11. Deep Diver

11.1 Introduction

The purpose of this course is to provide the necessary training to plan and execute dives that are outside the range of depths that are experienced during an SDI Open Water Scuba Diver course, specifically beyond 18 Metres/60 Feet and to a maximum depth of not greater than 40 Metres/130 Feet.

11.2 Who May Teach

An active SDI Instructor that has been certified to teach this specialty.

11.3 Student to Instructor Ratio

Academic:

1. Unlimited, so long as adequate facilities, supplies and time are provided to ensure comprehensive and complete training of subject matter.

Confined Water (swimming pool-like conditions):

1. N/A.

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

1. A maximum of 4 students per instructor; it is the instructor's discretion to reduce this number as conditions dictate.
2. The instructor has the option of adding 2 more students with the assistance of an active Assistant Instructor or Divemaster.
3. The total number of students an instructor may have in the water is 8 with the assistance of 2 active Assistant Instructors or Divemasters.

11.4 Student Prerequisites

1. SDI Open Water Scuba Diver, SDI Junior Open Water Scuba Diver, or equivalent.
2. Minimum age 18, 10 with parental consent.

11.5 Course Structure and Duration

Open Water Execution:

1. Two dives are required with complete briefs and debriefs by the instructor.
2. The Dive plan must include surface interval, maximum no-decompression time, etc. to be figured out and logged.
3. Divers between the ages of 10 through 14 cannot exceed 21 Metres/70 Feet.

Course Structure:

1. SDI allows instructors to structure courses according to the number of students participating and their skill level.
2. This course may be combined with the SDI Computer Diver Specialty, and only that specific specialty.

11.6 Administrative Requirements

Administrative Tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the schedule to the students.
4. Have the students complete the:
    a. *SDI Liability Release and Express Assumption of Risk* Form
    b. *SDI Medical Statement* Form.

Upon successful completion of the course the instructor must:

1. Issue the appropriate SDI certification by submitting the *SDI Diver Registration* Form to SDI Headquarters or registering the students online through member's area of the SDI website.

11.7 Training Material

Required Material:

1. *SDI Deeper Diving with Dive Computers* Student Manual and Knowledge Quest (or eLearning course)
2. *SDI Deeper Diving with Dive Computers* Digital Instructor Resource.

11.8 Required Equipment

Basic open water scuba equipment as described in section three of this manual.

11.9 Approved Outline

Instructors may use any additional text or materials that they feel help present these topics.

The following topics must be covered.

1. Diving Tables and Computers:
    a. History of dive tables and computers:
        i. No-decompression.
        ii. Use of the decompression schedule according to your computer.
        iii. Safety stops.
    b. Practical problem solving.
2. Equipment:
    a. Specialty equipment for deep dives:
        i. Cylinders, different sizes.
        ii. Regulators.
        iii. Buoyancy compensator device (BCD).
        iv. Lift bags.
        v. Reels.
        vi. Redundant gas supplies.
    b. Physics and physiology for deep divers:
        i. Special considerations for pressures greater than 3 atmospheres (ATA):
            1. Air consumption
            2. Carbon Dioxide (CO_2) factors.
            3. Nitrogen narcosis.
            4. Oxygen (O_2) toxicity.
            5. Decompression sickness.
3. Emergency Procedures for Deep Divers:
    a. Usage and techniques for safety cylinders.

b. Recompression chamber listing for area.

4. Review of First Aid:
    a. Oxygen (O_2) treatment.
    b. Treat for shock.

11.10 Required Skill Performance and Graduation Requirements

Students are required to successfully complete the following:

1. Open Water Dive 1:
    a. Test and check all equipment, i.e., depth gauges, bottom timers/watches and computers.
    b. Familiarization with area.
    c. Descend to planned depth and do not exceed any pre-planned limits.
    d. Dive according to plan at a depth limited to 30 Metres/100 Feet for the first dive.
    e. Monitor depth/time/air consumption, figure all times on slate.
    f. Monitor/test for nitrogen narcosis.
    g. Ascend to safety stop.
2. Open Water Dive 2:
    a. Monitor depth/time/air consumption, figure all times on slate.
    b. Descend to planned depth and do not exceed any pre-planned limits.
    c. Monitor/test for nitrogen narcosis.
    d. Execute a simulated emergency that is to be assigned underwater by the instructor.
    e. Dive according to plan at a depth limited to 40 Metres/130 Feet.
    f. Ascend to safety stop.

