

EFFECTIVE
1 September 2006



MINIMUM COURSE CONTENT
FOR
Enriched Air Nitrox Scuba Certification

As Approved By

		
		
		

©2006, Recreational Scuba Training Council, Inc. (RSTC)

Recreational Scuba Training Council, Inc.
RSTC Coordinator
P.O. Box 11083
Jacksonville, FL 32239 USA

Recreational Scuba Training Council (RSTC)

Minimum Course Content

for

Enriched Air Nitrox Scuba Certification

1. Scope and Purpose

This standard provides minimum course content requirements for instruction leading to enriched air nitrox certification in recreational diving with scuba (self-contained underwater breathing apparatus). However, these requirements should under no conditions be considered to define a level of optimum training in the use of scuba enriched air nitrox. Instructional programs that extend beyond these requirements should, in fact, be encouraged. The requirements of this standard are meant to be comprehensive, but general in nature. That is, the standard presents all the subject areas essential for enriched air nitrox certification, but it does not give a detailed listing of the skills and information encompassed by each area. For example, these minimum specifications require that an enriched air certification course must cover the operating principles, and dive planning for dives using enriched air nitrox. These items are simply listed in this standard; training organizations shall publish detailed course outlines that meet this standard, which would include specific techniques for the use of enriched air nitrox.

Although the information categories are outlined in what may appear to be a logical sequence, the outline should not be viewed as a lesson plan. That is, the order in which the information is presented in this standard, while logical as a framework for the basic requirements of this standard, does not necessarily define the sequence of a class lesson plan. Similarly, the requirements presented in this standard do not indicate the emphasis that should be placed upon a particular subject area, or the manner in which subjects are to be taught. Rather, course outlines, lesson plans, and other training aids prepared by training organizations responsible for recreational diver training shall be used as guidelines for the sequencing and emphasis of course content requirements presented in this standard. Decisions as to sequencing and emphasis are at the discretion of the certifying instructor within the requirements of the instructor's training organization, to be made within the context of student characteristics, and other relevant considerations.

Enriched air nitrox certification qualifies a certified diver to procure gas mixes from 21 to 40% oxygen, enriched air equipment, and other services to engage in recreational enriched air nitrox diving without supervision. It is the intent of this standard that certified enriched air nitrox divers shall have received training in the fundamentals of recreational diving from an instructor (see definition). A certified enriched air nitrox diver is qualified to apply the knowledge and skills outlined in this standard to plan, conduct, and log enriched air nitrox open-water, no decompression dives when properly equipped, and accompanied by another certified diver.

2. Definitions

certification. A certification card (“C-Card”) documenting that a student has completed all requirements of an enriched air nitrox diving certification course. This verification is issued by training organizations upon receipt of an instructor’s written confirmation of satisfactory completion of all course requirements by the student, as documented in the student’s log/training record.

certified assistant. An individual who is currently certified by a training organization to assist an instructor. Completion of formal training in planning, management and control of diving activities, first aid, cardiopulmonary resuscitation, and diver-rescue techniques is required before a certified assistant may assume responsibility for any student or students during open water training dives, as defined in this document. The certified assistant shall also have passed a written examination demonstrating certified assistant level knowledge, as required by the training organization. It is recommended that the certified assistant be enriched air nitrox certified, but not required. When the certified assistant is not enriched air nitrox certified, dive planning and preparation activities are the sole responsibility of the enriched air nitrox instructor. (See the RSTC Recreational Dive Supervisor and RSTC Assistant Scuba Instructor certification standards for details).

instructor. An individual who is currently certified and sanctioned by a training organization to teach enriched air nitrox scuba diving and to authorize the issuance of enriched air certification. To be sanctioned, the instructor shall meet the annual renewal requirements of the sanctioning organization. An instructor shall have completed formal training in lesson preparation, planning and delivery of lecture, pool/confined water skills, open water; in addition to completing the training requirements of a certified assistant (see definition). The instructor shall also have passed a written examination demonstrating instructor-level knowledge, as required by the training organization. (See the RSTC Recreational Scuba Instructor certification standards for details).

minimum instructional diving system. The minimum equipment required to be worn by students while performing optional dives on enriched air nitrox. This equipment includes, as a minimum: fins, mask, snorkel, clearly marked and designated enriched air nitrox cylinder and valve, buoyancy control device with low-pressure inflator, regulator for use with enriched air, alternate air source (active scuba/air delivery system), submersible pressure gauge, weight ballast system, exposure suit (e.g., wetsuit, drysuit, etc. if appropriate), a timing device, depth gauge, and compass/direction monitor.

