9. Computer Diver

9.1 Introduction

This course is designed to expand a diver's knowledge in the use of their personal dive computer (PDC) and is primarily intended for divers who are certified with agencies using traditional dive tables for planning, rather than PDCs throughout training.

9.2 Who May Teach

1. Any active SDI Open Water Scuba Diver Instructor
2. An SDI Assistant Instructor that has been certified to teach this specialty

9.3 Student to Instructor Ratio

Academic

1. Unlimited, so long as adequate facility, 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. 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 12 with the assistance of 2 active assistant instructors or divemasters

9.4 Student Prerequisites

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

9.5 Course Structure and Duration

Open Water Execution

1. Two dives are required with complete briefs and debriefs by the instructor
2. Dive plan must include surface interval, maximum no-decompression time, etc. to be figured out and logged

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 Deep Diver Specialty only

9.6 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 this specialty 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

9.7 Training Material

Required Material:

1. *SDI Deeper Diving With Dive Computers* Student Manual
2. *SDI Deeper Diving With Dive Computers* Scuba I.Q. Review
3. *SDI Deeper Diving With Dive Computers* Instructor Guide

9.8 Required Equipment

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

9.9 Approved Outline

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

1. Computers vs. Tables
   a. History of tables
   b. Computers advantages
   c. Different decompression models
2. Decompression Sickness
   a. Cause
      i. Tissue compartments
   b. Signs and symptoms
   c. Treatment
   d. First aid
   e. Prevention
3. Types of Diving Computers
   a. Air integrated
   b. Non-air integrated
   c. Features
      i. Start up
      ii. Display screen
      iii. Dive planner
      iv. Decompression planner
      v. Algorithm
      vi. Dive time
      vii. Max depth
      viii. No stop time
      ix. Ascent warning, audible or visual
      x. De-saturation time
      xi. Time to fly
      xii. Surface interval
      xiii. Altitude compensation
      xiv. Lighting
      xv. Battery life indicator
      xvi. Downloadable
4. How Dive Computers Work
   a. Decompression information in permanent memory
   b. Pressure transducer reads ambient pressure
   c. Internal clock records lapsed dive or surface time, updates frequently, usually every 3 seconds

      d. Information is calculated in the computer microprocessor during each update

      e. Information is displayed on screen

      f. User is responsible for interpreting information

5. Use of Dive Computers
   a. Always read manual first
   b. Start-up procedures
   c. Operating instructions
   d. Ascent rates
   e. Other information

6. Definitions
   a. Dive time
      Elapsed time from beginning of descent until final surfacing at end of dive
   b. Time remaining
      Available time, according to computer program, that diver may remain at current depth without incurring mandatory decompression; increases as depth decreases

7. Planning Multi-Level Repetitive Dives
   a. Dive planning mode
   b. First dive or repetitive dive

8. Only One Diver per Computer
   a. Very unsafe practice for two divers to attempt to monitor dive profiles with one computer

9. Emergency Procedures
   a. Decompression
      i. Decompression dives require additional training
   b. Omitted decompression
      i. Usually prevented by voluntary safety stop
      ii. Usually caused by failure to monitor air supply or computer
   c. Ascent rates
   d. Computers varying ascent rates determined by the manufacture
   e. Computer failure
      i. Make a normal ascent with a safety stop, then exit
      ii. If diver is dependent upon one dive computer for decompression data, they must remain out of water for 24 hours minimum before resuming diving after computer failure

9.10 Required Skill Performance and Graduation Requirements

Students are required to successfully complete the following:

1. Open Water Dive 1
    a. This dive must be conducted to a specified depth that is appropriate to the dive site
    b. Instructor and student must prepare a suitable multi-level profile for this dive
    c. It is important for the diver to monitor depth, buoyancy control, and air supply. For example, if the dive is projected for 21 metres / 70 feet maximum depth; the diver must then monitor his depth and not exceed the planned maximum depth
    d. An appropriate safety stop must be included at the end of the dive
2. Open Water Dive 2
    a. The second dive must be conducted in the same fashion as dive 1 with the exception that the dive profile is prepared by the student and submitted to the instructor for approval
    b. Monitor depth, buoyancy control, and air supply
    c. Post Dives
    d. After completing the 2 dives the students must download their computers if they have the capability
    e. Instructors must review this information with the students