29. Wreck Diver

29.1 Introduction

Wreck diving can be one of the most exciting aspects of sport diving, however every effort must be made to maximize safe diving techniques. This course will discuss the equipment and techniques commonly employed while wreck diving. This course may be taught as a non-penetration, 2 dives required, or as a limited-penetration course, requiring 3 dives. Limited penetration is defined as a swim through or within the ambient light of entry point.

29.2 Who May Teach

An active SDI Instructor that has been certified to teach this specialty.

29.3 Student to Instructor Ratio

Academic:

1. Unlimited, so long as adequate facilities, supplies and time are provided to ensure comprehensive and complete training of subject matter.

Confined Water (swimming pool-like conditions):

1. N/A.

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

1. A maximum of 8 students per instructor; it is the instructor's discretion to reduce this number as conditions dictate.
2. During the penetration portion of the course, the student to instructor ratio drops to 2 to 1.

29.4 Student Prerequisites

1. SDI Open Water Scuba Diver or equivalent.
2. Minimum age 18, 15 for limited penetration course with parental consent.
3. Minimum age 10 with parental consent for a non-penetration course.
4. Junior Open Water Divers may not participate in any penetration activities or dives deeper than 18 Metres/60 Feet.
5. Divers must have a deep diver specialty certification or be able to provide proof of experience in order to dive deeper than 18 Metres/60 Feet in this course.

29.5 Course Structure and Duration

Open Water Execution:

1. Two dives are required with complete briefs and debriefs by the instructor.
2. The Dive plan must include surface interval, maximum no decompression time, etc. to be figured out and logged.
3. One additional dive must be conducted for a limited penetration certification.

Course Structure:

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

29.6 Administrative Requirements

Administrative Tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the schedule to the students.
4. Have the students complete the:
    a. *SDI Liability Release and Express Assumption of Risk* Form
    b. *SDI Medical Statement* Form.

Upon successful completion of the course the instructor must:

1. Issue the appropriate SDI certification by submitting the *SDI Diver Registration* Form to SDI Headquarters or registering the students online through member's area of the SDI website.

29.7 Training Material

Required Material:

1. *SDI Wreck, Boat and Drift* Diving Student Manual and I.Q. Review or eLearning.
2. *SDI Wreck, Boat and Drift* Diving Instructor Guide.

29.8 Required Equipment

1. Basic open water scuba equipment as described in section three of this manual.

2. Reel.
3. One audible and one visual signaling device.

29.9 Approved Outline

Instructors may use any additional text or materials that they feel help present these topics.

The following topics must be covered.

1. Motivating Statements:
    a. Why wreck dive.
    b. Potential benefits.
    c. Beauty.
    d. Mysteriousness.
    e. One man's trash is another man's treasure.
    f. It's fun.
2. Down lines and surface supports:
    a. Size.
    b. Material.
    c. Surface supports:
        i. Communications, when and if necessary.
        ii. Back-up procedures.
3. The Buddy System.
4. Buddy Contact:
    a. Contact with varied visibility.
    b. Buddy lines.
    c. Line signals.
    d. Buddy positioning in close proximity.
5. Navigation/Charting:
    a. Usage of the slate:
        i. Larger than normal.
        ii. Pre-dive marking.
    b. Pre-planning the dive using charts, other information.
    c. Directional determination.

6. Disorientation:
    a. With/without buddy.
    b. Lost buddy.
    c. Light failure.
    d. Emergency procedures.
7. Special Equipment:
    a. Lights:
        i. Primary and backup.
        ii. Size.
        iii. Burn time.
        iv. Usage.
    b. Knives and cutting devices.
8. Limited Visibility Diving:
    a. Silt-out.
    b. Psychological considerations.
9. Light usage:
    a. Importance of light and backup.
    b. Dark vision, do not shine light in buddy's eyes.
10. Lifelines and Reels:
    a. Type of line.
    b. Tie-offs.
    c. Directional markers.
    d. Line handling and reeling must be practiced on land prior to performing this skill underwater.
11. Special Emergency Procedures:
    a. Safe Wreck:
        i. As normal, but with considerations for lack of free access to the surface in some cases.
    b. Hazardous or otherwise unsafe wrecks:
        i. Must avoid.
        ii. Don't enter doors blocked.

iii. Entrance restrictions.

12. Mapping the Wreck:
    a. Vertical.
    b. Horizontal.
    c. Feature Identification.

29.10 Required Skill Performance and Graduation Requirements

Students are required to successfully complete the following. Dives 1 and 2 are for the non-penetration certification. In addition to dives 1 and 2, dive 3 is required for limited penetration certification; dive 4 is strictly optional for more experience.

