]

Subject
Use of Lines in Diving Operations
<ul style="list-style-type: none"><li>• Use of Lifelines including lifeline management with respect to hazards.</li><li>• Simulation of lifeline being caught in hazard and dragging diver to hazard. -Cut lifeline</li><li>• Use of a shot line / Lazy shot</li><li>• Use of a surface marker buoy</li><li>• Use of a tethered buddy line</li><li>• Use of Downlines and Messenger lines (Tools)</li></ul>

#### 4.5.2 Underwater Searches [UWP02]

Subject
Undertake simple underwater searches
<ul style="list-style-type: none"><li>• Orientation - Natural Navigation (60, 90, 180)</li><li>• Orientation - Compass Navigation (60, 90, 180)</li><li>• Carry out underwater search - Jackstay tasks</li><li>• Carry out underwater search -Pendulum</li><li>• Carry out underwater search – Circular &amp; Semi-Circular</li><li>• Carry out underwater search - Grid</li></ul>

Subject
• Carry out underwater search - Guided (back bearing, square, triangle, U search)
• Carry out underwater search - Swim lines
• Carry out an orientation Night dives
• Carry out an orientationZero visibility dive (Visibility less than 200mm)

#### 4.5.3 Underwater Survey [UWP03]

Subject
Undertake simple underwater surveys
• Carry out underwater survey of the seabed and three-dimensional objects.
• Complete a Belt Transect Survey
• Identify significant features or defects on the seabed
• Identify significant features or defects on the three-dimensions object.
• Measure positions of features or defects relative to fixed datum.
• Prepare a report of the surveys, identifying points and including dimensioned sketches

#### 4.5.4 Underwater Measurement & Inspection [UWP04]

Subject
Use underwater measurement and inspection techniques
• Use visual inspection techniques
• Use video inspection techniques
• Use still photography inspection techniques with rulers/tapes.
• Use nameboards and identification markers.
• Prepare a report of the measurements and inspections, identifying detailed dimensional and form diagrams of the underwater anomaly. Include dimensioned sketches

#### 4.5.5 Underwater Hand Tools [UWP05]

Subject
Use, inspect and maintain hand tools to complete simple construction tasks
• Select tools appropriate for tasks
• Safety features of underwater hand tools
• Carry out Cleaning tasks - Scrapping, spade,
• Carry out spanner tasks - Bolt assembly, filing, Cutting bolt, etc.
• Maintain tools after use using appropriate maintenance procedures
• Inspect edge tools and set aside blunt tools for sharpening

#### 4.5.6 Scientific Dive Technique [UWP06]

Subject
Perform a Scientific Dive
• Conduct a Scientific Dive recording typical geo co-ordinates and making a seabed area
• Perform report showing findings

#### 4.5.7 Search and Rescue Technique [UWP07]

Subject
Perform a Search and Rescue
• Perform a search and rescue dive using a weighted object.
• Perform a search and rescue with a tied object underwater – Action would be to cut loose the object and free it from seabed.

Subject
<ul style="list-style-type: none"> <li>• Perform a search and rescue dive using a weighted dummy.</li> </ul>
<ul style="list-style-type: none"> <li>• Perform a search and recovery of a 'body' using a body bag to place body' into underwater</li> </ul>

#### 4.5.8 Underwater Pneumatic powered tools [UWP08]

Subject
Use of pneumatic powered tools for underwater work
<ul style="list-style-type: none"> <li>• Identify and describe the advantages, disadvantages, and limitations for pneumatic over hydraulic power tools</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and describe hazards inherent in pneumatic power tools</li> </ul>
<ul style="list-style-type: none"> <li>• Demonstrate necessary safety precautions in using pneumatic power tools</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and describe types of tasks undertaken underwater using power tools</li> </ul>
<ul style="list-style-type: none"> <li>• Drill 6mm plate using Pneumatic Drill</li> </ul>
<ul style="list-style-type: none"> <li>• Grind welded bead from plate using pneumatic tool underwater</li> </ul>
Inspect and maintain powered tools after use
<ul style="list-style-type: none"> <li>• Inspect powered tools for damage</li> </ul>
<ul style="list-style-type: none"> <li>• Clean and maintain tools after use in accordance with manufacturer's instructions</li> </ul>
<ul style="list-style-type: none"> <li>• Store tools appropriately</li> </ul>

#### 4.5.9 Underwater hydraulic powered tools [UWP09]

Subject
Select hydraulic powered tools for underwater work
<ul style="list-style-type: none"> <li>• Identify and describe the advantages, disadvantages, and limitations for hydraulic power tools</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and describe hazards inherent in hydraulic power tools</li> </ul>
<ul style="list-style-type: none"> <li>• Demonstrate necessary safety precautions in using power tools</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and describe types of tasks undertaken underwater using power tools</li> </ul>
<ul style="list-style-type: none"> <li>• Drill 6mm plate using Hydraulic Drill</li> </ul>
<ul style="list-style-type: none"> <li>• Underwater Grinder - Remove welded bead from plate using grinder tool underwater</li> </ul>
<ul style="list-style-type: none"> <li>• Underwater Impact Gun - Complete a work scope underwater using a Hydraulic Impact Gun</li> </ul>
<ul style="list-style-type: none"> <li>• Simulate the use of a bolt tensioning system and the sequence of operation - Configure a 12in flange set using a similar device.</li> </ul>
<ul style="list-style-type: none"> <li>• Cut wood beams underwater using a hydraulic Cut off saw.</li> </ul>
<ul style="list-style-type: none"> <li>• Polish a steel or brass plate to Rupert scale as typically completed in Prop polishing.</li> </ul>
Prepare and inspect underwater power tools and their power packs
<ul style="list-style-type: none"> <li>• Follow manufacturer's instructions when preparing power tools for use.</li> </ul>
<ul style="list-style-type: none"> <li>• Inspect tools and power packs for serviceability</li> </ul>
<ul style="list-style-type: none"> <li>• Demonstrate safe operation of power packs</li> </ul>
Inspect and maintain powered tools after use
<ul style="list-style-type: none"> <li>• Inspect powered tools for damage</li> </ul>
<ul style="list-style-type: none"> <li>• Clean and maintain tools after use in accordance with manufacturer's instructions</li> </ul>
<ul style="list-style-type: none"> <li>• Store tools appropriately</li> </ul>

#### 4.5.10 Underwater Cutting [UWP10]

Subject
Identify and describe underwater cutting operations and outline necessary safety precautions
<ul style="list-style-type: none"> <li>• Identify and describe the types of tasks carried out underwater using cutting techniques</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and describe the principles of safe operation of thermal and oxyarc cutting torches</li> </ul>
<ul style="list-style-type: none"> <li>• Identify necessary safety precautions for underwater cutting</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and explain the dangers from trapped gas pockets and identify measures to avoid them</li> </ul>
Inspect and maintain cutting equipment
<ul style="list-style-type: none"> <li>• Inspect cutting equipment for serviceability prior to use</li> </ul>



Subject
• Inspect cutting equipment for damage after use
• Maintain cutting equipment according to manufacturer's instructions
Use thermal cutting equipment underwater
• Use thermal arc cutting torch underwater
• Use ultra-thermic cutting torch underwater

#### 4.5.11 Underwater Welding [UWP11]

Subject
Identify and describe underwater welding operations and outline necessary safety precautions
• Identify and describe the types of tasks carried out underwater using welding techniques
• Identify and describe the principles of safe operation of underwater electric arc welding equipment
• Identify necessary safety precautions for underwater welding
• Identify and explain the dangers of from trapped gas pockets and identify measures to avoid them
• Identify and describe the manufacturer's inspection criteria for welding equipment
Inspect and maintain welding equipment
• Inspect welding equipment for serviceability prior to use
• Inspect welding equipment for damage after use
• Maintain welding equipment according to manufacturer's instructions
Use welding equipment underwater
• Use underwater electric and welding equipment
• Complete Vertical weld
• Complete Horizontal weld
• Complete Overhead weld.

