

# **1. TDI – Advanced Gas Blender Instructor Course**

## **1.1 Introduction**

This is the Instructor level certification course for Instructors wishing to teach the TDI Advanced Gas Blender Course. This course involves the blending of Nitrox and Trimix. The objective of this course is to train Instructors to teach the proper preparation of Nitrox and Trimix gasses for use in technical diving.

## **1.2 Qualifications of Graduates**

Upon successful completion of this course, graduates may teach the TDI Advanced Gas Blender Course.

## **1.3 Who May Teach**

Who may teach this course:

1. Any active TDI Advanced Gas Blender Instructor Trainer may teach this course.

## **1.4 Student – Instructor Ratio**

Academic:

1. Unlimited, so long as adequate facility, supplies and time are provided to insure comprehensive and complete training.

Confined Water (Swimming pool-like conditions):

1. N/A.

Open Water (Ocean, lake, quarry, spring, river or estuary):

1. N/A.

## **1.5 Student Pre-Requisites**

The student must:

1. Be a minimum age of twenty one (21).
1. Show proof of minimum certification of TDI Advanced Gas Blender.

## **1.6 Course Structure and Duration**

Open Water Execution:

1. No Dives is required.

Course Structure:

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

Duration:

1. The minimum number of classroom and briefing hours is six (6).

## **1.7 Administrative Requirements**

The following is the administrative tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the training schedule to the students.
4. Have the students complete the Liability Release and Medical history forms.
5. The instructor must review the liability Release and Medical Forms before starting on the course.

Upon successful completion of the course the Instructor must:

1. Complete the Student Registration Form and send the Registration Form to TDI HQ.
2. Award Card.

## **1.8 Required Equipment**

The following are required for this course:

1. TDI Advanced Gas Blending Manual
2. TDI Advanced Gas Blending Instructor Guide
3. Advanced Gas Blending PowerPoint Presentation Series.

## **1.9 Required Subject Areas**

Instructor Trainers must use the TDI Advanced Gas Blender Instructor Guide and the current TDI Standards and Procedures Instructor Manual, but may also use any additional text or materials that they feel help present these topics. The following topics must be covered during this course:

1. The responsibility of the gas blender.
2. Gasses of diving
  - A. Air.
  - B. Oxygen.
  - C. Nitrogen.
  - D. Helium.
  - E. Other gases.
3. Oxygen handling
  - A. Oxygen hazards.
  - B. Causes and prevention of oxygen fires.
  - C. Oxygen system design.
  - D. Local regulations for gas blending and handling.
  - E. Oxygen compatible systems components.
4. Gas Production

- A. Equipment
  - I. Compressors.
  - II. Cylinders.
  - III. Filtration systems.
  - IV. Analog Gauges.
  - V. Digital Gauges.
- 5. Mixing Techniques
  - A. General Considerations.
  - B. Continuous blending systems.
  - C. De-nitrogenated Air Systems.
  - D. Partial Pressure blending
    - I. Mathematics of partial pressure.
    - II. Mixing by weight (optional).
- 6. Oxygen analyzing
  - A. Procedures.
  - B. Oxygen analyzers.
- 7. Cylinder handling and sign out.

## **1.10 Required Skill Performance and Graduation Requirements**

The following skills must be completed by the Instructor candidate:

1. Satisfactorily complete the TDI Advanced Gas Blender Course written examination and be able to adequately explain each answer to a prospective student.
2. Demonstrate mature, sound judgment concerning training, and execution.
3. Demonstrate proficiency in blending and analysis of Nitrox and Trimix mixtures.
4. Demonstrate proficiency in teaching the TDI Advanced Gas Blender Program.
5. One (1) graded presentation on an Advanced Gas Blending topic.