1. Open Water Dive 1:
    a. Pre-dive review of dive computers.
    b. Plan dive, to include depth, time and gas consumption.
    c. Test lights.
    d. Familiarization with areas.
    e. Basic charting outside wreck.
    f. Usage of lines outside wreck, optional.
    g. Surface and log dive.
2. Open Water Dive 2:
    a. Plan dive, to include depth, time and gas consumption.
    b. Figure surface interval.
    c. Descend.
    d. Team complete mapping.
    e. Usage of lines outside wreck, optional.
    f. Surface and log dive.
3. Open Water Dive 3:
    a. a. Plan dive, to include depth, time and gas consumption.
    b. b. Descend.
    c. c. Usage of lines inside wreck, optional.
    d. d. Surface and log dive.
4. Open Water Dive 4 (Optional):

a. Plan dive, to include depth, time and gas consumption.
b. Planned dive explained.
c. Dive/explore as determined.
d. Surface and log dive.

10. Computer Nitrox Diver

10.1 Introduction

The SDI Computer Nitrox course is designed to teach open water divers how to use nitrox mixtures up to 40 percent with the aid of a nitrox programmable dive computer.

10.2 Qualification of Graduates

Upon successful completion of this course, graduates may conduct open circuit dives utilizing a dive computer with a single gas of no greater than 40 percent oxygen and not requiring decompression. The training program does not qualify divers to make dives which require mandatory in-water decompression stops or dives using more than one breathing gas and/or rebreathers.

10.3 Who May Teach

An active SDI Instructor that has been certified to teach this specialty. Proof of certification at the diver level is required to upgrade administratively or to take a specialty instructor course for this specialty.

10.4 Student to Instructor Ratio

Academic:

1. Unlimited, so long as adequate facilities, supplies and time are provided to ensure comprehensive and complete training of subject matter.

Confined Water (swimming pool-like conditions):

1. N/A.

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

1. N/A.

10.5 Student Prerequisites

1. SDI Open Water Scuba Diver, SDI Junior Open Water Scuba Diver, or equivalent.
2. Minimum age 18, 10 with parental consent.

10.6 Course Structure and Duration

Open Water Execution:

1. No dives are required.

Course Structure:

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

10.7 Administrative Requirements

Administrative Tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the schedule to the students.
4. Have the students complete the:
    a. *SDI Liability Release and Express Assumption of Risk* Form
    b. *SDI Medical Statement* Form..

Upon successful completion of the course the instructor must:

1. Issue the appropriate SDI certification by submitting the *SDI Diver Registration* Form to SDI Headquarters or registering the students online through member's area of the SDI website.
2. If taught in conjunction with the SDI Open Water course, the students should be registered as Open Water Scuba Divers prior to registering them as Computer Nitrox divers.

10.8 Training Material

Required Material:

1. *SDI Computer Nitrox* Manual and Knowledge Quest or online course.
2. *SDI Computer Nitrox* Digital Instructor Resource.

Suggested materials:

1. *SDI EAD* Table.

10.9 Required Equipment

1. Nitrox Cylinder.
2. Air cylinder for calibration.
3. Oxygen analyzer.
4. Sample nitrox log.

10.10 Approved Outline

Instructors may use any additional text or materials that they feel help present these topics. The following topics must be covered.

1. History of Enriched Air Nitrox (EAN).
2. Physiology:
    a. Oxygen (O_2).
    b. Nitrogen (N_2).
3. Equipment Considerations:
    a. Less than 40 percent oxygen content.
    b. More than 40 percent oxygen content.
4. Dive Computers:
    a. Mix adjustable.
    b. Air integrated.
    c. Nitrox programmable dive computer.
5. Advantages and Disadvantages:
    a. Use of nitrox for physiological advantage with a nitrox programmable dive computer.
    b. Use to extend no-decompression time or shorten surface intervals.
    c. Oxygen toxicity hazards and depth limits.
    d. Discussion of myths and facts regarding enriched air nitrox (EAN) mixtures.
6. Equivalent Air Depth (EAD):
    a. Introduction to the concept only for demonstration.
7. Procedures:
    a. Use and theory of oxygen analyzer.

b. Gas analysis and logging.

c. How to complete and sign a fill station's EAN fill log, including MOD and oxygen content.

10.11 Required Skill Performance and Graduation Requirements

Students are required to successfully complete the following:

1. Students must achieve a minimum score of 80% on the Knowledge Quest or online final exam with 100% remediation.
2. Analyze at least 2 nitrox cylinders and label cylinders in accordance with local practices and/or regulations.
3. Log at least 1 nitrox cylinder analysis to include: MOD and oxygen content.
4. Program a nitrox computer to a mix between 22-40 percent oxygen.