#### 4.5.12 High Pressure Water Jetting and Cavy Dyne Operations [UWP12]

Subject
Use of HP water jet. (Small domestic unit is acceptable for training)
• Identify and explain dangers associated with high-pressure water jetting
• Use low-pressure water jet, water dredge and air lift to clear silt or mud from an object on the seabed
• HP waterjet (Retro Jet) practical tasks
• Identify and explain procedure and precautions for unblocking water dredges and air
• Simulate the difference in use of a HP water jet and a Cavy dyne system of cleaning.

#### 4.5.13 Grit Blasting [UWP13]

Subject
Safely Grit blast basic surface underwater
Operate grit blasting vertically
Operate grit blasting horizontally

#### 4.5.14 Dredging using Air lifting [UWP14]

Subject
Use a water jet, water dredge and air lift
• Identify and explain dangers associated with high-pressure water jetting
• Use low-pressure water jet, water dredge and air lift to clear silt or mud from an object on the seabed
• Identify and explain procedure and precautions for unblocking water dredges and air

#### 4.5.15 Dredging using Dredging Pump [UWP15]

Subject
Use a water jet, water dredge and air lift
<ul style="list-style-type: none"><li>• Identify and explain dangers associated with high-pressure water jetting</li><li>• Use low-pressure water jet, water dredge and air lift to clear silt or mud from an object on the seabed</li><li>• Identify and explain procedure and precautions for unblocking water dredges and air</li></ul>

#### 4.5.16 Underwater Lifting Tasks [UWP16]

Subject
Identify techniques for underwater lifting tasks (Not lifting bags)
<ul style="list-style-type: none"><li>• Identify hazards, limitations and risk controls for underwater lifting techniques and equipment</li><li>• Perform and underwater connection and stand clear while lifting.</li><li>• Participate in selection of appropriate equipment for common light lifting tasks</li></ul>

#### 4.5.17 Lifting bags [UWP17]

Subject
Operate lifting bags
Lifting Bags - Closed and parachute
Lifting Bag task - 20 kg
Lifting Bag Task using a suspended load with three 20 kg bags
Safely operate a lift of a load showing good umbilical management and ensuring diver is aware of not working below the load or accessing areas below the load.
Lifting bag task - Parachute bag
Simulate for diver experience a 500kg lifting bag coming to the surface explosively. Diver to be out of the water for simulation.

#### 4.5.18 Perform underwater construction work tasks [UWP18]

Subject
Perform underwater construction work tasks
Describe underwater construction techniques
<ul style="list-style-type: none"><li>• Identify and describe the principles of concreting underwater</li><li>• Identify and describe the principles of shuttering underwater</li><li>• Identify and describe the principles of grouting underwater</li><li>• Identify and describe the principles of sand bagging underwater</li><li>• Identify and explain symbols used on engineering drawings</li></ul>

#### 4.5.19 Umbilical Management [UWP19]

Subject
Practical example of a Weak links
Use of a Golden Gate swim through
Using a wet bell complete a mid-water swim with buoyancy compensator to install a swim line.
Setup of a swim line to a Golden Gate swim through
Practical example of identification and planning to ensure umbilicals is protected from a HAZARD.

#### 4.5.20 Working with Flanges [UWP20]

Subject
Complete simple underwater construction tasks
<ul style="list-style-type: none"><li>• Makeup a flange 8in</li></ul>

Subject
<ul style="list-style-type: none"> <li>• Assembly a valve on HDPE pipe assembly 2 in</li> </ul>
<ul style="list-style-type: none"> <li>• Practical task working on a floating hose joint. Minimum 16in Floating hose with full diving SDDE equipment.</li> </ul>
<ul style="list-style-type: none"> <li>• Align flange using marlin Spikes</li> </ul>
<ul style="list-style-type: none"> <li>• Align and pull flanges using come along.</li> </ul>
<ul style="list-style-type: none"> <li>• Install a pipe piece by lowering to seabed and aligning between two pre-set flanges.</li> </ul>

#### 4.5.21 Interpret engineering drawings [UWP21]

Subject
Interpret engineering drawings
<ul style="list-style-type: none"> <li>• Orient drawing correctly</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and explain what an engineering drawing is physically representing</li> </ul>
<ul style="list-style-type: none"> <li>• Detail required outcomes of an allocated underwater construction task</li> </ul>
<ul style="list-style-type: none"> <li>• Execute a Dive using engineering drawings as the only means of instruction.</li> </ul>

#### 4.5.22 Using explosive under water [UWP22]

Subject
Recognize and describe the principles and inherent dangers of using explosive under water
<ul style="list-style-type: none"> <li>• Identify and discuss the effects of an explosive blast on the surrounding environment (atmosphere/water)</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and describe safety precautions when using explosives underwater</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and explain why such safety precautions are necessary</li> </ul>
Identify and describe the various types of commercially available explosives for underwater
<ul style="list-style-type: none"> <li>• Identify and list the various types of commercially available explosives for use underwater</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and explain the advantages and disadvantages of each type</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and describe the main techniques for using explosives for underwater blasting</li> </ul>
Identify and explain the main methods of initiating explosives underwater
<ul style="list-style-type: none"> <li>• Identify the advantages and disadvantages of electrical and safety fuse initiation</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and explain the principles of electric and non-electric detonation</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and explain the principles of detonating cord</li> </ul>
Identify and describe statutory requirements pertaining to the use of explosives
<ul style="list-style-type: none"> <li>• Identify and list Acts and regulations pertaining to the use of explosives</li> </ul>
<ul style="list-style-type: none"> <li>• Identify and describe in general terms the statutory requirements pertaining to the use of explosives</li> </ul>
<ul style="list-style-type: none"> <li>• Express in own words, what needs to be done to conform with requirements</li> </ul>
Practical preparation
<ul style="list-style-type: none"> <li>• Drill / Core a suitable preparatory hole for underwater charges</li> </ul>
<ul style="list-style-type: none"> <li>• Simulate the installation and charging of a hole</li> </ul>
<ul style="list-style-type: none"> <li>• Simulate the running of cables to surface</li> </ul>

#### 4.5.23 Mattress Handling Equipment [UWP23]

Subject
Mattress handling equipment
<ul style="list-style-type: none"> <li>• Operational review of a mattress handling unit</li> </ul>
<ul style="list-style-type: none"> <li>• Safe release of a mattress handling lever on surface</li> </ul>
<ul style="list-style-type: none"> <li>• Working around a mattress handling frame – virtual review is acceptable</li> </ul>

#### 4.5.24 Metrology Equipment [UWP24]

Subject
Metrology equipment
<ul style="list-style-type: none"> <li>• Prepare a metrology jig on surface and complete a metrology measurement and create a basic spool.</li> </ul>

## 4.6 Plant and Equipment Practical

Learner Diver must understand the following:

### 4.6.1 Personal Diving Equipment [PEP01]

Subject
Personal Diving Equipment Maintenance
• Dry suits
○ Materials of construction
○ Porosity test method
○ Inflation valve method
○ Exhaust valve method
• Wet suits
• Hot water suits
• Harnesses
• Back packs
• Computers
• Torches
• Reels
• Fins
• Knives – Correct position and 2 parts disconnect

### 4.6.2 SCUBA Equipment [PEP02]

Subject
Commercial SCUBA Equipment Maintenance
• Demand valves
• Half masks
• Full masks
• Voice communication systems (Through water or Direct line)
• Buoyancy Compensator Device
• Harnesses
• Back packs
• Timers, Depth Gauges and Dive Computers
• Computers
• Safety line
• Cylinders
• Cylinder valves

### 4.6.3 Commercial SCUBA [PEP03]

Subject
COMMERCIAL SCUBA Equipment Maintenance
• Demand valves
• Half masks
• Full masks
• Voice communication systems (Through water or Direct line)
• Voice communication systems
• Buoyancy Compensator Device
• Harnesses including recovery straps
• Back packs
• Timers, Depth Gauges and Dive Computers
• Computers

Subject
• Cylinders
• Emergency cylinder (Bailout configuration)
• Changeover manifold to emergency cylinder
• Cylinder valves and threads