PO₂. Oxygen partial pressure exerted by the oxygen part of the enriched air nitrox blend. The maximum limit for enriched air nitrox training should not exceed a PO₂ of 1.6.

MOD. The maximum operating depth (also called Maximum Depth) for a particular air mixture taking into consideration PO₂ limit.

EAD. equivalent air depth. An adjusted depth that accounts for the reduced nitrogen in enriched air.

3. Eligibility for Certification

In order to qualify for enriched air certification, a student shall meet the following minimum prerequisites:

(1) Age. The student shall be at least 15 years of age; there is no upper limit. Students under the minimum age who meet the enriched air nitrox performance requirements may qualify for a special certification that allows them to dive under the supervision of an adult who has a minimum of an open water scuba and enriched air nitrox certification.

(2) Dive Experience. Diver must have a minimum of an open water scuba certification to earn an enriched air diver certification. Enriched air training may be conducted in conjunction with open water diver training, but the certification cannot be issued until such time that the diver has finalized all open water scuba certification requirements

(3) Minimum Number of Logged Dives. Divers wishing to earn an enriched air diver certification must have a minimum of 4 open water scuba dives.

(4) Medical History/Statement. Applicants to a course shall complete the medical history/statement form required by the training organization prior to in-water activities. Applicants shall comply with all stipulations thereon before continuing inwater training. It is required that applicants with out-of-the-ordinary medical histories be approved, without conditions or restrictions, as medically fit for diving by a licensed medical practitioner prior to engaging in water activities. In no event will medical approval be accepted when the person signing the approval is the participating individual.

(5) Acknowledgment and Assumption of Risk. Applicants to a course shall be informed of the inherent risks of scuba and enriched air nitrox and shall agree to sign appropriate forms acknowledging and assuming those risks prior to participating in water activities. These forms may include, but are not to be limited to: liability release; waiver and release of liability; affirmation and liability release; assumption of risk; limitation of liability; safe diving practices; standards for safety; statement of understanding; etc. Parental or legal guardian signature is required on the appropriate form(s) when the applicant is a minor.

(6) Knowledge. The student shall demonstrate enriched air nitrox knowledge of scuba diving by taking and passing an oral or written examination. Documentation of the examination shall be retained by the instructor or facility for at least 5 years. This examination shall test enriched air knowledge of equipment (as listed in 4.2), physics of diving (4.3), medical problems related to diving with enriched air (4.4), use of EANx dive tables and/or dive computers (4.5), to be presented in the course and as specified by the training organization.

(7) Enriched Air Nitrox Practical Skills Application. The practical application should consist of EANx gas analysis procedures, verifying cylinder content tags/stickers and common EANx procedures for acquiring EANx (rental checkout and fill procedures). All optional enriched air nitrox dives should include a hands on practical application session. It is the instructor's responsibility to assure the student has the ability to analyze and safely plan enriched air dives prior to certification.

4. Minimum Course Content

The course shall consist of the topics and Enriched Air Nitrox training requirements the training organization and as outlined in this section.

4.1 Introduction. The following information should be made available to students before or during the first class meeting.

- (1) Certification requirements (see Section 3)
- (2) Scope of course
 - (a) Content
 - (b) Limitations of eventual qualification
- (3) Equipment requirements and considerations
- (4) Course procedures

4.2 Equipment. Enriched air nitrox level information on the physical description, operating principles, maintenance, and use of enriched air nitrox diving equipment. Reference the training organizations' published detailed course outlines, for the subcategories of information covering the physical description, maintenance, competent use and preparation of each equipment item.

4.3 Physics of Diving. Enriched air level information on the physical principles of enriched air nitrox and application to diving activities.

4.4 Enriched Air Nitrox Hazards. Fundamental information on the hazards of diving with enriched air nitrox. This instruction should include why buddy teams must limit the dive to the diver with the shallowest MOD, decompression limits, oxygen toxicity and combustibility.

