

Syllabus Number: 3.B.37 / BOD no 193 (05-05-2016)
CMAS Cave Diver 3 (Full Cave) 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 Standard in order to enable them to make an informed decision about their participation in the CMAS Cave Diver 3 (Full Cave) Training Programme.
- 1.1.2 The participant shall be provided with all necessary information concerning the CMAS as provided for in the Standard.

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 Primary cylinders: Volume of min. 4800 bar*litres of breathing gas in doubles with manifold. The only valve allowed is the DIN type;
- 1.2.3 Two independent first and second stage regulators with minimum one pressure gauge on each cylinder set. One of the regulators equipped with a long hose at an approx. length of two (2) metres. The cylinders must have valves for installing DIN regulators;
- 1.2.4 Buoyancy Compensator with inflator;
- 1.2.5 Exposure suit adequate for cave diving environment;
- 1.2.6 Mask and fins - NO snorkel. Mask should be low-volume; fins should be rigid, non-split;
- 1.2.7 Every diver has to have a personal second mask (backup mask);
- 1.2.8 At least two (2) line cutting device (knife, cutter, scissors);
- 1.2.9 Three (3) battery powered lights – one (1) primary and two (2) back-ups/emergency lights (uses non-rechargeable batteries), each with a burn time suitable for the planned dive time;
- 1.2.10 Safety reel with a minimum of thirty (30) meters of guideline;
- 1.2.11 At least one (1) jump/gap reel per diver with at least twenty (20) meters of guideline;
- 1.2.12 One (1) primary cave-diving reel with length appropriate for intended dive at least hundred (100) meters;
- 1.2.13 Three (3) directional line arrows;
- 1.2.14 Three (3) non-directional line marker;
- 1.2.15 Dive computer;
- 1.2.16 Underwater slate/wet notes;
- 1.2.17 Backup dive computer or watch (bottom timer), dive tables and depth gauge;
- 1.2.18 The use of a helmet is per decision of the instructor.

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Note: Instructor must use full OC Cave Diving Equipment during all water exercises. For experience dives only the instructor is free to decide on the use of a rebreather. Prior to the commencement of class, students should consult with a CMAS representative to verify equipment requirements.

1.3 Subject Area 3: theory of CMAS Cave Diver 3 (Full Cave)

- 1.3.1 The participant shall have appropriate knowledge concerning the physical principles and their application to Cave Diving 3 (Full Cave) equipment and hazards relating to:
 - 1.3.1.1 Definitions of Cave Zones 1 to Cave Zones 3, CMAS Training Standards and safety rules for the safe exploration of Zones 2 and Zones 3;
 - 1.3.1.2 Gas matching procedures and management in order to include dissimilar volumes;
 - 1.3.1.3 Calculation of gas consumption and of required gas supply;
 - 1.3.1.4 Specific techniques and procedures such as organising tank deposits, requirements for long distance penetration, usage of stage tanks, mastering squeezes and post-sump diving;
 - 1.3.1.5 Communication: Hand signals, light signals, touch contact signals;
 - 1.3.1.6 Swimming Techniques:
 - 1.3.1.6.1 Trim & buoyancy control;
 - 1.3.1.6.2 Propulsion techniques;
 - 1.3.1.7 Special requirements of underwater orientation in caves;
 - 1.3.1.8 Deploying and Line following;
 - 1.3.1.9 Physiology:
 - 1.3.1.9.1 Breathing techniques;
 - 1.3.1.9.2 Stress management;
 - 1.3.1.10 Causes, symptoms and effects of nitrogen narcosis, oxygen toxicity and being short of breath;
 - 1.3.1.11 Decompression Theory and its application to cave diving.
 - 1.3.1.12 Cave environment:
 - 1.3.1.12.1 Geology: Bottom, ceiling;
 - 1.3.1.12.2 Local access requirements; Land owner relations.
 - 1.3.1.13 Cave mapping (cross-sections, distances, topology);
 - 1.3.1.14 Cave conservation;
 - 1.3.1.15 Problem Solving procedures;
 - 1.3.1.16 Organisation of further support actions and alarming of rescue squad;
 - 1.3.1.17 Execution of rescue activities in the cave and complete accident management;
 - 1.3.1.18 Accident analysis;
 - 1.3.1.19 Review of Dive Tables and Decompression theory. Fundamentals of how to use Nitrox with special focus on usage in caves;
 - 1.3.1.20 *CMAS Cave Diver's Etiquette.*

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Note: Minimum course duration five (5) days. Minimum course content five (5) classroom lectures five (5) hours per day.

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 Full Cave 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 touch contact communicate;
 - 1.4.1.5 Use of safety reel in lost diver procedures;
 - 1.4.1.6 Use of safety reel in lost line drill.

2. Required physical skills

- 2.1.1 Equipment check and gear matching;
- 2.1.2 Bubble check;
- 2.1.3 Demonstrate specialized propulsion techniques in varying types of flow;
- 2.1.4 Demonstrate proper buoyancy & trim control;
- 2.1.5 Demonstrate proper stress analysis (detection and management);
- 2.1.6 Properly deploy a guideline;
- 2.1.7 Properly use directional and non directional line markers;
- 2.1.8 Properly follow a guideline with eyes open and closed (simulating loss of visibility);
- 2.1.9 Air sharing with a buddy with eyes open, following the guideline;
- 2.1.10 Air sharing with a buddy with lights off, eyes closed and use touch contact, following the guideline;
- 2.1.11 Remove and replace mask while in contact with guideline;
- 2.1.12 Demonstrate light / hand -signals and touch contact;
- 2.1.13 Conservation and awareness techniques;
- 2.1.14 Referencing as back-up navigation;
- 2.1.15 Simulate a primary light failure, and use back light to exit the cave;
- 2.1.16 Demonstrate lost line and lost diver drills;
- 2.1.17 Demonstrate use of reels to perform jumps and gaps required in circuits and traverses to maintain a continuous guideline to open water and cave.

Note: Minimum eight (8) practical lessons in at least five (5) days. Minimum of eight (8) dives are performed in Zone 3 in a minimum of three (3) different caves. These dives are intended to bring together all aspects and facets of preceding training and experience.

The skills evaluation is done within the framework of a continuous evaluation system. All required qualifications will be repeatedly evaluated during the training course. The certificate will only be given at the point when the candidate has finally passed all requirements.

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