#### 4.6.4 HP Compressor [PEP04]

Subject
HP Compressors
Understanding HP compressor safety and operating procedures.
Explain the air route through compressor, piping, separators, filters, distribution panel and whips, from intake to cylinder.
Perform basic daily maintenance checks on:
• Fixed location compressor
• Portable compressor
Fill:
• Cylinders from compressor
• Cylinders from bank
• Cylinders from combination of banks and compressor
• Banks
Perform as member of team:
• Delivery test on compressor
• Air purity test on gas cylinder
• Emergency shutdown of compressor
• Shut down procedures
• Complete charging of all cylinders in a diving system

#### 4.6.5 LP Compressor [PEP05]

Subject
LP Compressors
Understanding LP compressor safety and operating procedures.
Explain the air route through compressor, piping, separators, filters, distribution panel and whips, from intake to cylinder to regulator.
Perform basic daily maintenance checks on:
• Fixed location compressor
• Portable compressor
Fill:
• Air Receiver from compressor
Perform as member of team:
• Delivery test on compressor
• Air purity test on receiver
• Emergency shutdown of compressor
• Shut down procedures

#### 4.6.6 Hot water Machine [PEP06]

Subject
Hot water Machine
Understanding Hot water Machine safety and operating procedures.
Explain the fluid route through Hot water Machine, piping, filters, distribution panel and hoses, from intake to diver suit manifold.
Perform as member of team:

Subject
• Start-up process
• Delivery test on Hot water machine
• Emergency shutdown of machine
• Standard Shut down procedures
• Control of temperature
• Calibrate alarm for preventing to hot a water flow

## 4.7 Seamanship and Rope Work Practical

Learner Diver must prove competence as a crew member of a dive support boat:

### 4.7.1 Lifting Plans [SRW01]

Subject
Identify the different parts of a written Lifting plans
Identify the safety steps that a lifting plan seeks to identify and control
Work through a lifting plan on land
Work through a subsea lifting plan using lifting bags
Work through a subsea lifting plan using an overhead lift (Crane or overhead gantry lift)

### 4.7.2 Rigging Equipment [SRW02]

Subject
Rigging equipment – Identification of different types of rigging
Identification of the SWL of the rigging
Identification of the In-date colour or marking of all types of rigging.
Perform daily checks and maintenance on rigging equipment
Working with two part and three-part shackles
Correct procedure for wiring closed a 3-part shackle.
Working with large chain rigging and understanding the finger risks. (Work with a large anchor chain vertically)
Perform the signals when working with a crane
Demonstrate procedures for safe hoisting

### 4.7.3 Lifting Beams [SRW03]

Subject
Identify all parts of a Lifting beams
Rig a lifting beam with a two-part sling (Typically a pipe section)

### 4.7.4 Safe Boating Requirements [SRW04]

Subject
Position references
Minimum operating clearances for marine craft
SAMSA safety equipment requirements
Pre-launch checks
Launching
Starting the motor
Docking (including lines)
Mooring identification (swing and/or fore & aft)
Mooring line adjustment
Anchor setting and recovery
Recover Trainee Diver/object

Subject
Man Overboard – Marking and tracking
Post launch checks
Wash down and storage
Refuelling

#### 4.7.5 Small Boat Operations [SRW05]

Subject
Small Boat - Diver support boat handling and operating procedures in open water
Small Boat - Diver support boat handling and operating procedures in harbour

#### 4.7.6 Rope Work [SRW06]

Subject
Rope work
• Demonstrate rigging and safety precautions when diving from working platform.
• Operate safely a Rope falls
• Operate safely a Multiblock tackle
• Operate safely a Multi part line rigs
• Operate safely a Chain falls
• Operate safely a Chain come-a-longs
• Operate safely a Wire grips (turfors)
• Operate safely a Turnbuckles
• Operate safely a Wedges, inclines and prybars
Knots
• Square Knot
• Bowline
• Clove Hitch
• Rolling Hitch
• Rolled Turn and Two Half Hitches
• Sheet Bend
Rope and Hauling Machinery
• Operate safely an Air tugger
• Operate safely an Hydraulic tugger
• Demonstration of – The ‘Kill Zone’

### 4.8 Decompression Chambers

#### 4.8.1 Prepare a twin-lock (two-compartment) compression chamber [DDC01]

Subject
Prepare a twin-lock (two-compartment) compression chamber
• Identify and explain functions of a twin-lock (two-compartment) compression chamber
• Outline procedures for preparing a twin-lock (two-compartment) compression chamber
• Carry out pre-dive checks against a predetermined list to prepare a twin-lock (two-compartment) compression chamber
• Calculate gas requirements for a compression/decompression procedure for a designated chamber

#### 4.8.2 Chamber Operator [DDC02]

Subject
Compression Chambers

Subject
• Complete Chamber dives as per the Table on Minimum Chamber Bottom Times
• Understand compression chamber safety and operating procedures.
• Understand the different treatment tables and selection charts
• Layout of chamber – explain all parts and components including their use.
Partake in a dry dive and perform comprehension and dexterity test
Identify and explain the pre-dive procedures for a twin-lock (two compartment) compression chamber
• Identify the preparation steps for a twin-lock (two compartment) compression chamber
• Identify and explain safety procedures for a twin-lock (two compartment) compression chamber and associated equipment
Chamber Preparation and practise Runs (No Occupants)
• Pre dive checks
• Set oxygen analysers and set Hi / Lo Alarms.
• Blow down empty chamber to 1, 5 metres for leak test
• Blow chamber down to 12 metres and adjust depth as temperature cools down.
• Empty dummy chamber runs for 15 minutes at a depth of 12 metres
• Flush chamber for 1 minute every 5 minutes
• Ascend to 9 metres from 12 metres and do 30-minute slide to surface.
• Post dive checks
• Wash down and disinfect chamber after use

#### 4.8.3 Chamber Operator SURDO2 [DDC03]

Subject
Chamber preparation and practice blow down for SurDO2
• Complete Chamber dives as per the Table on Minimum Chamber Bottom Times
• Prepare and check chamber for use including check sheets and gas requirements.
• Blow down chamber for SurDO2 dive, blow down main lock to required depth.
• Pressurise entrance lock from main lock gas and add main gas if needed.
Chamber preparation and practice blow down for SurDO2
Chamber preparation and practice blow down for SurDO2
Run through all functions including monitoring O2 analyser, flushing, slides, communications with flushing, oxygen convulsions and options, loss of main gas, fires, and risks.
• Surface Decompression with oxygen, chamber operations with divers inside entrance lock transferring to main lock and breathing on O2 BIBS. Discuss O2 convulsions and SurDO2.
• Complete US Navy Table 5 or similar table without occupants in the chamber.
• Complete US Navy Table 5 with change over to CX 30 without occupants in the chamber.
• Complete US Navy Table 5 with change over to CX 30 without occupants in the chamber.

#### 4.8.4 Chamber Attendant during Compression [DDC04]

Subject
Chamber attendant duties
• Prepare a twin lock chamber for blow down and use
• Identify and explain all safety procedures for twin lock chamber
• Identify and explain the therapeutic tables and the steps taken from onset of an incident
• Identify and Select the correct treatment
As an attendant during compression / decompression procedures
• Carry out medical examination of patient under the direction of medical personnel
• Undertake rapid neurological assessment
• Observe the patient and report results of observation to chamber operator and/or medical personnel during therapeutic decompression
Communicate clearly and concisely with personnel inside and outside the chamber using appropriate terminology related to vocational area



Subject
<ul style="list-style-type: none"> <li>• Use appropriate chamber and patient care terminology</li> <li>• Utilize appropriate communications equipment or hand signals</li> </ul>

#### 4.8.5 Operate a twin-lock (two-compartment) compression chamber [DDC05]

Subject
Operate a twin-lock (two-compartment) compression chamber
<ul style="list-style-type: none"> <li>• Outline procedures for operating a compression chamber in accordance with legislation, industry standards and guidelines</li> <li>• Operate a twin-lock (two compartment) compression chamber under close supervision, following appropriate procedures during compression/decompression</li> </ul>

