

TDI Extended Range Instructor Course

Introduction

This course provides the training and experience required to be certified to competently teach air dives to fifty five (55) msw / one hundred eighty (180) fsw that require staged decompression, utilizing Nitrox mixtures or oxygen during decompression. The objective of this course is to train Instructors in the proper techniques, equipment requirements, and hazards of deep air diving to a maximum of fifty five (55) msw / one hundred eighty (180) fsw and utilizing Nitrox mixtures or oxygen for staged decompression.

Student Pre-Requisites

The student must:

Be a minimum age of twenty one (21).

Have a minimum of two hundred fifty (250) logged dives

Have a minimum of twenty five (25) extended range dives.

Show proof of certification as a TDI Extended Range Diver or equivalent.

Show proof of certification as a TDI Advanced Nitrox Instructor or equivalent.

Show proof of certification as a TDI Staged Decompression Instructor or equivalent.

Must have certified ten (10) students in Advanced Nitrox diver or Decompression Procedures Diver.

Course Structure and Duration

Open Water Execution:

Six (6) dives with a minimum accumulated bottom time of one hundred (100) minutes.

All dives must be deeper than thirty (30) msw / one hundred (100) fsw with four (4) dives deeper than forty (40) msw / one hundred thirty (130) fsw.

No more than two (2) dives may be credited from previous training.

TDI allows instructors to structure courses according to the number of students participating and their skill level.

The minimum number of classroom and briefing hours is eight (8).

Required Equipment

The following are required for this course:

TDI Standards and Procedures Instructor Manual.

Recommended text: Deep Diving: An Advanced Guide to Physiology, Procedures and Systems, Revised 2nd edition 1995 by Bret Gilliam with John Crea.

Bottom Mix cylinder(s)

A Cylinder volume appropriate for the planned dive and candidate gas consumption.

B Dual outlet valve or manifold required.

C Labeled in accordance with TDI Standards.

Travel Mix Cylinder (recommended, not required)

A Cylinder volume appropriate for planned dive and student gas consumption.

B Labeled in accordance with TDI Standards.

Decompression Mix Cylinder(s)

A Cylinder volume appropriate for planned dive and student consumption.

B Labeled in accordance with TDI Standards.

Regulator(s)

A Primary and primary redundant required on all bottom mix cylinders.

B Submersible pressure gauges are required on all primary / bottom mix cylinders.

C A contingency use long hose second stage should be designated and appropriately rigged to facilitate air sharing at depth if necessary.

Buoyancy compensator(s) adequate for equipment configuration.

Redundant depth and timing devices. Air decompression computers allowed for use as depth and timing devices.

Redundant light system adequate for the open water environment.

Jon-lines and other lines as dictated by site conditions

Ascent reel with lift bag/surface marker buoy

AAdequate for maximum planned depth.

BMinimum of twenty three (23) kg / fifty (50) lb lift bag.

Exposure suit adequate for the open water environment.

Two (2) Line cutting devices.

Underwater slate.

The following equipment is required for each Instructor candidate

Required Subject Areas

History of Deep Air Diving.

Physics

A Pressure Review.

B Formulas for solving dive planning problems, MOD, best mix, etc.

Physiology

A Hypoxia.

Oxygen toxicity

I. Whole body.

II. Central Nervous System (CNS).

C Nitrogen narcosis.

D Nitrogen absorption and elimination.

E Carbon dioxide toxicity.

F Carbon monoxide toxicity.

G Hyperthermia.

H Hypothermia.

Decompression Option

A Air.

B Nitrox.

C Oxygen.

Equipment Requirements

A Twin cylinder or single cylinder options.

B Stage cylinder options.

C Regulator options.

D Harness / BC options.

E Computer / depth gauge / bottom timer options.

F Ascent and navigation reels.

G Lift bags for drifting or free decompression.

H Lights.

I Redundant mask and knife.

J Jon-line or Garvin clips.

Dive Tables

A Introduction and review of different models DCIEM, U.S. Navy recommended.

B Introduction to computer generated tables.

Dive Computers

A Mix adjustable.

B O₂ integrated.

Dive Planning

A Operational Planning

I. Support.

II. Teams.

B Team Planning

I. Gas requirements.

II. Oxygen limitations.

III. Nitrogen limitations.

C Emergency Planning

I. Omitted decompression.

II. Oxygen toxicity.

III. Decompression sickness.

IV. General.

Procedures

A Bottom, Travel and Decompression Gas.

I. Normal operations.

II. Failure, loss or inadequate emergency procedures.

III. Analyzing and logging.

Descent

I. Methods of entry, down-lines or free descent.

II. Recognizing narcosis.

III. Breathing.

IV. Organization of equipment carried on diver.

Ascent

I. Variable rates.

II. Trim and compensation.

Support.

Navigation

I. From shore.

II. From descent line.

III. From live aboard boat.

Required Skill Performance

Properly analyze all gas mixtures to be used.

Demonstrate adequate pre-dive planning

A Limits based on personal and team gas consumption.

B Limits based on oxygen exposures at planned depths for actual mixes.

C Limits based on nitrogen absorption at planned depth with actual mixes.

Demonstrate the proper procedures for switching and isolating a malfunctioning Regulator.

Demonstrate the proper navigational techniques for the specific dive.

On one (1) of the dives, demonstrate an ascent with the ascent reel and bag or a Jersey up-line and perform staged decompression.

Satisfactorily complete the TDI Extended Range Course written examination and be able to adequately explain each answer to a prospective student.

Demonstrate mature, sound judgment concerning training, dive planning and execution.

Demonstrate proficiency in every skill required in the Extended Range Diver course.

Demonstrate proficiency in teaching the TDI Extended Range Diver Program.

One graded presentation on an Extended Range topic.