Syllabus Number: 3.B.35/ BOD no 193 (05-05-2016)
CMAS Cave Diver 1 (Cavern Diver) Training Programme
Minimum Training Programme Content

1. Required theoretical knowledge

1.1 **Subject Area 1: Introduction**

1.1.1 The participant shall be provided with all necessary information concerning the CMAS Cave Diver 1 course in order to be able to make an informed decision about their participation in the CMAS Cavern Diver Training Programme.

1.1.2 The participant shall be provided with the information about the CMAS as provided in CMAS Cave Diver 1.

1.2 **Subject Area 2: Equipment**

1.2.1 The participant shall have an appropriate knowledge concerning the physical characteristics, operating principles, maintenance and use of the following items of specific diving equipment.

1.2.2 Specific Equipment

1.2.3 Primary cylinder - volume appropriate for planned dive and student gas consumption. Cylinder(s) w. total volume of min. 2000 bar*litres of air; mono-cylinder is acceptable. Students are permitted to use double cylinders. The 1/3 air rule must be adopted as a minimum.

1.2.4 Regulator with pressure gauge and alternate air source. The cylinders should have a valve for installing DIN regulators. Although not required, it is suggested that one regulator be mounted on a hose approximately two (2) meter of length.

1.2.5 Buoyancy Compensator with inflator.

1.2.6 Exposure suit adequate for cavern environment.

1.2.7 Mask and fins - NO snorkel. Mask should be low-volume; fins should be rigid, non-split.

1.2.8 One member per group has to have a second mask (backup mask) for the group.

1.2.9 At least one cutting device.

1.2.10 Safety spool with a minimum of twenty (20) meters of guideline.

1.2.11 One (1) primary reel with length appropriate for intended dive at least fifty (50) meters.

1.2.12 At least two (2) battery powered lights, of which one (1) uses non-rechargeable batteries, each with burn time suitable for the planned dive time.

1.2.13 Computer or watch (bottom timer) and depth gauge.

Note: Instructor must use full cave diving equipment during all water exercises. Prior to the commencement of class, students should consult with a CMAS representative to verify equipment requirements.

1.3 **Subject Area 3: Physics and theory of Cave Diver 1 (Cavern Diver)**

1.3.1 The participant shall have an appropriate knowledge concerning the physical principles and their application to Cavern Diving equipment and hazards relating to:

1.3.1.1 Policy for Cavern Diving:

1.3.1.2 Gas matching procedures and management in order to include dissimilar volume;

1.3.1.3 Psychological considerations.

1.3.1.4 Streamlining and equipment configuration: cylinder options, regulator options, buoyancy compensator / harness options, reel options;

1.3.1.5 Buoyancy control and body posture/trim;

1.3.1.6 Proper weighting;

1.3.1.7 Propulsion techniques;

1.3.1.8 Use of spool and reel, Line following;

1.3.1.9 Communication: hand signals, light signals, touch contact signals;

1.3.1.10 Physiology:

1.3.1.10.1 Breathing techniques;

1.3.1.10.2 Stress management;

1.3.1.11 Cavern environment:

1.3.1.11.1 Geology, bottom, ceiling;

1.3.1.11.2 Local access requirements; Land owner relations;

1.3.1.12 Cavern Conservation;

1.3.1.13 Problem Solving: emergency procedures, equipment failure, situational awareness;

1.3.1.14 Silting conditions;

1.3.1.15 Accident analysis;

1.3.1.16 Review of Dive Tables and Decompression Theory;

1.3.1.17 Cavern diving etiquette (*CMAS Cave Diver's Etiquette*).

1.4 **Subject Area 4: Land Drills and topics**

1.4.1 The following land drills must be covered during this course:

1.4.1.1 Basic Cavern Diver equipment configuration;

1.4.1.2 How to properly deploy a guideline;

1.4.1.3 How to properly follow a guideline;

1.4.1.4 How to communicate by touch contact.

2. Required SCUBA skills

2.1 The student must perform the following S-drill and skills during all dives:

2.1.1 Demonstrate adequate pre-dive planning;
2.1.2 Equipment check and gear matching;
2.1.3 Bubble check;
2.1.4 Demonstrate specialized propulsion techniques;
2.1.5 Demonstrate proper buoyancy control;
2.1.6 Demonstrate proper body posture;
2.1.7 Demonstrate proper stress analysis (detection and management).

2.2 The student must perform the following in-water skills during cavern dives:

2.2.1 Properly deploy a guideline;
2.2.2 Properly follow a guideline with eyes open and closed (simulating loss of visibility);
2.2.3 Gas sharing with a buddy with eyes open, following the guideline;
2.2.4 Gas sharing with a buddy with eyes closed and use touch contact, following the guideline;
2.2.5 Remove and replace mask while in contact with guideline;
2.2.6 Demonstrate light / hand-signals and touch-contact;
2.2.7 Explore cavern;
2.2.8 Referencing as back-up navigation;
2.2.9 Anti-silting techniques;
2.2.10 Simulate a light failure, deploy back up light and follow guideline.

Note: A minimum of four (4) cavern dives is performed in Zone 1. Special emphasis on the unique environment including silting, entanglement, disorientation.