#### 4.8.6 Emergency procedures for hyperbaric chamber Use [DDC06]

Subject
Implement emergency procedures for hyperbaric chamber use
<ul style="list-style-type: none"> <li>• Outline procedures for handling chamber emergencies</li> <li>• Implement emergency procedures under direction of supervisor</li> </ul>
Identify purpose and appropriate use of the therapeutic tables
<ul style="list-style-type: none"> <li>• Identify and explain the purpose of therapeutic tables</li> <li>• Outline the selection procedure to reach the appropriate table</li> <li>• Undertake the functions of an attendant inside a twin-lock (two compartment) compression chamber</li> <li>• Follow procedures for acting as an attendant inside a compression chamber during a medical emergency or first aid incident</li> </ul>

#### 4.8.7 In-chamber emergency procedures [DDC07]

Subject
Implement in-chamber emergency procedures
<ul style="list-style-type: none"> <li>• Follow routine procedures for in-chamber emergencies</li> <li>• Activate and use a Hyperbaric Fire Extinguisher inside a chamber.</li> <li>• Isolate a simulated leaking valve in a chamber</li> <li>• Identify and act on a simulated crack in a viewport</li> <li>• Identify and act on a leaking Oxygen mask that does not shut down post breathing.</li> <li>• Confirm and clarify verbal or signalled instructions from outside chamber personnel for in-chamber emergencies</li> <li>• Carry out verbal or signalled instructions</li> </ul>

#### 4.8.8 Carry out post-dive compression chamber checks and user maintenance [DDC08]

Subject
Carry out post-dive compression chamber checks and user maintenance
<ul style="list-style-type: none"> <li>• Outline appropriate post-dive compression chamber checks and user maintenance</li> <li>• Clean Chamber using appropriate chemicals and methods</li> <li>• Clean BIBS mask and ready for use</li> <li>• Reset chamber ready for storage between dives</li> <li>• Prepare chamber for next dive following correct procedures</li> <li>• Assist with routine maintenance of chamber in accordance with appropriate procedures</li> </ul>

## 5 Minimum Practical Requirements - Types of Dives and Tasks to be performed

All training is outcome based and requires the Learner Diver to be:

- taught the skill
- develop the skill through repetition
- gain confidence in the use of the skill
- be evaluated on the skill

The trainees must achieve the minimum types of dives/swims and tasks under supervision. Competency level “A” must be achieved prior to progressing to the next level of training and tasks.

Competence for each Module should be recorded by the instructor in the following manner as a minimum.

Module	Skill taught	Skill developed	Skill Confidence	Skill evaluation	Skill Competent
<i>Insert Code</i>	<i>Insert Date</i>	<i>Insert Date</i>	<i>Insert Date</i>	<i>Insert Date</i>	<i>Insert Date</i>
<i>Insert Code</i>	<i>Insert Date</i>	<i>Insert Date</i>	<i>Insert Date</i>	<i>Insert Date</i>	<i>Insert Date</i>
<i>Insert Code</i>	<i>Insert Date</i>	<i>Insert Date</i>	<i>Insert Date</i>	<i>Insert Date</i>	<i>Insert Date</i>

Types of Dives can be combined such as Diving off a boat and using a full-face mask. The minimum no of dives and underwater times at the required depth must be met as per Paragraph XX.

[Min No of Practical's] – 1 Dive can include many types of practical components. The training school must design classes and practical training to include as many repetitions of training as possible. The quantity of practical's is a minimum and the no of dives as defined in the Section 2.5 Minimum underwater training bottom diving times is also a minimum.

## 5.1 Class VI/V - Surface Swimming

Module B - Requirements		
<b>Competency Requirement:</b>		
All Practical Modules, e.g., PDT01, identified below must be completed in this Class and Depth. Trainee must achieve competence in the operation of the equipment and the execution of the task/operation prior to progressing to the next level of training.		
Documented progression including teaching the skill, develop the skill through repetition, confidence practical in the use of the skill and evaluation off the skill.		
Depth Range in Meters		0-0.5
Minimum Total Bottom Time in minutes		0
Minimum number of Dives		0
Required Modules		[Min No of Practical's]
<b>Practical Diving</b>		
PDT 01	Surface Swimmer Equipment	10
PDT 02	Surface Swimmer Procedures	10
PDT 03	Safety Critical Underwater Skills	
PDT 04	SCUBA Equipment Procedures	
PDT 05	SCUBA Procedures	
PDT 06	Commercial SCUBA Equipment	
PDT 07	Commercial SCUBA Procedures	
PDT 08	Surface Supplied Diving Equipment	
PDT 09	Surface Supplied Diving Procedures	
PDT 10	In Water Standby Diver in Surface Supplied Diving	
PDT 11	In Water Decompression Procedures	
PDT 12	Surface Decompression Procedures SurDO2	
PDT 13	Stage Diving Equipment Operations	
PDT 14	Wet bell Diving Equipment Operations	
PDT 15	Standby Diver Deployment Stage and Wet bell Operations	
PDT 16	In Water Umbilical Tender Diver in Stage Diving Operations	
PDT 17	In Water Umbilical Tender Diver in Wet bell Diving Operations	
PDT 18	Surface Standby Diver in Stage Diving Operations	
PDT 19	Surface Standby Diver in Wet bell Diving Operations	
<b>Surface Procedures Practical</b>		
SPP 01	Assisting Diver to dress	10
SPP 02	Pre-Dive Equipment checks	10
SPP 03	Surface Standby Diver in Diving Practical	10
SPP 04	Tender in Surface Swimmer and COMMERCIAL SCUBA Practical	
SPP 05	Tender in Surface Supplied Diving Operations	
SPP 06	Tender in Surface Decompression Procedures	
SPP 07	Chamber Attendant in Surface Decompression Procedures	
SPP 08	Chamber Operator in Surface Decompression Procedures	
SPP 09	Tender in Stage / Wet bell Diving Operations	
SPP 10	Assisting Diver to undress	10
SPP 11	Post-Dive Equipment Checks	
SPP 12	Surface Supply Panel - Setup and Operate with Divers in Water	
SPP 13	Operate Surface Panel for Stage or Wet bell divers	
SPP 14	Operate deployment and recovery systems for Stage or Wet bell	
SPP 15	Diving from a Small Boat	2
<b>Underwater Emergencies Practical</b>		
UEP 01	Emergency as a Surface Swimmer	5
UEP 02	Emergency Drills Diving	
UEP 03	Emergency Drills Launch and Recovery	
UEP 04	Emergency Drills Chamber	
UEP 05	Underwater Emergency as a Diver - Self-Rescue	
UEP 06	Underwater Emergency as a Surface Standby Diver	
UEP 07	Underwater Emergency as Surface Standby Diver using a Stage	
UEP 08	Underwater Emergency as Surface Standby Diver using a Wet Bell	
UEP 09	Underwater Emergency as In Water Standby Diver	
UEP 10	Underwater Emergency from Stage to Wet bell	
UEP 11	Emergency as a Surface Team member	5
UEP 12	First Aid and Diving Medical Emergencies	5

	Underwater Communications Practical	
UCP 01	Effective Diver Communication	10
UCP 02	Effective Tender Communication	10
UCP 03	Effective Standby Diver Communications	10
UCP 04	Effective Helium Unscrambler Communications	
	Underwater Work Practical	
UWP 01	Use of Lines	5
UWP 02	Underwater Searches	
UWP 03	Underwater Survey	
UWP 04	Underwater Measurement & Inspection	
UWP 05	Underwater Hand Tools	
UWP 06	Scientific Dive Technique	
UWP 07	Search and Rescue Technique	
UWP 08	Underwater Pneumatic powered tools	
UWP 09	Underwater hydraulic powered tools	
UWP 10	Underwater Cutting	
UWP 11	Underwater Welding	
UWP 12	High Pressure Water Jetting and Cavy Dyne Operations	
UWP 13	Grit Blasting	
UWP 14	Dredging using Air lifting	
UWP 15	Dredging using Dredging Pump	
UWP 16	Underwater Lifting Tasks	
UWP 17	Lifting bags	
UWP 18	Perform underwater construction work tasks	
UWP 19	Umbilical Management	
UWP 20	Working with Flanges	
UWP 21	Interpret engineering drawings	
UWP 22	Using explosive under water	
UWP 23	Mattress Handling Equipment	
UWP 24	Metrology Equipment	
	Plant and Equipment Practical	
PEP 01	Personal Diving Equipment	
PEP 02	SCUBA Equipment	
PEP 03	Commercial SCUBA	
PEP 04	HP Compressor	
PEP 05	LP Compressor	
PEP 06	Hot Water Machine	
	Seamanship and Rope Work Practical	
SRW 01	Lifting Plans	
SRW 02	Rigging Equipment	
SRW 03	Lifting Beams	
SRW 04	Safe Boating Requirements	
SRW 05	Small Boat Operations	
SRW 06	Rope Work	
	Decompression Chambers	
DDC 01	Prepare a twin-lock (two-compartment) compression chamber	
DDC 02	Chamber Operator	
DDC 03	Chamber Operator SURDO2	
DDC 04	Chamber Attendant during Compression	
DDC 05	Operate a twin-lock (two-compartment) compression chamber	
DDC 06	Emergency procedures for hyperbaric chambers	
DDC 07	In-chamber emergency procedures	
DDC 08	Carry out post-dive compression chamber checks and user maintenance	
Notes: All tasks to be performed with Surface Swimmer Equipment and in a Confined Water Session		