4.4 Medical Problems Related to Enriched Air Nitrox Diving. Information on the causes, symptoms, prevention, first-aid and treatment of enriched air nitrox diving medical problems.

4.5 Use of Dive Tables and/or Dive Computers. Information on

- (1) how to determine no-decompression limits for single and repetitive dives using enriched air nitrox,
- (2) how to use enriched air nitrox dive tables and/or dive computers to properly plan and execute a dive
- (3) how to determine PO₂
- (4) how to establish equivalent air depth mix and
- (5) how to determine MOD
- (6) other related topics.

4.6 Obtaining Enriched Air Nitrox. Information on the local and general procedures of obtaining enriched air nitrox for diving. Student diver will be able to:

- (1) Demonstrate how to use an oxygen analyzer to determine the oxygen content in an enriched air blend for two tanks.
- (2) Demonstrate the procedures for obtaining an enriched air fill and renting an enriched air cylinder.
- (3) Logging procedures to determine Maximum Operating Depth (MOD), PO₂ and best mix.

5. In-water Training Parameters

Open-Water Training Parameters. Open water dives are encouraged but not required. Research has shown that students completing dives as part of their enriched air

nitrox course are more likely to dive in the future using enriched air. If dives are conducted they should follow procedures required by the training organization and as outlined in this section. Dives may be indirectly supervised by the instructor. It is consistent with Section 1, Scope and Purpose, that during any in-water course training activities the instructor must be present.

5.1 Enriched Air Nitrox Open Water Dive Requirements. Enriched air nitrox open water scuba dives are performed while the student diver is, wearing a minimum instructional scuba diving system and should include:

- (1) Diving system assembly and disassembly
- (2) Equipment inspection (at water's edge) and analyzing tank content
- (3) Safe, no decompression dive planning
- (4) Entries and exits
- (5) Proper Weighting
- (6) Controlled descents and ascents
- (7) Underwater swimming
- (8) Buddy-system techniques
- (9) Equipment care and maintenance (at water's edge)

5.2.1 The minimum equipment to be worn by an instructor while conducting enriched air training dives consists of, as a minimum: fins, mask, snorkel, cylinder and valve, buoyancy control device with low-pressure inflator, regulator, alternate air source (active scuba/air delivery system), submersible pressure gauge, timing device, depth gauge, weight ballast system, and exposure suit (e.g., wet suit, dry suit, etc. if appropriate), a dive knife/diver's tool (unless prohibited by law or regulation at the dive site) and an emergency-signaling device. When appropriate, the use of a surface support-station with dive flag is also encouraged.

5.2.2 All dives prior to enriched air certification shall be conducted at depths between 15 and 130 feet (5 to 40 metres), a PO₂ of 1.6 ata maximum. Dives shall not be conducted in any situation where direct vertical access to the surface is not possible. Aquatic plants are not considered an overhead obstruction. Training dives may be conducted at night for divers who have night diving experience or in conjunction with a night training dive.

For more information, contact:
Recreational Scuba Training Council, Inc.
P.O. Box 11083
Jacksonville, FL 32239 USA

Appendix A

RSTC Members

IDEA

International Diving Educators Association
P.O. Box 8427
Jacksonville, FL 32239 USA
1-904-744-5554 Fax: 1-904-743-5425
Email: info@ideascuba.com

PADI

Professional Association of Diving Instructors
30151 Tomas Street
Rancho Santa Margarita, CA 92688-2125 USA
1-949-858-7234 Fax: 1-949-267-1266
Email: Julie.taylor.sanders@padi.com or jeff.nadler@padi.com

PDIC

Professional Diving Instructors Corporation
1015 River Street
Scranton, PA 18505 USA
1-570-342-9434 Fax: 1-570-342-6030
Email: info@pdic-intl.com

SDI

Scuba Diving International
18 Elm Street
Topsham, ME 04086 USA
1-207-729-4201 Fax: 1-207- 729-4453
Email: worldhq@tdisdi.com

SSI

Scuba Schools International
2619 Canton Court
Ft. Collins, CO 80525 USA
1-970-482-0883 Fax: 1-970-482-6157
Email: wdevore@divessi.com

For more information, contact:
Recreational Scuba Training Council, Inc.
P.O. Box 11083
Jacksonville, FL 32239 USA

Email: info@wrstc.com