

20. Full Cave Diver

20.1 Introduction

This course is the third stage of training in the series of TDI's Cave Diver development program. Advanced cave dive planning, the practical execution of different types of cave systems and scenarios divers encounter are presented. This cave diving course is not intended to prepare divers for evaluating all facets of cave diving. The objective of this course is to expand and critique previous skills accomplished in the TDI Cavern and Intro to Cave Diving programs. Emphasis is placed upon dive planning and skill perfection through actual cave penetration.

20.2 Qualifications of Graduates

Upon successful completion of this course, graduates may engage in cave diving activities without direct supervision provided the graduates adhere to the following limits:

1. Penetration is limited to the 1/3 air rule.
2. 40 Metres/130 Feet maximum depth.
3. No equipment removal in cave.
4. Safety and decompression stops as appropriate or necessary if trained as TDI Decompression Procedures Diver or equivalent.
5. Maintain a continuous guideline.
6. Proper cave diving equipment is used.

20.3 Who May Teach

Any active TDI Full Cave Diving Instructor may teach this course.

20.4 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.

Cave Dives:

1. A maximum of 3 students per instructor; it is the instructor's discretion to reduce this number as conditions dictate.

20.5 Student Prerequisites

1. Minimum age 18.
2. Minimum certification as a TDI Introductory Cave Diver or TDI Mine Diver Level 1 or equivalent.
3. If Decompression dives are to be conducted in training, the student must be TDI Decompression Procedures certified, or this training may be conducted concurrently. If courses are taught concurrently, ALL requirements for both courses must be met, and registrations processed upon completion. If courses are taught concurrently, the more conservative depth limit is to be followed.

20.6 Course Structure and Duration

Open Water Execution:

1. 8 cave dives are required with a minimum accumulated bottom time of 240 minutes at 3 different sites.
2. At least 1 of these sites should be a location not utilized in training during the cavern or introductory cave courses.
3. For divers entering the cave program without cavern/introductory cave diving certification, 16 cave dives with 420 minutes of total bottom, not including decompression time, are required.

Course Structure:

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

Duration:

1. The suggested number of classroom and briefing hours is 6.
2. The Course must be taught in no less than 4 days.
3. If the TDI Cavern, Intro to Cave, and Full Cave courses are taught consecutively, the combined courses must be at least 7 days long.

Upgrade:

1. A diver who is certified as a TDI Mine Diver Level II or equivalent may upgrade to TDI Full Cave Diver by completion of all required subject areas and demonstration of all required skills over a minimum of 4 cave dives at two different sites with a total bottom time of at least 120 minutes over a minimum of 2 days.

20.7 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. *TDI Liability Release and Express Assumption of Risk* Form.
 - b. *TDI Medical Statement* Form.

Upon successful completion of the course the instructor must:

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

20.8 Training Material

The following are the required for this course:

1. *TDI Diving in Overhead Environments* Manual (or TDI Overhead eLearning course).
2. *TDI Diving in Overhead Environments* Instructor Guide.

Other suggested reading materials:

1. Basic Cave Diving – A Blueprint for Survival.
2. Cavern Measureless to Man.

20.9 Required Equipment

The following equipment is required for each student:

1. Dual cylinders, volume appropriate for planned dive, student gas consumption.

2. Two independent first and second stage regulators; one regulator equipped with a long hose.
3. Submersible pressure gauge.
4. Buoyancy compensator device (BCD) with power inflator.
5. Exposure suit adequate for diving environment.
6. Mask and fins.
7. Two line cutting devices.
8. Three battery powered lights; 1 primary and 2 back-ups, each with a with burn time suitable for the planned dive time.
9. Two safety reels/spools with a minimum of 37 Metres/125 Feet of guideline.
10. One primary reel for the team with length appropriate for intended dive.
11. Computer, watch or bottom timer and depth gauge.
12. Slate or wet notes with a pencil.
13. Submersible dive tables or back up dive computer.
14. Three directional line arrows.
15. One non- directional line marker.
16. Reel(s)/spool(s) with sufficient guideline for planned jump(s) or gap(s).
17. It is recommended that the team properly mark decompression cylinders and stage them, in any dive where decompression is planned, at least 1 stop deeper than the planned decompression obligation.

Instructor must use full cave diving equipment during all water exercises.

20.10 Required Subject Areas

The following topics must be covered during this course:

1. Policy for Cave Diving.
2. Gas Matching Procedures and Management to Include Dissimilar Volumes.
3. Psychological Considerations.
4. Equipment Considerations:
 - a. Cylinder options.
 - b. Regulator options.
 - c. Buoyancy compensator device/ harness options.

- d. Reel options.
 - e. Proper weighting.
 - f. Equipment configurations.
- 5. Communication:
 - a. Hand signals
 - b. Light signals
 - c. Touch contact signal
- 6. Swimming Techniques:
 - a. Body posture/ trim.
 - b. Buoyancy control.
 - c. Line following.
 - d. Propulsion techniques.
- 7. Physiology:
 - a. Breathing techniques.
 - b. Stress management.
 - c. Decompression theory and its application to cave diving.
- 8. Cave Environment:
 - a. Geology:
 - i. Bottom.
 - ii. Ceiling.
 - b. Local access requirements.
 - c. Landowner relations.
- 9. Conservation.
- 10. Problem Solving:
 - a. Emergency procedures.
 - b. Equipment failure.
 - c. Silting conditions.
- 11. Accident Analysis.
- 12. Review of Dive Tables and Decompression Theory.
- 13. Cave Diving Etiquette.

20.11 Required Skill Performance and Graduation Requirements

The following land drills must be covered during this course:

1. How to properly deploy a guideline.
2. How to properly follow a guideline.
3. Use of safety reel in lost diver procedures.
4. Use of safety reel in lost line drill.

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

1. Demonstrate adequate pre-dive planning.
2. Equipment check, and equipment matching.
3. Bubble check.
4. Demonstrate specialized propulsion techniques in varying types of flow.
5. Demonstrate proper buoyancy control.
6. Demonstrate proper body posture.
7. Demonstrate proper stress analysis (detection and management).

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

1. Properly deploy a guideline.
2. Properly use directional and non-directional line markers.
3. Properly follow a guideline with eyes open and closed (simulating loss of visibility).
4. Air share with a buddy with eyes open, following the guideline.
5. Air share with a buddy with lights off or simulating lights off, using touch contact, following the guideline.
6. Remove and replace mask while in contact with guideline.
7. Demonstrate light/hand -signals and touch contact.
8. Conservation and awareness techniques.
9. Referencing as back-up navigation.
10. Demonstrate adequate anti-silting techniques.
11. Simulate a primary light failure and use back-up light to exit the cave.

12. Demonstrate lost line and lost diver drills.
13. Demonstrate use of reels to perform jumps and gaps required in circuits and traverses to maintain a continuous guideline to open water.

In order to complete this course, students must:

1. Satisfactorily complete the TDI Cave Diver Course written examination.
2. Perform all land drills and cave dive requirements safely and efficiently.
3. Demonstrate mature, sound judgment concerning dive planning and execution.
4. Maintain an appropriate level of awareness and respect for the cave environment.
5. Log all dives.