## 5.2 Class VI/V - SCUBA Practical Training

Module B - Requirements		
<b>Competency Requirement:</b>		
All Practical Modules, e.g., PDT01, identified below must be completed in this Class and Depth. Trainee must achieve competence in the operation of the equipment and the execution of the task/operation prior to progressing to the next level of training.		
Documented progression including teaching the skill, develop the skill through repetition, confidence practical in the use of the skill and evaluation off the skill.		
Depth Range in Meters		01-08
Minimum Total Bottom Time in minutes		400
Minimum number of Dives		8
Required Modules		[Min No of Practical's]
<b>Practical Diving</b>		
PDT 01	Surface Swimmer Equipment	
PDT 02	Surface Swimmer Procedures	
PDT 03	Safety Critical Underwater Skills	4
PDT 04	SCUBA Equipment Procedures	4
PDT 05	SCUBA Procedures	4
PDT 06	Commercial SCUBA Equipment	
PDT 07	Commercial SCUBA Procedures	
PDT 08	Surface Supplied Diving Equipment	
PDT 09	Surface Supplied Diving Procedures	
PDT 10	In Water Standby Diver in Surface Supplied Diving	
PDT 11	In Water Decompression Procedures	
PDT 12	Surface Decompression Procedures SurDO2	
PDT 13	Stage Diving Equipment Operations	
PDT 14	Wet bell Diving Equipment Operations	
PDT 15	Standby Diver Deployment Stage and Wet bell Operations	
PDT 16	In Water Umbilical Tender Diver in Stage Diving Operations	
PDT 17	In Water Umbilical Tender Diver in Wet bell Diving Operations	
PDT 18	Surface Standby Diver in Stage Diving Operations	
PDT 19	Surface Standby Diver in Wet bell Diving Operations	
<b>Surface Procedures Practical</b>		
SPP 01	Assisting Diver to dress	8
SPP 02	Pre-Dive Equipment checks	8
SPP 03	Surface Standby Diver in Diving Practical	8
SPP 04	Tender in Surface Swimmer and COMMERCIAL SCUBA Practical	8
SPP 05	Tender in Surface Supplied Diving Operations	
SPP 06	Tender in Surface Decompression Procedures	
SPP 07	Chamber Attendant in Surface Decompression Procedures	
SPP 08	Chamber Operator in Surface Decompression Procedures	
SPP 09	Tender in Stage / Wet bell Diving Operations	
SPP 10	Assisting Diver to undress	8
SPP 11	Post-Dive Equipment Checks	8
SPP 12	Surface Supply Panel - Setup and Operate with Divers in Water	
SPP 13	Operate Surface Panel for Stage or Wet bell divers	
SPP 14	Operate deployment and recovery systems for Stage or Wet bell	
SPP 15	Diving from a Small Boat	2
<b>Underwater Emergencies Practical</b>		
UEP 01	Emergency as a Surface Swimmer	
UEP 02	Emergency Drills Diving	8
UEP 03	Emergency Drills Launch and Recovery	
UEP 04	Emergency Drills Chamber	
UEP 05	Underwater Emergency as a Diver - Self-Rescue	8
UEP 06	Underwater Emergency as a Surface Standby Diver	8
UEP 07	Underwater Emergency as Surface Standby Diver using a Stage	
UEP 08	Underwater Emergency as Surface Standby Diver using a Wet bell	
UEP 09	Underwater Emergency as In Water Standby Diver	
UEP 10	Underwater Emergency from Stage to Wet Bell	
UEP 11	Emergency as a Surface Team member	4
UEP 12	First Aid and Diving Medical Emergencies	4

	Underwater Communications Practical	
UCP 01	Effective Diver Communication	10
UCP 02	Effective Tender Communication	10
UCP 03	Effective Standby Diver Communications	10
UCP 04	Effective Helium Unscrambler Communications	
	Underwater Work Practical	
UWP 01	Use of Lines	10
UWP 02	Underwater Searches	
UWP 03	Underwater Survey	
UWP 04	Underwater Measurement & Inspection	
UWP 05	Underwater Hand Tools	
UWP 06	Scientific Dive Technique	
UWP 07	Search and Rescue Technique	
UWP 08	Underwater Pneumatic powered tools	
UWP 09	Underwater hydraulic powered tools	
UWP 10	Underwater Cutting	
UWP 11	Underwater Welding	
UWP 12	High Pressure Water Jetting and Cavy Dyne Operations	
UWP 13	Grit Blasting	
UWP 14	Dredging using Air lifting	
UWP 15	Dredging using Dredging Pump	
UWP 16	Underwater Lifting Tasks	
UWP 17	Lifting bags	
UWP 18	Perform underwater construction work tasks	
UWP 19	Umbilical Management	
UWP 20	Working with Flanges	
UWP 21	Interpret engineering drawings	
UWP 22	Using explosive under water	
UWP 23	Mattress Handling Equipment	
UWP 24	Metrology Equipment	
	Plant and Equipment Practical	
PEP 01	Personal Diving Equipment	6
PEP 02	SCUBA Equipment	6
PEP 03	Commercial SCUBA	
PEP 04	HP Compressor	6
PEP 05	LP Compressor	
PEP 06	Hot Water Machine	
	Seamanship and Rope Work Practical	
SRW 01	Lifting Plans	
SRW 02	Rigging Equipment	
SRW 03	Lifting Beams	
SRW 04	Safe Boating Requirements	
SRW 05	Small Boat Operations	1
SRW 06	Rope Work	2
	Decompression Chambers	
DDC 01	Prepare a twin-lock (two-compartment) compression chamber	
DDC 02	Chamber Operator	
DDC 03	Chamber Operator SURDO2	
DDC 04	Chamber Attendant during Compression	
DDC 05	Operate a twin-lock (two-compartment) compression chamber	
DDC 06	Emergency procedures for hyperbaric chambers	
DDC 07	In-chamber emergency procedures	
DDC 08	Carry out post-dive compression chamber checks and user maintenance	
Notes: Dives Deeper than 8m are not permitted on CLASS VI/V - SCUBA Standard		

