

# **DECOMPRESSION NITROX COURSE**

## **INTRODUCTION**

This course examines the use of EAN<sub>21</sub> through EAN<sub>60</sub> for optimal mixes to a depth of 40msw

## **COURSE OBJECTIVES**

The objective of this course is to train divers in the benefits, hazards and proper procedures for utilizing EAN<sub>21</sub> - EAN<sub>40</sub> for bottom gas and upto EAN<sub>60</sub> accelerated decompression for dives not requiring staged decompression longer than 20 minutes.

## **QUALIFICATIONS OF GRADUATES**

Upon successful completion of this course, graduates may engage in diving activities utilizing EAN<sub>22</sub> –40 and upto EAN 60 without direct supervision so long as:

1. The diving activities approximate those of training
2. The area of activities approximate those of training
3. Environmental conditions approximate those of training

Upon successful completion of this course graduates are qualified to enrol in:

1. ITDA Technical Nitrox Course
2. ITDA Semi-Closed Circuit Rebreather Course
3. ITDA Closed Circuit Rebreather Course

## **WHO MAY TEACH**

This course may be taught by any active ITDA Decompression Nitrox Instructor or above

## **STUDENT / INSTRUCTOR RATIO**

1. CLASSROOM  
Unlimited, so long as adequate facility, supplies and additional time are provided to ensure comprehensive and complete training
2. OPEN WATER/CONFINED OPEN WATER  
A maximum of 4 students per active ITDA Instructor is allowed, ratio should be reduced as required due to environmental or operational constraints. All dives must be conducted in accordance with the HSE ACOPS

## **STUDENT PRE-REQUISITES**

1. Minimum age 18
2. Minimum certification of ITDA Nitrox Diver (or equivalent)
3. Proof of 25 logged open water dives (or the equivalent at the discretion of the instructor) in the environment in which the course is being presented, 10 of these dives should have been on Nitrox and 5 to a depth of 25 meters or greater.
4. Certified as a Rescue Diver .
5. Certified in oxygen administration.

## **REQUIRED COURSE MINIMUMS**

1. Classroom/briefing hours – 6
2. Confined open water – 1dive to develop skills
3. Open water dives – 6 (with a minimum accumulated bottom time of 120 minutes)
4. Minimum depth of dives 20 metres, maximum depth 40 metres. Dives should be made progressively deeper working up to the maximum depth.

## **REQUIRED EQUIPMENT**

The following equipment is required for each student:

1. Bottom mix cylinder (s)
  - a) Cylinder volume appropriate for planned dive and student gas consumption
  - b) Dual outlet valve, double manifold or independent doubles
  - c) Labeled in accordance with standards
2. Decompression mix cylinder (s)
  - a) Cylinder volume appropriate for planned dive and student gas consumption
  - b) Labeled in accordance with ITDA standards
3. Regulators (s)
  - a) Primary and primary redundant required on all bottom mix cylinders
  - b) Submersible pressure gauges are required on all primary/bottom mix cylinder (s)
  - c) A contingency use long hose second stage should be designated and appropriately rigged to facilitate air sharing at depth if necessary
4. Buoyancy compensator (s) adequate for equipment configuration
5. Redundant depth and timing devices
6. Air decompression computers allowed for use as depth and timing devices
7. Redundant light system (if needed for site conditions)
8. Jon-line and other rigging lines as dictated by site conditions
9. Ascent reel with lift bag/surface marker buoy
  - a) Adequate for maximum planned depth
  - b) Minimum of 15kg lift bag/surface marker buoy
10. Exposure suit adequate for the open-water environment
11. Line cutting devices (2)
12. Underwater slate (for decompression/contingency tables)

## **REQUIRED SUBJECT AREAS**

The following topics must be covered during this course. The Decompression Nitrox Manual is mandatory during the course but instructors may use any additional text or materials that they feel help present these topics

1. PHYSICS
  - a) Pressure review
2. PHYSIOLOGY
  - a) Hypoxia
  - b) Oxygen Toxicity  
Central Nervous System (CNS)
  - c) Nitrogen Narcosis
  - d) Nitrogen Absorption and Elimination
  - e) Carbon Dioxide Toxicity
  - f) Carbon Monoxide Toxicity
3. FORMULA WORK
  - a) Best mix computations
  - b) Maximum operating depth of a mixture computations
4. EQUIPMENT CONSIDERATIONS
  - a) Up to 40% oxygen content
  - b) Above 40% oxygen content
5. DIVE TABLES
  - c) Equivalent air depth with any table
  - d) Computer generated tables
6. DIVE COMPUTERS
  - a) Mix adjustable
  - b) O<sub>2</sub> integrated
7. DIVE PLANNING
  - a) Operation planning  
Oxygen limitations  
Nitrogen limitations
8. COMMON MIXING PROCEDURES (demonstrate one method)
  - a) Partial pressure blending
  - b) Continuous blending
  - c) Membrane separation system

## 9. DECOMPRESSION

- a) EAN usage as decompression gas i.e 50/50, 60/40, 75/25 etc....
- b) Advantages / disadvantages of multiple gas switches

### **REQUIRED OPEN-WATER SKILLS**

Maximum training depths shall not exceed 40msw. The following open-water skills must be completed by the student during all open-water dives:

1. Properly analyze gas mixtures
2. Demonstrate adequate pre-dive planning
  - Limits based on personal gas consumption
  - Limits based on oxygen exposures at planned depth with actual mix
  - Limits based in nitrogen absorption at planned depth with actual mix
3. Properly execute the planned dive within all pre-determined limits
4. On two dives, demonstrate an ascent using an ascent reel and lift bag
5. On all dives demonstrate correct gas switching techniques

### **GRADUATION REQUIREMENTS**

In order to complete this course, students must:

1. Satisfactorily complete the ITDA Decompression Nitrox Course written examination with a minimum mark of 80%
2. Complete all open-water requirements safely and efficiently
3. Demonstrate mature, sound judgement concerning dive planning and execution

### **SUPPORT MATERIALS**

1. ITDA Student Registration
2. ITDA Decompression Nitrox Student Manual
3. ITDA Decompression Nitrox Slides/Overheads/Power Point Presentation