### 5.3 Class IV - Commercial SCUBA Air Practical Training

Module B - Requirements				
<b>Competency Requirement:</b>				
All Practical Modules, e.g., PDT01, identified below must be completed in this Class and Depth. Trainee must achieve competence in the operation of the equipment and the execution of the task/operation prior to progressing to the next level of training.				
Documented progression including teaching the skill, develop the skill through repetition, confidence practical's in the use of the skill and evaluation off the skill.				
Depth Range in Meters		01-09	10-19	20-29
Minimum Total Bottom Time in minutes		400	300	180+20
Minimum number of Dives		8	10	10+2
Required Modules		[Min No of Practical's]		
	Practical Diving			
PDT 01	Surface Swimmer Equipment			
PDT 02	Surface Swimmer Procedures			
PDT 03	Safety Critical Underwater Skills	8	2	2
PDT 04	SCUBA Equipment Procedures			
PDT 05	SCUBA Procedures			
PDT 06	Commercial SCUBA Equipment	8	4	4
PDT 07	Commercial SCUBA Procedures	8	4	4
PDT 08	Surface Supplied Diving Equipment			
PDT 09	Surface Supplied Diving Procedures			
PDT 10	In Water Standby Diver in Surface Supplied Diving			
PDT 11	In Water Decompression Procedures			
PDT 12	Surface Decompression Procedures SurDO2			
PDT 13	Stage Diving Equipment Operations			
PDT 14	Wet bell Diving Equipment Operations			
PDT 15	Standby Diver Deployment Stage and Wet bell Operations			
PDT 16	In Water Umbilical Tender Diver in Stage Diving Operations			
PDT 17	In Water Umbilical Tender Diver in Wet bell Diving Operations			
PDT 18	Surface Standby Diver in Stage Diving Operations			
PDT 19	Surface Standby Diver in Wet bell Diving Operations			
	Surface Procedures Practical			
SPP 01	Assisting Diver to dress	8	4	4
SPP 02	Pre-Dive Equipment checks	8	4	4
SPP 03	Surface Standby Diver in Diving Practical	8	4	4
SPP 04	Tender in Surface Swimmer and COMMERCIAL SCUBA Practical	8	4	4
SPP 05	Tender in Surface Supplied Diving Operations			
SPP 06	Tender in Surface Decompression Procedures			
SPP 07	Chamber Attendant in Surface Decompression Procedures			
SPP 08	Chamber Operator in Surface Decompression Procedures			
SPP 09	Tender in Stage / Wet bell Diving Operations			
SPP 10	Assisting Diver to undress	8	4	4
SPP 11	Post-Dive Equipment Checks	8	4	4
SPP 12	Surface Supply Panel - Setup and Operate with Divers in Water			
SPP 13	Operate Surface Panel for Stage or Wet bell divers			
SPP 14	Operate deployment and recovery systems for Stage or Wet bell			
SPP 15	Diving from a Small Boat		1	1
	Underwater Emergencies Practical			
UEP 01	Emergency as a Surface Swimmer			
UEP 02	Emergency Drills Diving	2	2	2
UEP 03	Emergency Drills Launch and Recovery			
UEP 04	Emergency Drills Chamber	2	2	2
UEP 05	Underwater Emergency as a Diver - Self-Rescue	2	2	2
UEP 06	Underwater Emergency as a Surface Standby Diver			
UEP 07	Underwater Emergency as Surface Standby Diver using a Stage			
UEP 08	Underwater Emergency as Surface Standby Diver using a Wet Bell	2	2	2
UEP 09	Underwater Emergency as In Water Standby Diver	2	2	2
UEP 10	Underwater Emergency from Stage to Wet bell			
UEP 11	Emergency as a Surface Team member	2	2	2
UEP 12	First Aid and Diving Medical Emergencies	1	1	1

	Underwater Communications Practical			
UCP 01	Effective Diver Communication	2	2	2
UCP 02	Effective Tender Communication	2	2	2
UCP 03	Effective Standby Diver Communications	2	2	2
UCP 04	Effective Helium Unscrambler Communications			
	Underwater Work Practical			
UWP01	Use of Lines		2	2
UWP02	Underwater Searches		2	2
UWP03	Underwater Survey		2	2
UWP04	Underwater Measurement & Inspection		2	2
UWP05	Underwater Hand Tools		2	2
UWP06	Scientific Dive Technique	1	2	2
UWP07	Search and Rescue Technique		2	2
UWP08	Underwater Pneumatic powered tools			
UWP09	Underwater hydraulic powered tools			
UWP10	Underwater Cutting			
UWP11	Underwater Welding			
UWP12	High Pressure Water Jetting and Cavy-Dyne Operations			
UWP13	Grit Blasting			
UWP14	Dredging using Air lifting			
UWP15	Dredging using Dredging Pump			
UWP16	Underwater Lifting Tasks			
UWP17	Lifting bags	2	2	2
UWP18	Perform underwater construction work tasks			
UWP19	Umbilical Management	1	1	1
UWP20	Working with Flanges			
UWP21	Interpret engineering drawings			
UWP22	Using explosive under water			
UWP23	Mattress Handling Equipment			
UWP24	Metrology Equipment			
	Plant and Equipment Practical			
PEP 01	Personal Diving Equipment	2		
PEP 02	SCUBA Equipment			
PEP 03	Commercial SCUBA	2		
PEP 04	HP Compressor	2		
PEP 05	LP Compressor			
PEP 06	Hot Water Machine			
	Seamanship and Rope Work Practical			
SRW01	Lifting Plans			
SRW02	Rigging Equipment			
SRW03	Lifting Beams			
SRW04	Safe Boating Requirements			
SRW05	Small Boat Operations	1	1	1
SRW06	Rope Work	2	2	2
	Decompression Chambers			
DDC 01	Prepare a twin-lock (two-compartment) compression chamber	1		
DDC 02	Chamber Operator			
DDC 03	Chamber Operator SURDO2			
DDC 04	Chamber Attendant during Compression	1		
DDC 05	Operate a twin-lock (two-compartment) compression chamber			
DDC 06	Emergency procedures for hyperbaric chambers	1		
DDC 07	In-chamber emergency procedures	1		
DDC 08	Carry out post-dive compression chamber checks and user maintenance	1		



## 5.4 Class III - Surface Supplied Air Practical Training

Module B - Requirements					
<b>Competency Requirement:</b>					
All Practical Modules, e.g., PDT01, identified below must be completed in this Class and Depth. Trainee must achieve competence in the operation of the equipment and the execution of the task/operation prior to progressing to the next level of training.					
Documented progression including teaching the skill, develop the skill through repetition, confidence practical's in the use of the skill and evaluation off the skill.					
Depth Range in Meters		00-0.5	01-09	10-19	20-30
Minimum Total Bottom Time in minutes			1200	400	270+30
Minimum number of Dives		-	14	8	10
Required Modules		[Min No of Practical's]			
	Practical Diving				
PDT 01	Surface Swimmer Equipment				
PDT 02	Surface Swimmer Procedures				
PDT 03	Safety Critical Underwater Skills	4	2	3	3
PDT 04	SCUBA Equipment Procedures				
PDT 05	SCUBA Procedures				
PDT 06	Commercial SCUBA Equipment				
PDT 07	Commercial SCUBA Procedures				
PDT 08	Surface Supplied Diving Equipment	4	2	3	3
PDT 09	Surface Supplied Diving Procedures	4	2	3	3
PDT 10	In Water Standby Diver in Surface Supplied Diving	4	2	3	3
PDT 11	In Water Decompression Procedures	4	2	3	3
PDT 12	Surface Decompression Procedures SurDO2				
PDT 13	Stage Diving Equipment Operations				
PDT 14	Wet bell Diving Equipment Operations				
PDT 15	Standby Diver Deployment Stage and Wet bell Operations				
PDT 16	In Water Umbilical Tender Diver in Stage Diving Operations				
PDT 17	In Water Umbilical Tender Diver in Wet bell Diving Operations				
PDT 18	Surface Standby Diver in Stage Diving Operations				
PDT 19	Surface Standby Diver in Wet bell Diving Operations				
	Surface Procedures Practical				
SPP 01	Assisting Diver to dress	2	2	4	4
SPP 02	Pre-Dive Equipment checks	2	2	4	4
SPP 03	Surface Standby Diver in Diving Practical	2	2	4	4
SPP 04	Tender in Surface Swimmer and COMMERCIAL SCUBA Practical				
SPP 05	Tender in Surface Supplied Diving Operations	2	2	4	4
SPP 06	Tender in Surface Decompression Procedures				
SPP 07	Chamber Attendant in Surface Decompression Procedures				
SPP 08	Chamber Operator in Surface Decompression Procedures				
SPP 09	Tender in Stage / Wet bell Diving Operations				
SPP 10	Assisting Diver to undress	2	2	4	4
SPP 11	Post-Dive Equipment Checks	2	2	4	4
SPP 12	Surface Supply Panel - Setup and Operate with Divers in Water	2	2	4	4
SPP 13	Operate Surface Panel for Stage or Wet bell divers				
SPP 14	Operate deployment and recovery systems for Stage or Wet bell				
SPP 15	Diving from a Small Boat	2		2	
	Underwater Emergencies Practical				
UEP 01	Emergency as a Surface Swimmer				
UEP 02	Emergency Drills Diving	1	1	1	2
UEP 03	Emergency Drills Launch and Recovery				
UEP 04	Emergency Drills Chamber	1	1	1	2
UEP 05	Underwater Emergency as a Diver - Self-Rescue	1	1	1	2
UEP 06	Underwater Emergency as a Surface Standby Diver	1	1	1	2
UEP 07	Underwater Emergency as Surface Standby Diver using a Stage				
UEP 08	Underwater Emergency as Surface Standby Diver using a Wet Bell				
UEP 09	Underwater Emergency as In Water Standby Diver	1	1	1	2
UEP 10	Underwater Emergency from Stage to Wet bell				
UEP 11	Emergency as a Surface Team member	1	1	1	2
UEP 12	First Aid and Diving Medical Emergencies	1	1	1	2

	Underwater Communications Practical				
UCP 01	Effective Diver Communication	4	2	2	2
UCP 02	Effective Tender Communication	4	2	2	2
UCP 03	Effective Standby Diver Communications	4	2	2	2
UCP 04	Effective Helium Unscrambler Communications				
	Underwater Work Practical				
UWP01	Use of Lines			2	2
UWP02	Underwater Searches			2	2
UWP03	Underwater Survey			2	2
UWP04	Underwater Measurement & Inspection			2	2
UWP05	Underwater Hand Tools	1		2	2
UWP06	Scientific Dive Technique				
UWP07	Search and Rescue Technique			2	2
UWP08	Underwater Pneumatic powered tools	1		1	1
UWP09	Underwater hydraulic powered tools	1		1	1
UWP10	Underwater Cutting		1		
UWP11	Underwater Welding		1		
UWP12	High Pressure Water Jetting and Cavy Dyne Operations	1	1		
UWP13	Grit Blasting	1	1		
UWP14	Dredging using Air lifting	1	1		
UWP15	Dredging using Dredging Pump	1	1		
UWP16	Underwater Lifting Tasks	2	2		
UWP17	Lifting bags	2	2		
UWP18	Perform underwater construction work tasks	1	1		
UWP19	Umbilical Management	1	1	1	1
UWP20	Working with Flanges				
UWP21	Interpret engineering drawings	1			
UWP22	Using explosive under water	1			
UWP23	Mattress Handling Equipment				
UWP24	Metrology Equipment				
	Plant and Equipment Practical				
PEP 01	Personal Diving Equipment	2	1	1	1
PEP 02	SCUBA Equipment				
PEP 03	Commercial SCUBA				
PEP 04	HP Compressor	3	3		
PEP 05	LP Compressor	3	3		
PEP 06	Hot Water Machine				
	Seamanship and Rope Work Practical				
SRW01	Lifting Plans	1	1		
SRW02	Rigging Equipment	1	1		
SRW03	Lifting Beams	1	1		
SRW04	Safe Boating Requirements	1	1		
SRW05	Small Boat Operations	1	1		
SRW06	Rope Work	1	1		
	Decompression Chambers				
DDC 01	Prepare a twin-lock (two-compartment) compression chamber	1			
DDC 02	Chamber Operator				
DDC 03	Chamber Operator SURDO2				
DDC 04	Chamber Attendant during Compression	1			
DDC 05	Operate a twin-lock (two-compartment) compression chamber				
DDC 06	Emergency procedures for hyperbaric chambers	1			
DDC 07	In-chamber emergency procedures	1			
DDC 08	Carry out post-dive compression chamber checks and user maintenance	1			

## 5.5 Class II - Surface Supplied Air Practical Training

Module B - Requirements							
<b>Competency Requirement:</b>							
All Practical Modules, e.g., PDT01, identified below must be completed in this Class and Depth. Trainee must achieve competence in the operation of the equipment and the execution of the task/operation prior to progressing to the next level of training.							
Documented progression including teaching the skill, develop the skill through repetition, confidence practical's in the use of the skill and evaluation off the skill.							
Depth Range in Meters		00-0.5	01-09	10-19	20-29	30-39	41-50
Minimum Total Bottom Time in minutes		-	900	600	150	100	100
Minimum number of Dives		-	14*	10	2	2	6
Required Modules		[Min No of Practical's]					
	Practical Diving						
PDT 01	Surface Swimmer Equipment						
PDT 02	Surface Swimmer Procedures	2					
PDT 03	Safety Critical Underwater Skills	2	1	1	1	1	1
PDT 04	SCUBA Equipment Procedures						
PDT 05	SCUBA Procedures						
PDT 06	Commercial SCUBA Equipment						
PDT 07	Commercial SCUBA Procedures						
PDT 08	Surface Supplied Diving Equipment	8					
PDT 09	Surface Supplied Diving Procedures	2	4	2	1	1	1
PDT 10	In Water Standby Diver in Surface Supplied Diving	2	4	2	1	1	1
PDT 11	In Water Decompression Procedures	2	4	2	1	1	1
PDT 12	Surface Decompression Procedures SurDO2	2		3		2	
PDT 13	Stage Diving Equipment Operations	2		4	1		
PDT 14	Wet bell Diving Equipment Operations	2		4	1		
PDT 15	Standby Diver Deployment Stage and Wet bell Operations	2		4	1		
PDT 16	In Water Umbilical Tender Diver in Stage Diving Operations	2		4	1		
PDT 17	In Water Umbilical Tender Diver in Wet bell Diving Operations	2		4	1		
PDT 18	Surface Standby Diver in Stage Diving Operations	2	4	2	1		
PDT 19	Surface Standby Diver in Wet bell Diving Operations	2	4	2	1		
	Surface Procedures Practical						
SPP 01	Assisting Diver to dress	2	4	2	1	1	1
SPP 02	Pre-Dive Equipment checks	2	4	2	1	1	1
SPP 03	Surface Standby Diver in Diving Practical	2	4	2	1	1	1
SPP 04	Tender in Surface Swimmer and COMMERCIAL SCUBA Practical						
SPP 05	Tender in Surface Supplied Diving Operations	2	4	2	1	1	1
SPP 06	Tender in Surface Decompression Procedures	2	1	1	1	1	1
SPP 07	Chamber Attendant in Surface Decompression Procedures	1			1		
SPP 08	Chamber Operator in Surface Decompression Procedures	1			1		
SPP 09	Tender in Stage / Wet bell Diving Operations	2	1	1	1	1	
SPP 10	Assisting Diver to undress	2	1	1	1	1	1
SPP 11	Post-Dive Equipment Checks	2	1	1	1	1	1
SPP 12	Surface Supply Panel - Setup and Operate with Divers in Water	2	1	1	1	1	1
SPP 13	Operate Surface Panel for Stage or Wet bell divers	2	1	1	2	1	1
SPP 14	Operate deployment and recovery systems for Stage or Wet bell	2	1	1	1	1	1
SPP 15	Diving from a Small Boat				2		
	Underwater Emergencies Practical						
UEP 01	Emergency as a Surface Swimmer	2					
UEP 02	Emergency Drills Diving	1		1	1		
UEP 03	Emergency Drills Launch and Recovery	1		1	1		
UEP 04	Emergency Drills Chamber	1		1	1		
UEP 05	Underwater Emergency as a Diver - Self-Rescue	1		1	1		
UEP 06	Underwater Emergency as a Surface Standby Diver	1		1	1		
UEP 07	Underwater Emergency as Surface Standby Diver using a stage	2		1	2		
UEP 08	Underwater Emergency as Surface Standby Diver using a wet bell	2		1	2		
UEP 09	Underwater Emergency as In Water Standby Diver	1		1	1		
UEP	Underwater Emergency from Stage to Wet Bell	2		1	2		
UEP	Emergency as a Surface Team member	1		1	1		
UEP	First Aid and Diving Medical Emergencies	1		1	1		

	Underwater Communications Practical						
UCP 01	Effective Diver Communication	1		1	1		
UCP 02	Effective Tender Communication	1		1	1		
UCP 03	Effective Standby Diver Communications	1		1	1		
UCP 04	Effective Helium Unscrambler Communications	1		1	1		
	Underwater Work Practical						
UWP01	Use of Lines	1	1				
UWP02	Underwater Searches	1	1	1	1		
UWP03	Underwater Survey	1	1	1	1		
UWP04	Underwater Measurement & Inspection	1	1	1	1		
UWP05	Underwater Hand Tools	1	1				
UWP06	Scientific Dive Technique						
UWP07	Search and Rescue Technique						
UWP08	Underwater Pneumatic powered tools			1		1	
UWP09	Underwater hydraulic powered tools			1		1	
UWP10	Underwater Cutting		2				
UWP11	Underwater Welding		2				
UWP12	High Pressure Water Jetting and Cavy-Dyne Operations		1				
UWP13	Grit Blasting		1				
UWP14	Dredging using Air lifting			1			
UWP15	Dredging using Dredging Pump		1				
UWP16	Underwater Lifting Tasks		4				
UWP17	Lifting bags		6	4	1		
UWP18	Perform underwater construction work tasks			1	1		
UWP19	Umbilical Management			1		1	
UWP20	Working with Flanges			1		1	
UWP21	Interpret engineering drawings	2					
UWP22	Using explosive under water	1					
UWP23	Mattress Handling Equipment		1				
UWP24	Metrology Equipment			1			
	Plant and Equipment Practical						
PEP 01	Personal Diving Equipment	1					
PEP 02	SCUBA Equipment						
PEP 03	Commercial SCUBA						
PEP 04	HP Compressor	1					
PEP 05	LP Compressor	2					
PEP 06	Hot Water Machine	2					
	Seamanship and Rope Work Practical						
SRW01	Lifting Plans	1					
SRW02	Rigging Equipment	2		1			
SRW03	Lifting Beams	1					
SRW04	Safe Boating Requirements	1					
SRW05	Small Boat Operations	1					
SRW06	Rope Work	1					
	Decompression Chambers						
DDC 01	Prepare a twin-lock (two-compartment) compression chamber	1			2		
DDC 02	Chamber Operator	1			2		
DDC 03	Chamber Operator SURDO2	1			3		
DDC 04	Chamber Attendant during Compression	1			2		
DDC 05	Operate a twin-lock (two-compartment) compression chamber	1			3		
DDC 06	Emergency procedures for hyperbaric chambers	1			3		
DDC 07	In-chamber emergency procedures	1			1		
DDC 08	Carry out post-dive compression chamber checks and user maintenance	1			1		

\* 1 x Dive to be for 180min Bottom Time

## 5.6 Class II - Surface Supplied Mixed Gas Practical Training

Depth Range in Meters		51-55	56-60	65-70
Minimum Total Bottom Time in minutes		20	20	15
Minimum number of Dives		1	1	1
Required Modules		[Min No of Practical's]		
	Practical Diving			
PDT 01	Surface Swimmer Equipment			
PDT 02	Surface Swimmer Procedures			
PDT 03	Safety Critical Underwater Skills			
PDT 04	SCUBA Equipment Procedures			
PDT 05	SCUBA Procedures			
PDT 06	Commercial SCUBA Equipment			
PDT 07	Commercial SCUBA Procedures			
PDT 08	Surface Supplied Diving Equipment			
PDT 09	Surface Supplied Diving Procedures			
PDT 10	In Water Standby Diver in Surface Supplied Diving			
PDT 11	In Water Decompression Procedures			
PDT 12	Surface Decompression Procedures SurDO2			
PDT 13	Stage Diving Equipment Operations			
PDT 14	Wet bell Diving Equipment Operations	1	1	1
PDT 15	Standby Diver Deployment Stage and Wet bell Operations	1	1	1
PDT 16	In Water Umbilical Tender Diver in Stage Diving Operations			
PDT 17	In Water Umbilical Tender Diver in Wet bell Diving Operations	1	1	1
PDT 18	Surface Standby Diver in Stage Diving Operations			
PDT 19	Surface Standby Diver in Wet bell Diving Operations			
	Surface Procedures Practical			
SPP 01	Assisting Diver to dress			
SPP 02	Pre-Dive Equipment checks			
SPP 03	Surface Standby Diver in Diving Practical			
SPP 04	Tender in Surface Swimmer and COMMERCIAL SCUBA Practical			
SPP 05	Tender in Surface Supplied Diving Operations			
SPP 06	Tender in Surface Decompression Procedures	1		
SPP 07	Chamber Attendant in Surface Decompression Procedures		1	
SPP 08	Chamber Operator in Surface Decompression Procedures		1	
SPP 09	Tender in Stage / Wet bell Diving Operations	1	1	
SPP 10	Assisting Diver to undress	1	1	
SPP 11	Post-Dive Equipment Checks	1	1	
SPP 12	Surface Supply Panel - Setup and Operate with Divers in Water		1	
SPP 13	Operate Surface Panel for Stage or Wet bell divers		1	
SPP 14	Operate deployment & recovery systems for Stage or Wet bell		1	
SPP 15	Diving from a Small Boat			
	Underwater Emergencies Practical			
UEP 01	Emergency as a Surface Swimmer			
UEP 02	Emergency Drills			
UEP 03	Underwater Emergency as a Diver - Self-Rescue			
UEP 04	Underwater Emergency as a Surface Standby Diver			
UEP 05	Underwater Emergency as Surface Standby Diver using a stage or wet bell			
UEP 06	Underwater Emergency as In Water Standby Diver			
UEP 07	Underwater Emergency as In Water Tender Diver from stage or Wet bell			
UEP 08	Emergency as a Surface Team member			1
UEP 09	First Aid and Diving Medical Emergencies			
	Underwater Communications Practical			
UCP 01	Effective Diver Communication	1	1	
UCP 02	Effective Tender Communication	1	1	
UCP 03	Effective Standby Diver Communications	1	1	
UCP 04	Effective Helium Diver Communications	1	1	1
	Underwater Work Practical			
UWP01	Use of Lines			
UWP02	Underwater Searches			
UWP03	Underwater Survey			
UWP04	Underwater Measurement & Inspection			
UWP05	Underwater Hand Tools			

UWP06	Scientific Dive Technique			
UWP07	Search and Rescue Technique			
UWP08	Underwater Pneumatic powered tools			
UWP09	Underwater hydraulic powered tools			
UWP10	Underwater Cutting			
UWP11	Underwater Welding			
UWP12	High Pressure Water Jetting and Cavy Dyne Operations			
UWP13	Grit Blasting			
UWP14	Dredging using Air lifting			
UWP15	Dredging using Dredging Pump			
UWP16	Underwater Lifting Tasks			
UWP17	Lifting bags			
UWP18	Perform underwater construction work tasks			
UWP19	Umbilical Management			
UWP20	Working with Flanges			
UWP21	Interpret engineering drawings			
UWP22	Using explosive under water			
UWP23	Mattress Handling Equipment			
UWP24	Metrology Equipment			
	Plant and Equipment Practical			
PEP 01	Personal Diving Equipment			
PEP 02	SCUBA Equipment			
PEP 03	Commercial SCUBA			
PEP 04	HP Compressor			
PEP 05	LP Compressor			
PEP 06	Hot Water Machine	1		
	Seamanship and Rope Work Practical			
SRW01	Lifting Plans			
SRW02	Rigging Equipment			
SRW03	Lifting Beams			
SRW04	Safe Boating Requirements			
SRW05	Small Boat Operations			
SRW06	Rope Work			
	Decompression Chambers			
DDC 01	Prepare a twin-lock (two-compartment) compression chamber			
DDC 02	Chamber Operator			
DDC 03	Chamber Operator SURDO2			
DDC 04	Chamber Attendant during Compression			
DDC 05	Operate a twin-lock (two-compartment) compression chamber			
DDC 06	Emergency procedures for hyperbaric chambers			
DDC 07	In-chamber emergency procedures			
DDC 08	Carry out post-dive compression chamber checks and user maintenance			

## 5.7 Class I - Saturation Practical Training

Module B - Requirements			
<b>Competency Requirement:</b> Trainee must achieve competence in the operation of the equipment and the execution of the task/operation prior to progressing to the next level of training. Documented progression including teaching the skill, develop the skill through repetition, confidence practical's in the use of the skill and evaluation off the skill.			
Required Modules		[Min No of Practical's]	
	Practical Diving		
	All practical shall comply with the requirements of the IDRF requirements.		